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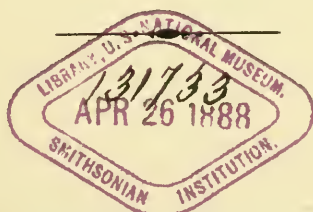
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No. 29

OF THE

UNITED STATES NATIONAL MUSEUM.

PUBLISHED UNDER THE DIRECTION OF THE SMITHSONIAN INSTITUTION.



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1885.

## ADVERTISEMENT.

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This work (Bulletin No. 29) is the thirty-ninth of a series of papers intended to illustrate the collections of natural history and ethnology belonging to the United States, and constituting the National Museum, of which the Smithsonian Institution was placed in charge by the act of Congress of August 10, 1846.

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

The publications of the National Museum consist of two series—the Bulletins, of which this is No. 29, in continuous series, and the Proceedings, of which the eighth volume is now in press.

The volumes of Proceedings are printed, signature by signature, each issue having its own date, and a small edition of each signature is distributed to libraries promptly after its publication.

From time to time the publications of the Museum which have been issued separately are combined together and issued as volumes of the Miscellaneous Collections. These are struck off from the stereotype plates from which the first edition was printed, and in this form are distributed by the Smithsonian Institution to libraries and scientific societies throughout the world. Volume 13 of these collections includes Bulletins 1 to 10 inclusive; volume 19, volumes 1 and 2 of the Proceedings; volume 22, volumes 3 and 4 of the Proceedings; and volume 23, Bulletins 11 to 15 inclusive.

Full lists of the publications of the Museum may be found in the current catalogues of the publications of the Smithsonian Institution.

SPENCER F. BAIRD,

*Secretary of the Smithsonian Institution.*

SMITHSONIAN INSTITUTION,

*Washington, August 20, 1885.*

RESULTS

OF

ORNITHOLOGICAL EXPLORATIONS

IN

THE COMMANDER ISLANDS AND IN KAMTSCHATKA.

BY

LEONHARD STEJNEGER.

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WITH NINE PLATES.

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WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1885.





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## PREFATORY NOTE.

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The following work has been divided into three parts: (1) a review of the species of birds collected or observed by me on the Commander Islands and at Petropaulski, Kamtschatka; (2) a synopsis of the birds reported to inhabit Kamtschatka, and (3) conclusions. The first and third parts are eminently the "results of my explorations", while the second part is more the "results of my investigations"; however, as it is a necessary base for the "conclusions" it has been thought desirable to incorporate it, the more so since it is the first attempt of a complete list of the birds known to have been observed in Kamtschatka.

The systematical nomenclature will be found to deviate not inconsiderably from the one usually adopted in the publications treating of the region in question. The reason is a two-fold one, for in *identifying* the birds I have been anxious not to lump together nearly-related forms, representative species, subspecies, local races, migrating-route races, or whichever they are termed, giving the separation the benefit of the doubt whenever there be a doubt, it being my scientific creed that this is the least harmful course. In *naming* the forms thus identified I have strictly adhered to the rules laid down by the "American Ornithologists' Union." For changes in nomenclature of that origin I am, therefore, only partly responsible, and eventual critics should not charge against me "the pleasure of bringing forward" these changes, which are the necessary results of the consistent application of the only sound principle upon which a scientific nomenclature can be based. The systematical arrangement is that which I proposed in "Science Record" 1884, p. 155, with a few modifications.

The measurements are given in millimeters. The "total length" is measured by laying the fresh bird on its back on the table in a natural position without stretching its neck, marking the tips of the bill and of the tail on the table, and measuring the distance between the two points. The length of the "tail feathers" is given instead of that of the "tail," the measure being taken by thrusting one arm of the dividers between the two central tail-feathers to their insertion, measuring from that point to

the tip of the longest rectrix. The other dimensions have all been taken with sharply-pointed dividers, the arms of which were about 150<sup>mm</sup> long; dimensions too long to be measured with those were taken by a steel tape measure.

Careful attention has been given to the color of the soft parts which have been recorded only when they could be described from the perfectly fresh bird, and were invariably noted down before skinning it.

Whenever the sex is recorded it has been determined anatomically by myself, except in a few cases where it was determined in a similar way by others, in which case it has been included in parenthesis. In no instance is the sex given from external characters.

For some species a full synonymy has been given, but in most cases only such authors are quoted who have treated of the birds of Kamtschatka and surrounding regions, both on the Asiatic and the American side, directly and particularly. References to general works are therefore only seldom met with. Whenever it has been impossible for me personally to verify a quotation the number of the page has been given in parenthesis. In most cases these have been compared with the citations of several authors, but the present writer disclaims any responsibility for figures thus designated, seeing how generally errors are perpetuated and dispersed by copying references without verifying them.

I have to acknowledge thankfully the aid I received from every person with whom I came into contact during my explorations in that remote corner of the world. It is especially a pleasure to me to mention the many valuable additions to my collection kindly placed in my hands by Governor N. Grebnitski, who, not only during my sojourn on the islands, assisted me in every possible way, but also later sent me a fine series of birds brought together during the year 1883-'84. Captain Hunter, an American gentleman, now residing in Petropaulski, also presented me with a box containing Kamtschatkan birds, and to Mr. John Malavanski my thanks are due for kind assistance in procuring specimens from the neighborhood of Petropaulski while I was away on the islands. To Mr. Carl Osche's skill as a hunter many of the rarer specimens are due, and many of the natives took pride and pleasure in bringing me desirable objects. The officers of the steamer "Alexander", belonging to Messrs. Hutchinson, Kohl, Philippeus & Co., as also the agents of this firm, did all in their power to insure my success. It may also be but just to mention the benefit I derived from Dr. Dybowski's suggestions and communications during the first summer.



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I.—REVIEW OF THE SPECIES OF BIRDS COLLECTED OR  
OBSERVED BY ME ON THE COMMANDER ISLANDS AND  
AT PETROPAULSKI, KAMTSCHATKA, 1882-1883.

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## ORDER CECOMORPHÆ.

### Superfamily COLYMOIDEÆ.

#### Family COLYMBIDÆ.

##### 1. *Colymbus holbœllii* (REINHARDT).

- 1827.—*Podiceps rubricollis* BONAP., Spec. Comp., p. 75 (*nec* GMEL., 1788).—SWINH., P. Z. S., 1863, p. 322.—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 93.—BLAKIST., Amend. List B. Jap., p. 23 (1884).
- 1849.—*Podiceps rubricollis major* TEMM. & SCHLEG., Faun. Jap. Av. (pl. 78 B), (*nec* *P. major* (BODD.), 1783).—*P. suberistatus* var. *major* DYBOW., J. f. Orn., 1868, p. 339.
- 1853.—*Podiceps holbœllii* REINHARDT, Vidensk. Meddel., 1853 (p. 76).—NELSON, Cruise Corwin, p. 114 (*polbœlli!* err. typ.) (1883).
- 1858.—*Podiceps griseigena* LAWR., in Baird's B. N. Amer., p. 892 (*nec* BODD., 1783).—DALL and BANNIST., Tr. Chicag. Acad., I, 1869, p. 308.—FINSCH, Abh. Brem. Ver., III, 1872, p. 76.—COUES, in Elliott's Af. Alaska, p. 201 (1875).—ELLIOTT, Monogr. Seal Isl., p. 133 (1882).
- 1858.—*Podiceps cooperi* LAWR., in Baird's B. N. Amer., p. 893.—FINSCH, Abh. Brem. Ver., III, 1872, p. 75.
- 1858.—*Podiceps suberistatus* KITTL., Denkw., II, p. 313 (*nec* JACQ., 1784).—SCHRENCK, Reis. Amurl., I, p. 493, pl. 15, fig. 3 (1860).—RADDE., Reis. Süd. Ost-Sibir., II, (p. 381) (1863)—PRZEW., Putesch. Ussur. (n. 219) (1870).
- 1866.—*Podiceps affinis* SALVADORI, Atti Soc. Ital. Sc. Nat., VIII, 1866 (p. 45).
- 1874.—*Podiceps cucullatus* TACZAN., J. f. Orn., 1874, 336 (*nec* PALL. 1826).—*Id.*, *ibid.* 1875, p. 257.—*Id.*, *ibid.*, 1876, p. 203.—*Id.* Orn. Faun. Vost. Sibir., p. 72 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 49.—*Id.*, *ibid.*, 1883, p. 245.

The large Eastern Asiatic representative of *Colymbus griseigena* BODD. is usually designated by the name *C. cucullatus* PALL.\* An examination of Pallas's account of the latter in his Zoographia Rosso-Asiatica, renders plain that he only had the European and West Siberian form before him, and that consequently the name becomes only a synonym of *griseigena* proper.

In the first place about the habitat. He says: "In Rossiā et Sibiriā

\* Taczanowski writes persistently "*P. cucullatus* LATH." I have not been able to find such a name in Latham's writings.

lacubus non infrequens, præsertim per campos Ischimenses et Barabenses copiosior. Borealiores regiones vix videtur adire." No special mention is made of its occurrence in Eastern Asia, and to any one familiar with Pallas's work and the explicit way in which he describes the habitat of birds also found in that region the above reference is ample proof that Pallas did not know of its occurrence in Eastern Siberia. The description of the colors applies just as well to one form as to the other, and needs therefore no further consideration. But not so the measurements. He gives the total length as 15 inches 7 lines, wing as 6 inches 7 lines, tarsus 1 inch 9 lines, outer toe 2 inches 8 lines; while the eastern form has these corresponding dimensions, 20 inches, nearly 8 inches,  $2\frac{1}{2}$  inches, and 3 inches, while his measurements agree closely with those of European birds. The length of "rostrum" is given as 2 inches, which probably means the length along the commissure, which in the eastern form is more than  $2\frac{1}{2}$  inches long.

This disposes of Pallas's *cucullatus*.

Mr. Severzow suggests that the so-called *C. longirostris* Bp., of which specimens are known from Italy, may possibly belong to the East-Asiatic form, having straggled as far as Italy. Th. Salvadori has left us a good account of a specimen of the Italian bird accompanied by measurements. (Catal. Ucc. Sardegna, p. 136, Milan, 1864.) Judging from what he says, the Mediterranean form must be something entirely different, however.

In the first place he describes the bill as different from that of *grise-gena* by being recurved like that of "*P. auritus* LATH.\*" \* "verso l'apice rivolto in alto come nel *P. a.*") a feature not at all shared by the East Siberian form. Finally his measurements indicate quite different proportions. With a bill of excessive length it combines general dimensions inferior to those of the eastern form, although somewhat larger than the common European bird, as a comparison of his measurements, as given below, with those of eastern birds in the appended table of dimensions clearly proves. Here are the measurements of the specimens in the museum at Cagliari as given by Salvadori: Commissure, 88<sup>mm</sup>; exposed culmen, 76<sup>mm</sup>; from tip of bill to anterior border of nostrils, 63<sup>mm</sup>; tarsus, 60<sup>mm</sup>; outer and middle toes, 72<sup>mm</sup>; wing, 180<sup>mm</sup>. The name *C. longirostris* Bp. is not tenable, however, as the Sardinian bird certainly is distinct from Bonnaterre's *C. longirostris* of 1790 (Enc. Meth. Orn.,

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\* *Nec* LIN. Is the same as *Colymbus nigricollis* BREHM.

I, p. 54), which, having a bill "*d'environ deux pouces,*" cannot be anything but the common European form. In that case it will be necessary to give the Sardinian bird a new name. It might fitly be called *Colymbus salvadorii*.\*

A comparison of my specimen from Eastern Asia with a good series of typical *grisegena* from Europe and typical *holbællii* from North America has convinced me that they really belong to the latter form. My material indicates no intergradation, and none has been reported so far as I know, so that a trinomial like *Colymbus grisegena holbællii* seems totally unwarranted for the present at least.

In my private collection is a specimen collected by Dr. Dybowski, at the Bay of Abrek, Premorskoj Government, Eastern Siberia, of which measurements are included in the appended table:

Table of measurements.

Collection.	Museum No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Exposed culmen.	Commissure.	Tarsus.	Outer toe with nail.
U. S. Nat. Mus . . .	92918	1752	Bering Island	1882. Nov. 24	♀	mm. 462	mm.	mm.	mm.	mm.	mm.
Stejneger . . . . .	707	.....	Bay of Abrek.	1875. June 23	♂ ad.	(522)	208	48	68	67	76

No. 92918.—Iris, light orange yellow; bill, greenish yellow, at base tinged with reddish brown; culmen and nasal fossæ blackish brown, becoming paler toward the tip; naked skin of mental angle greenish yellow. Inner aspect of feet greenish yellow, shaded with dark on the joints; lobes orange-colored next to the toes; outer aspect, and toes below, blackish. Stomach filled with a green mass, chiefly consisting of feathers, however.

The Great Red-necked Grebe does not appear at the islands, except as a rare straggler. A single specimen was taken at Saranna, Bering Island, late in November, 1882.

\* The synonymy of the typical *Colymbus grisegena* will stand as:

- 1783.—*Colymbus grisegena* BODD., Tabl. Pl. Enl., p. 55 (Ed. Teget.).  
 1784.—*Colymbus subcristatus* JACQ., Beitr. Gesch. Vög., p. 37.  
 1786.—*Colymbus parotis* SPARRM., Mus. Carls. (pl. 9).  
 1787.—*Podiceps ruficollis* LATHAM, Syn. Suppl., I, p. 294.  
 1788.—*Colymbus rubricollis* GMEL., Syst. Nat., I, 2, p. 592.  
 1790.—*Colymbus longirostris* BONNAT., Enc. Meth. Orn., I, p. 54 (nec Br.).  
 1826.—*Colymbus cucullatus* PALL., Zoogr. Ross. As., II., p. 355.  
 1831.—*Podiceps canogularis* BREHM, Handb. Vög. Deutschl., p. 958.



2. *Colymbus auritus* LIN.

- 1758.—*Colymbus auritus* LIN., Syst. Nat., 10 ed., I, p. 135.—*Podiceps a.* WHITELEY, Ibis 1867, p. 209.—*Dytes a.* NELSON, Cruise Corwin, p. 114 (1883).
- 1788.—*Colymbus cornutus* GMEL., Syst. Nat., I, p. 591 (*nec* PALLAS, 1826).—*Podiceps c.* MIDDEND., Sibir. Reis., II, 2 (p. 238), (1853).—SCHRENCK, Reis. Amurl., I., p. 492.—RADDE, Reis. Süd. Ost-Sibir., II (p. 381).—SWINH., P. Z. S., 1863, p. 322.—*Id.*, *ibid.*, 1871, p. 415.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 308.—FINSCH, Abh. Brem. Ver., III, 1872, p. 76.—TACZAN., J. f. Orn., 1873, p. 1108.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, *ibid.*, 1876, p. 203.—*Id.*, Orn. Faun. Vost. Sibir., p. 72 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 49.—BLAKIST. & PRYER, Ibis, 1878, p. 211.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 181.—*Id.*, *ibid.*, X, 1882, p. 92.—SEEB., Ibis, 1879, p. 21.—*Id.*, *ibid.*, 1882, p. 369.—HARTLAUB, J. f. Orn., 1883, p. 284.—BLAKIST., Amend. List B. Jap., p. 8 (1884).

The Horned Grebe is of rare occurrence on the islands, probably only an accidental straggler and not a regular migrant. It certainly does not breed there anywhere. The only evidence of its occurrence which I possess is a skeleton which one of the natives had made several years ago from a specimen obtained at Bering Island.

This specimen, No. 17273 of the osteological collection of the United States National Museum (L. Stejneger, No. 1952) measures as follows: Bill along commissure, 29<sup>mm</sup>; tarsus, 43<sup>mm</sup>.

## Superfamily ALCOIDEÆ.

## Family URINATORIDÆ.

3. *Urinator adamsii* (GRAY).

- 1835.—*Colymbus glacialis* ROSS, Narr. Voy. N. W. Pass., p. — (*nec* LIN.).—MIDDEND., Sibir. Reis., II, 2, p. 238 (*part*).
- 1836.—*Colymbus hiemalis* WIEGM., Arch. Naturg., 1836, p. 200 (*nec* BREHM).
- 1859.—*Colymbus adamsii* G. R. GRAY, P. Z. S. 1859, p. 167.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 308.—FINSCH, Abh. Brem. Ver., III, 1872, p. 72.—SWINH., Ibis, 1877, p. 146.—SEEB., Ibis, 1879, p. 22.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 181.—*Id.*, *ibid.*, X, 1882, p. 94.—NELSON, Cruise Corwin, p. 114 (1883).—TACZAN., Bull. Soc. Zool. France, 1883, p. 345.—BLAKIST., Amend. List B. Jap., p. 33 (1884).
- 1872.—*Colymbus torquatus* var. *adamsii* COUES, Key, p. 334.

The White-billed Loon is a winter visitor to the Commander Islands of rather rare occurrence, but at least one was observed by me, apart from the one specimen I obtained for my collection.

This was caught in a rather curious manner. It was found sitting on the smooth ice of Lake Saranna (November 25, 1882), unable to run upon or lift from the glib surface. It evidently had mistaken the transparent and shining ice for open water.—Ritter v. Tschusi-Schmidhofen re-

lates a similar mistake on the part of a flock of coots, *Fulica atra* L. (Cf. Journ. f. Orn., 1874, p. 343).

This species is distinguished by the natives from the following as "Bolschoj Gagara."

The specimen measures as follows :

♀ jun. U. S. Nat. Mus., No. 92916; L. Stejneger, No. 1753. Bering Island, November 25, 1882.

Total length, 777<sup>mm</sup>; wing, 355<sup>mm</sup>; tail-feathers, 65<sup>mm</sup>; exposed culmen, 71<sup>mm</sup>; commissure, 102<sup>mm</sup>; bill from tip to posterior border of nostrils, 62<sup>mm</sup>; height of bill at fore border of nostrils, 22<sup>mm</sup>; tarsus, 90<sup>mm</sup>; outer toe, with claw, 121<sup>mm</sup>. Weight, 5½ pounds.

*Remarks.*—Iris brown. Bill light bluish gray, towards base somewhat violet; culmen and tomia blackish. Outer aspect of feet blackish brown; inner aspect bluish white, with dark brownish gray on the joints, on the two inner phalanges of the outer toe, and on the webs along the outer and middle toes.

The stomach did not contain anything but half a dozen stones of the size and shape of beans.

The specimen is a bird of the year, but can nevertheless, without doubt, be referred to *adamsii*. In the adult winter-plumage this species and *imber* are readily distinguishable by the bill, which in the latter is shorter than the tarsus, while in the former it is longer. This cannot be done so easy in the young of the year, however, as at that age the bill has not yet reached its full and final length. The feet, on the other hand, are already of the same size as those of the adult, while the height of the bill is also much greater than in the corresponding age of *imber*, so that the young *adamsii* may be identified by the very large feet and the high bill, features which are very pronounced in the specimen collected by me. The average length of the tarsus in *adult imber* measures about 78<sup>mm</sup>; the same dimension in my young bird is 90<sup>mm</sup>; in the former the average length of the outer toe with claw is 111<sup>mm</sup>, against 121<sup>mm</sup> in the Bering Island specimen. As to the young of *imber* the height of the bill is about 16 to 18<sup>mm</sup>, against 22<sup>mm</sup> in my bird, which in that respect even exceeds the old *U. imber*.

#### 4. *Urinator lumme* (GUNN.).

1761.—*Colymbus lumme* GUNN., Act. Nidr. I, pl. ii, fig. 2.—*Urinator l.* TURNER, Auk, 1885, p. 159.

1764.—*Colymbus stellatus* BRÜNN., Orn. Bor., p. 39.

1764.—*Colymbus borealis* BRÜNN., Orn. Bor., p. 39.

1766.—*Colymbus septentrionalis* LIN., Syst. Nat., 12 ed., I, p. 220.—MIDDEND., Sibir. Reis. II, 2 (p. 329), (1853).—KITTL., Denkw., II, p. 282, (1858).—SCHRENCK, Reis. Amurl., I, p. 496, (1860).—RADDE, Reis. Süd. Ost-Sibir., II, (p. 382), (1863).—SWINH., P. Z. S., 1863, p. 322.—*Id.*, *ibid.*, 1871, p. 415.—*Id.*, Ibis, 1863, p. 433.—*Id.*, *ibid.*, 1874, p. 163.—WHITELY, Ibis, 1867, p. 208.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 307.—FINSCH, Abh. Brem. Ver., III, 1872, p. 75.—DALL, Avif. Aleut. Isl. west Unal., p. 10 (1874).—TACZAN.,

- Orn. Faun. Vost. Sibir., p. 73 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 50.—*Id.*, *ibid.*, 1882, p. 398.—BLAKIST. & PRYER, Ibis, 1878, p. 211.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 181.—*Id.*, *ibid.*, X, 1882, p. 94.—NELSON, Cruise Corwin, p. 115 (1883).—HARTLAUB, J. f. Orn., 1883, p. 284.—BLAKIST., Amend. List B. Jap., p. 8 (1884).—*Cepphus s. PALLAS*, Zoogr. Ross. As., II, p. 342 (1826).—*Eudytes s. NORMANN*, in Erman's Verzeichn. Thier. Pflanz., p. 18 (1832).
- 1774.—*Colymbus glacialis* Phipps, Voy. North Pole, p. — (*neo* LIN.).—SWINHOE, Ibis, 1860, p. 67.—*Id.*, *ibid.*, 1861, pp. 268, 345, 410.
- 1783.—*Colymbus immer* BODD., Tabl. Pl. Enl., p. 58 (Ed. Teg.) (*neo* BRÜNN., 1764).
- 1788.—*Colymbus striatus* GMEL., Syst. Nat., I, 2, p. 586.
- 1810.—*Colymbus rufogularis* MEY. & WOLF, Taschenb. Deutsch. Vogelk., II, p. 453.
- 1826.—*Colymbus mülleri* BREHM, Isis, 1826, p. 984.
- 1831.—*Colymbus stellaris* LESSON, Traité d'Orn., p. 637.
- 1855.—*Colymbus microrhynchos* BREHM, Naumannia, 1855, p. 300.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Sex and age.	Locality.	Date.	Wing.	Tail feathers.	Expos. culmen.	Tarsus.	Outer toe with claw.	Total length.
89118	1147	♀ ad.	Bering Island.....	1882. June 3	mm. 155	mm. 48	mm. 50	mm. 72	mm. 88	mm. 605
92917	1398	juv.	.....do .....	Aug. 5	.....	.....	.....	.....	.....	490

No. 89118.—Iris reddish brown. Bill black, culmen yellowish gray, lighter towards the base.

No. 92917.—Iris dark hazel. Bill light bluish gray, culmen blackish. Feet bluish white; outer aspect, webs along the toes, and joints blackish.

The "*Gagara*" occurs very abundantly on Bering Island during the summer. Even on very small ponds a breeding pair is regularly found, and on the greater lakes several pairs take up their quarters, not in company, however, but each pair by itself, occupying its own corner of the lake.

On Copper Island suitable localities are very scarce, but in a few places they breed, nevertheless. Thus, on July 30, 1883, I found a pair at Pestschanoj Ozero, a few miles from the village.

They appear in spring rather late, as the first ones were observed about the 1st of May, the bulk not arriving before the 7th (1883). Fresh eggs were taken on June 2, 6, and 21. These measure as follows:

U. S. Nat. Mus. No.	Stejn. No.	Lg. diam.	Sh. diam.
		mm.	mm.
21778	1146	77.5	46
21779	2195	76	46
21780	2198	72	47

## Family ALCIDÆ.

5. *Uria lomvia arra* (PALL).

- 1822.—*Uria brunnichii* CHORIS, Voy. Pittor., Aléout., pl. xxi (*nec* SAB.)—BLAKIST. & PRYER, Ibis, 1878, p. 211.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 180.—*Id.*, *ibid.*, X, 1882, p. 91.—SEEB., Ibis, 1882, p. 369.—BLAKIST., Amend. List B. Jap., p. 32.
- 1826.—*Cephus arra* PALL., Zoogr. Ross. As. II, p. 347.—*Uria a.* CASSIN, Pr. Philada. Acad., 1862, p. 324.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 309.—TACZAN., Bull. Soc. Zool. France, 1882, p. 398.—STFJNEGER, Naturen, 1884, p. 54.—*Lomvia a.* COUES, in Elliott's Aff. Alaska, p. 211.—ELLIOTT, Monogr. Seal Isl., p. 135 (1882).—NELSON, Cruise Corwin, p. 117 (1883).
- 1826.—*Cephus lomvia* PALL., Zoogr., Ross. As., I, p. 345 (*part*).—TACZAN., Orn. Faun., Vost. Sibir., p. 74 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 51.
- 1832.—*Uria troile* KITTL., Isis, 1832, p. 1104 (*nec* LIN.).—*Id.*, Denkw., I, p. 302; II, p. 224 (1858).—FINSCH, Abh. Brem. Ver., III, 1872, p. 78.
- 1884.—*Uria lomvia arra* RIDGW. in B. Br. & Ridgw. Water B. N. Amer., II, p. 485.—TURNER, Auk, 1885, p. 159.

Dr. Cones, in his Monograph of the *Alcidæ*, places *Cephus lomvia* of Pallas, with a query as a synonym under *Lomvia californica*, and remarks that "it is possible that this species rather than *troile* is alluded to by Pallas under the name of *Cephus lomvia*" (Pr. Philada. Acad. 1868, pp. 79 and 80). Of the thick-billed Guillemot, from the Pribilof Islands, he says: "This bird is, of course, the true *arra* of Pallas" (Elliott's Aff. Alaska, p. 211).

But Pallas's birds are not so easily disposed of, as an inspection of his descriptions will show. It will be borne in mind that the chief distinction between the two Pacific forms is to be found in the bill, the one having a thick, robust beak, with dilated and naked tomia at the base of the upper mandible, while in the other the bill is slender, weak, and feathered along the base of the maxillar edge, the latter form being Bryant's *californica*.

Pallas gives a comparison of the bills of the two forms, described by him as *lomvia* and *arra* (Z. R. A., II, p. 347) in which he says: "Contra in *Lomvia* Camtschatica angulus rostri frontalis obsolete canaliculatus et carina sulco excavata [*scr. excarata*] laterales vero rostri margines longe citra nares, ad fraenum oris usque nudi; quod non in *Arra*. Anguli plumosi ultra nares procurrentes, carina curvilinea, nec angulata." This description does not leave the slightest trace of doubt that his *C. lomvia*, at least as far as his Pacific specimens are concerned, is the thick-billed form with the naked tomia, and, consequently, that it is *not* a synonym of *californica*. This will be the more plain if we look at his description of the bill of his *arra* on the same page: "Magnitudo et habitus omnino 15861 Bull. 29—2



*C. Lomvia*, sed rostrum minus et divertissimum, brevius, *compressius*, *minus robustum*, superius magis curvilineum, . . . . . *basī minus denudatum.*"

It may now be asked, what is, then, *C. arra*? Is it the slender-billed form, equal to *californica*, and will it have to take the precedence over the latter name? Pallas says expressly that the tomia at base are *not* dilated and denuded: "quod non in *Arra*."

I was myself very much puzzled by this question, and would probably have answered it in the affirmative had it not been for a specimen which I collected on Bering Island. It (No. 92934) is a bird of the year—not much more than six months old—and undoubtedly belonging to the thick-billed form, as is evident at the first glance, and still more so upon a close comparison with the *californica* of the same age. From this bird it is clear that the thick-billed species in the first year has the basal part of the tomia *feathered and not dilated*, the bill being at the same time much *shorter and more compressed* than in the old birds. Compared with *californica* of the same age it differs especially in the greater robustness and height of the bill, and especially by the much shorter gonys, the relative length of which is particularly diagnostic of the two species. What confirms my opinion that Pallas's *arra* is his *lomvia* in the first winter, is his expression "*superius magis curvilineum*," which will not fit *californica* in any stage of growth. I therefore think that we are justified in retaining the name "*arra*" for the thick billed Pacific form.

Dr. E. Coes was the first author to point out the differences between the Atlantic and the Pacific forms of the Thick-billed Guillemot (Elliott's *Aff. Alaska*, p. 211 (1875)), but he did not recognize it as worthy of a special name until in the second edition of his "Key," where the Atlantic bird is called *Lomvia arra svarbag*, and the Pacific simply *L. arra*, but under the system of nomenclature followed in the "Key" the Atlantic should have been called *Lomvia svarbag* and the Pacific *Lomvia svarbag arra*, as Pallas's name is later than that given by Brittonich.

For my own part the inspection of ample material has convinced me that the two forms are separable, and even better so than *troile* and *troile californica*.

The "*Are*"\* is extremely abundant at the Commander Islands, and is

\* The Russian name, derived from the voice of the bird, an angry ar-r-r, is originally applied to *U. troile* in Europe, and is consequently not specific for the Pacific form which Pallas called *C. arra*.



perhaps at present the most numerous species of the region, although it is difficult to say whether *Lunda cirrhata* is not just as rich in individuals. Next come *Fulmarus glupischa* and *Phalacrocorax pelagicus*. It is by far more numerous, however, on Copper Island than on Bering Island, there being hardly an Ares rookery on the whole northern part of the latter island, except on the outlying Arij-Kamen and at the northeastern corner.

They pass the winter away from the shores of the islands, probably on the open sea not far from them, as is indicated by living individuals occasionally appearing during the winter and dead bodies regularly cast ashore after each severe storm of that season.

About the 1st of April, or a little earlier, their enormous flocks approach the shore and take possession of the rookeries.

When breeding, the long rows of Ares on the narrow shelves of rock, where they have deposited their many-colored, large, pear-shaped egg, face the rocky wall with their white breasts, turning their black backs to the spectator. When flying off the nest they consequently are compelled to first turn round, and, if taken by surprise, this maneuver will often cause them to throw the egg from the shelf into the water. It happened several times when I stealthily approached in a boat under the breeding colonies, that several eggs were thrown into the boat when the birds rushed off the nests, if the bare rock upon which the egg is placed can be called a nest, and my Aleutian oarsmen were always in a roar of laughter when one of these projectiles exploded on the head of an unfortunate comrade.

A series of eggs of all shades, from white to deep greenish blue, were collected, and measure as follows:

U. S. Nat. Mus. No.	Stejn. No.	Lg. diam.	Sh. diam.
		<i>mm.</i>	<i>mm.</i>
21811	1217	79	50
.	1218	81.5	50
	1219	84	51
	1220	78.5	48
	1221	81.5	53
	1222	81	52
	1223	83	51
	1224	79	48

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail feathers.	Culmen.	Gonys.	Height of bill at nostrils.	Tarsus.	Middle toe with claw.
			1883.		mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
92934	1834	Bering Island.	Jan. 3	♀ jun.	422	7	201	45	38	17	13	37	56
92935	2548	.....do.....	Sept. 2	juv.	.....	.....	85	.....	19	9	7	32	41
92936	2547	.....do.....	Sept. 2	juv.	.....	.....	83	.....	19	10	7	30	39

No. 92934.—Bill dark, almost blackish, bluish gray, with a light spot on gonys in front of the angle. Feet light bluish pearl-gray, with a faint yellowish tinge in front (not greenish, however); joints darker bluish gray, underneath blackish gray.

6. *Uria troile californica* (BRYANT).

- 1822.—*Uria troile* CHORIS, Voy. Pittor., Aléout., pl. xx.—*Uria t.* BLAKIST. & PRYER, Ibis, 1878, p. 211.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 180.—*Id.*, *Ibid.*, X, 1882, p. 91.—BLAKIST., Amend. List B. Jap., p. 32 (1884).—*Lomvia t.* BEAN, Pr. U. S. Nat. Mus., 1882, p. 172.
- 1859.—*Uria brünnichii* HEERMANN, Pacific R. R. Rep., X, Route to Calif. B. (p. 75), (*nee* SAB.).
- 1861.—*Catarractes californicus* BRYANT, Pr. Bost. Soc. N. Hist., 1861, p. 142.—*Uria c.* DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 309.—FINSCH, Abh. Brem. Ver., III, 1872, p. 77.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 10 (1873).—*Id.*, Avif. Aleut. Isl. west. Unal., p. 10 (1874).—STEJNEGER, Naturen, 1884, p. 54.
- 1872.—*Lomvia troile* var. *californica* COUES, Key N. Amer. B., p. 346.—*Id.*, in Elliott's Aff. Alaska, p. 210 (1875).—ELLIOTT, Monogr. Seal Isl., p. 135 (1882).—NELSON, Cruise Corwin, p. 117 (1883).

The California Guillemot occurs only in very limited numbers on the rookeries among the enormous masses of *U. arra*, the thick-billed species. Nothing particularly can be said about the present bird, as it is practically undistinguishable from the *arra* when on the rookery. Apparently they arrive, breed, and depart in company with the common *arra*, and are also found at sea around the islands like the latter during winter-time, as the specimen in my collection proves.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail feathers.	Culmen.	Gonys.	Height of bill at nostrils.	Tarsus.	Middle toe with claw.
			1882.		mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
89092	1022	Bering Island ..	May 9	♀ ad.	380	.....	192	45	37	23	11	37	54
92944	1828	.....do.....	Dec. 29	.....	431	5	192	45	38	23	11	40	54

No. 89092.—Iris dark brown. Feet light yellowish gray, webs darker. Bill black; angle of mouth yellowish.

No. 92944.—Iris dark brown. Bill blackish brown, somewhat lighter on the middle of gonys. Feet light yellowish to brownish gray, joints and webs a little darker, tarsus and toes below blackish. Sexual organs indistinguishable.

Birds of the year of the two forms, *californica* and *arra*, may be distinguished thus: *Californica* has the culmen less curved, the gonys long, much longer than half the culmen, and the bill lower; the greater under wing-coverts are gray with white edgings; the shafts of the first primaries above are very light, nearly white; the color of the upper head and neck is more tinged with brownish. *Arra* has the culmen more curved, the gonys short, about half the length of the culmen, and the bill higher; the greater under wing-coverts darker and uniform gray without white edgings; the shafts of the primaries dark brownish; the color of the upper head and neck more glossy and black.

#### 7. *Cephus columba* PALLAS

1790.—*Uria grylle*  $\beta$  LATHAM, Ind. Orn., II, p. 797.

1826.—*Cephus columba* PALL., Zoogr. Ross. As., II, p. 348 (*part.*).—TURNER, Auk, 1855, p. 159.—*Uria c.* CASSIN, U. S. Explor. Exped. Ornith., p. 346 (1858).—*Id.*, in Baird's B. N. Amer., p. 912 (1858).—*Id.*, Pr. Acad. Philada., 1862, p. 323.—SWINH., P. Z. S., 1863, p. 330.—DALL & BANNISTER, Tr Chicag. Acad., I, 1869, p. 309.—FINSCH, Abh. Brem. Ver., III, 1872, p. 78.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 11 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 10 (1874).—TACZAN., Orn. Faun. Vost. Sibir., p. 73 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 51.—*Id.*, *ibid.*, 1883, p. 398.—BLAKIST. & PRYER, Tr. As. Soc. Jap.-X, 1882, p. 91.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 172.—NELSON, Cruise Corwin, p. 117 (1883).—HARTLAUB, J. f. Orn., 1883, p. 285.

1832.—*Uria grylle* KITTLITZ, Isis, 1832, p. 1105 (*nec* LIN.).—*Id.*, Denkw. Reise, I, pp. 273, 291.—*Cephus g.* WHITELEY, Ibis, 1867, p. 210.

This is the "*Kajurka*" of the natives, who do not recognize them by the Russian name "*Svistun*."

The Pigeon Guillemot is a very common bird all around the shores of both islands, although not by far so numerous as several other *Alcide*, for instance, *Uria arra* and *Lunda cirrhata*. They are mostly found in single pairs. It has been denied that they ever congregate in large flocks, but this is not absolutely correct, for on several occasions I observed flocks of them, especially on June 4, 1883, when I visited the small island Toporkof, opposite the village of Bering Island. The whole islet was covered with hundreds and hundreds of birds in their full black summer plumage, collected into larger and smaller flocks, generally consisting of about fifty or more.

In 1883 the first arrivals were noted on the 14th of March. On Copper Island a nest containing two eggs (the usual number) was taken June 16, measuring 58 by 41<sup>mm</sup>, and 58 by 40<sup>mm</sup> (U. S. Nat. Mus. No. 21777; L. Stejneger No. 2211).

Downy young just out of the shell were collected at the same place on July 20, 1883. They are covered with a black down, and are in every respect similar to those of *Cephus grylle*.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89098	1037	Bering Island .....	May 11, 1882	♂ ad.	347	.....	168	55	30	35	50
92940	2017	.....do .....	May 8, 1883	♂ ad.	335	13	169	51	29	35	46
92941	2016	.....do .....	May 8, 1883	♀ ad.	342	16	173	53	31	35	49
92942	2018	.....do .....	May 8, 1883	♀ ad.	355	8	177	55	32	35	46
92943	1469	.....do .....	Aug. 15, 1882	♀ jun.	316	.....	163	45	30	34	46
92937	2774	.....do .....	Sept. —, 1883	juv.	.....	.....	143	47	23	34	43
92938	2270	Copper Island.....	July 20, 1883	pull.	164	.....	.....	.....	14	20	26
92939	2269	.....do .....	July 20, 1883	pull.	129	.....	.....	.....	11	16	20

No. 92940.—Iris dark brown. Bill black. Feet deep vermilion; nails black. Fat. Stomach and crop empty. Only a few feathers in their sheaths.

No. 92941.—Colors as foregoing. Feathers all over the body still partly in their sheaths.

No. 92939.—Iris dark brown. Bill reddish black, with a white knob at the tip; angle of mouth brownish red flesh-color; interior of mouth pale salmon color. Feet reddish gray; webs lighter; tarsus behind blackish.

I have seen it stated somewhere—without now being able to lay hand on the reference—that the Black Guillemots pass from the white winter-plumage to the black breeding garb without moult. The idea, however, is quite erroneous, as amply proven by the remarks above.

8. *Cepphus carbo* PALLAS.

1826.—*Cepphus carbo* PALL., Zoogr. Ross. As. II, p. 350.—STEJNEGER, Pr. U. S. Nat. Mus. VII, Aug. 5, 1884, p. 225.—*Uria c.* MIDDEND., Sibir. Reis. II, 2 (p. 239, pl. xxiii, fig. 6), (1858).—CASSIN, Pr. Philada. Acad. 1862, p. 323.—SCHRENCK, Reis. Amurl. I, p. 496, pl. xvi, fig. 1 (1863).—BRANDT, Mel. Biol. VII, 1869, p. 206.—SWINH., Ibis, 1875, p. 458.—TACZAN., J. f. Orn., 1876, p. 203.—*Id.*, Orn. Faun. Vost. Sibir., p. 73 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 51.—BLAKIST. & PRYER, Ibis, 1878, p. 211.—*Id.*, Tr. As. Soc. Jap. VIII, 1880, p. 180.—*Id.*, *ibid.*, X, 1882, p. 90.—BLAKIST., Amend. List B. Jap., p. 32 (1884).—*Alca c.* SCHLEGEL, Mus. P. B. Urinat., p. 17 (1867).

The Pacific Sooty Guillemot seems to be restricted to a very limited area, not being regularly found beyond the coasts of the Okotsk Sea, and the Sea of Japan. Pallas's statement that it is frequent about the Aleutian Islands, especially Unalashka is incorrect beyond doubt (cf. my memoir, Pr. U. S. Nat. Mus. VII, 1884, pp. 224–227), although stragglers of a marine species like the present may be expected in the adjacent waters.

I introduce this species as an accidental visitor to the Commander



Islands only on the strength of two pairs, which were observed by me at rather close quarters, but not shot.

In the evening of the 28th of April, 1883, I saw four black "Kajurkas" sitting on stones a little off shore to the south of the so-called "Reef Mys," near the village of Bering Island. I had good opportunity of watching them with an excellent field glass, but as the tide was running out and no boats or bajdarkas in the neighborhood, it was useless to try to shoot. They were uniform blackish without any white whatever on the wings, and the light patch on the eye-region was plainly visible, so that there cannot be the slightest doubt as to the correctness of the identification. I had been on a sharp lookout for this species during the whole spring season, and offered the native hunters a good reward for a wholly black "Kajurka," without white on the wings, but without results. That, during the following weeks I regularly revisited the place where at first I observed them, may be taken as almost a matter of course, but I never saw them again.

#### 9. *Synthliboramphus antiquus* (GMEL.)

- 1788.—*Alca antiqua* GMEL., Syst. Nat. I, p. 554.—SCHLEGEL, Mus. P. B. Urinat, p. 21. (1867).—*Uria a.* KITTLITZ, Isis, 1832, p. 1104.—TEM. & SCHLEG., Faun. Jap. Av. (p. 124, pl. 80) (1849).—SCH ENCK, Reis. Ambrl. I, p. 499 (1860).—SWINH., P. Z. S., 1863, p. 330.—*Id.*, Ibis, 1874, p. 166.—WHITELY, Ibis, 1867, p. 209.—*Brachyrhamphus a.* DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 310.—DALL, Avif. Aleut. Isl., west Unal., p. 11 (1874).—BLAKIST. & PRYER, Ibis, 1878, p. 210.—*Id.*, Tr. As. Soc. Jap. VIII, 1880, p. 180.—*Id.*, *ibid.*, X, 1882, p. 90.—BLAKIST., Amend. List B. Jap., p. 8, (1884).—*Synthliboramphus a.* FINSCH, Abh. Brem. Ver., III, 1872, p. 80.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 11 (1873).—TACZAN., J. f. Orn., 1876, p. 203.—*Id.*, Orn. Faun. Vost. Sibir., p. 74 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 51.—*Id.*, *ibid.*, 1883, p. 345.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 171.—NELSON, Cruise Corwin, p. 116 (1883).—TURNER, Auk, 1885, p. 159.
- 1826.—*Uria senicula* PALLAS, Zoogr. Ross. As., II, p. 367.
- 1837.—*Brachyrhamphus brachypterus* BRANDT, Bull. Scientif., II, 1837, p. 346.
- 1839.—*Mergulus cirrhocephalus* VIGORS, Zool. Blossom, Orn., p. 32.
- 1858.—*Uria cana* KITTLITZ, Denkw. Reise, I, p. 288.

The *Starik* (=old man, so called probably from the white hair-like feathers on the head; hence Gmelin's name *antiquus* and Pallas's *senicula*) breeds on both islands, but only sparingly at Bering Island. In fact, the only place where I know it to nest with certainty on the latter is in the cliffs of the outlying islet Arij Kamen. On Copper Island it is more numerous, without being common there either.

They seem to pass the winter on the open ocean, not far from the islands, however, as two were seen and one was shot at Bering Island

January 3, 1883 (No. 92985). In 1883 they approached land during the first week of May.

During the voyage from San Francisco to the Commander Islands in the beginning of May, 1882, these birds were frequently observed on the ocean on both sides of the Aleutian chain, but out of sight of land. They would swim close to the steamer's side, so near as even to touch it and to be turned around when striking the vessel; when it had passed them about a little more than half its length they would suddenly dive, coming up again away behind us; then they would take to the wing and drop just a little to the right or the left of our bow, repeating this maneuver over and over again.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.		Wing.	Tail feathers.		Tarsus.	Middle toe with claw.
					mm.	mm.		mm.	mm.		
92985	1843	Bering Island .....	Jan. 3, 1883	♂ ad..	260	0	135	34	14	28	33
92987	2201	Copper Island .....	June 16, 1883	(♂) ad..	.....	.....	133	33	13	30	.....
92986	2224	.....do.....	July 3, 1883	♂ ad..	273	21	129	32	13	28	34
92988	2225	.....do.....	July 3, 1883	♀ ad..	260	22	130	36	12.5	27	29
89142	1470	.....do.....	July —, 1882	(♂) ad..	.....	.....	.....	.....	.....	.....	.....

No. 92985.—Iris blackish brown. Bill light grayish white with a faint bluish tinge, darker grayish at base; culmen and tip of gony blackish; interior of mouth, faint bluish white. Feet light grayish white with a tinge of violet blue; outer aspect of tarsus more bluish; joints and webs dark bluish gray; tarsi and toes underneath blackish. Testes very small. Stomach contained Gammarids. (Colors noted within the first thirty minutes after the bird was killed; they changed materially—to a bluish crimson on the bill—not many hours after).

No. 92986.—Iris dark brown. Bill whitish with a light tinge of violet gray; culmen, except the extreme tip and base of both mandibles, blackish brown. Feet similarly colored; joints darker violet gray; webs and underside blackish.

When I got the specimen in winter plumage I had also at hand fresh specimens of *Simorhynchus pygmaeus* and *pusillus*. The similarity in the bill struck me, and I thought it desirable to institute a comparison while the birds were still in the flesh. The following remarks are an abstract of the original notes:

With the exception of the brownish, almost blackish, iris, and the scutellation in front of the tarsus, the *Synthliboramphus* seems to be nearer related to the *Phaleridex* than to the *Uriinae*. The nostrils are essentially as in the former group, particularly *S. pygmaeus* and *pusillus*, anteriorly forming an acute angle while rounded behind; but being a little shorter they present a somewhat triangular or rather pear-shaped

form; they are situated a little higher, and the feathering of the face is extending a trifle farther towards the hind margin of the nostrils *without reaching them*, however; on the culmen the feathering goes further forward, surpassing the posterior border of the nostrils, but so it does in *S. pygmaeus* also; the feathering of the mental angle advances far in front of that on the upper mandible; the nostrils are roofed over by a prominent nasal shield with a distinctly raised edge, quite similar to that of *S. pygmaeus*, and, like those of the latter, *they are pervious*; a further similarity is the *soft and naked cere* at the base of culmen, which is rather *larger than* in *S. pygmaeus*. The perfect similarity in the structure of these parts makes it extremely probable that they are periodically shed as in the *Phalerideæ*. In a fresh specimen of *Uria californica* I find the nostrils situated near the tomia, linear and not roofed by a prominent scale with raised lower margin; *no soft cere is visible*, and the loreal feathering fills the nasal groove considerably beyond the anterior angle of the nostrils, while on the culmen it recedes as far as the posterior margin of the nostrils, the culmen thus forming an acute angle into the feathering of the forehead; the feathering of the mental angle does not go beyond that of the nasal grooves.

#### 10. *Simorhynchus pygmæus* (GMEL.)

- 1788.—*Alca pygmaea* GMEL., Syst. Nat., I, p. 555.—*Phaleris p.* STEPH. Gen. Zool., XIII, pt. i, p. 43 (1825).—*Simorhynchus p.* BRANDT, Mélanges Biol., VII, 1869, p. 228.—NELSON, Cruise Corwin, p. 116 (1883).—STEJNEGER, Naturen, 1884, pp. 35, 55.—TURNER, Auk, 1885, p. 159.
- 1801.—*Alca kamtschatica* LEPECHIN, Nov. Act. Petropol., XII, 1801 (p. 369, tab. 8).—*Simorhynchus c.* SCHLEGEL, Mus. P. B. Urinat., p. 25 (1867).—BRANDT, Mélanges Biol., VII, 1869, p. 227.—FINSCH, Abh. Brem. Ver., III, 1872, p. 81.—TACZAN., Orn. Faun. Vost. Sibir., p. 74 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 52.—DYBOWSKI, Sitzb. Dorpat. Naturf. Ges., 1881, p. —.—*Id.*, Orn. Centralbl., 1882, p. 41.—*Id.*, Bull. Soc. Zool. France, 1883, p. 349.—*Phaleris c.* BLAKIST., Amend. List B. Jap., p. 31 (1884).
- 1822.—*Mormon cristatellus* CUVIER, in Choris' Voy. Pittor., Aléont., p. 18, pl. xii (*nee* PALLAS).—*Phaleris c.* TEMM., Pl. Color., V, pl. 200 (1824).
- 1823.—*Mormon superciliosa* LICHTENST., Doublettenverz., p. 89.
- 1826.—*Uria mystacea* PALL., Zoogr. Ross. As., II, p. 372.—*Phaleris m.* CASSIN, Perry's Exped. Jap., II, p. 234 (1857).—SWINH., P. Z. S., 1863, p. 331.—BLAKIST. & PRYER, Ibis, 1878, p. 210 (*part*).—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 179.—*Id.*, *ibid.* X, 1882, p. 89.—SEEB., Ibis, 1879, p. 21.
- 1826.—*Uria crinita* PALL., Zoogr. Ross. As., I, p. 301, (*nom. nudum*).
- 1826.—*Phaleris cristella* BOIE, Isis, 1826, p. 980 (*err. typ.*).
- 1868.—*Simorhynchus cassini* COUES, Pr. Phil. Acad., 1868, p. 45.—BRANDT, Mél. Biol., VII, 1869, p. 235.—DALL & BANNIST., Tr. Chic. Acad., I, 1869, p. 309.—BAIRD, Tr. Chic. Acad., I, 1869 (p. 324), pl. xxxi, fig. 2.

My studies of the moulting of the plumage are based upon twenty-three specimens collected by me, consisting of birds in all ages and

nearly at all seasons, probably the largest material of this rare bird at the command of any ornithologist, and were made on the fresh birds before and during skinning, so that the results may be regarded as conclusive upon several points. They may be summed up briefly as under.

When the young leaves the egg, in the latter part of June, it is covered by a dense down, dark fuliginous above, lighter and more grayish on the abdomen. Such a specimen, No. 92977, only a few days old, was obtained, together with its father, No. 92973, both taken on the nest, on June 28, 1883. Another downy young (No. 92976) was collected July 12; it is half-fledged, the new plumage, on the whole, like that of the adults, being only a little lighter underneath, nearly pure white on the abdomen, but, before long, this light, or rather pure, color darkens, as in the young of *Lunda cirrhata*, and a young (No. 92974) killed only six days later, but fully fledged and without any trace of down left, is undistinguishable from the old ones as far as the general coloration of the plumage is concerned; the loreal tuft, with its malar and superciliary branches, and the postocular stripe are indicated by light grayish feathers. The young bird I shot at Dikij Mys, Bering Island, on August 22, 1882, is identical with the last one, both being perfect counterparts of the type of Dr. Coues's *Simorhynchus cassini*. If any doubt should still linger concerning the identity of the latter with *S. pygmaeus*, an inspection of my series will remove it from the most skeptical mind.

In this plumage the young remain until about the end of December, for No. 92962, shot on the 3d of January, is nearly identical with the last-mentioned young bird, with the exception of the bill, which is more vividly colored, and the general aspect of the plumage, which seems fresher and of a more slate-colored hue, owing to the fact that the feathers are new, many being still in their sheaths. But on the same date I obtained five other specimens which show all the intermediate grades between this and the fully developed plumage with the long and rich crests, as exhibited by No. 92960, which was shot five days previous, and by No. 92961, collected on the 30th of December. The wing feathers are yet in pretty good condition, and are not moulted now. Alongside with the development of the new contour-feathers and the ornamental plumes goes the increasing intensity and purity of the colors of the bill, the nasal shield of which, however, is still dusky. During the following months the bill assumes still more vivid colors,



the tip becomes nearly pure white, the middle scarlet, and the nasal shield finally, when the birds, just before the breeding season, appear at the rookeries, turns into a fine carmine, as shown by No. 92972 (Pl. IV, Fig. 2), a female shot May 6, 1883. But while in this specimen the bill shows its highest perfection, the plumage already bears evidence to the commencing decay caused by the wear of the feathers while inhabiting the deep nest-holes in the crevices of the rocks, and the abrasion is particularly visible on the wing-coverts, which were not shed when the other feathers of the body were moulted, viz, late in winter, the middle row being light brownish gray, as are also the exposed parts of the inner primaries. Also the ornamental plumes are on the decline, and the frontal crest is already thinned out considerably, consisting in the specimen in question of only four plumes, while some birds in "full dress" may be found having as many as a dozen. During the incubation the plumage becomes gradually more dilapidated, and when the young are out, the parents—at other seasons so graceful and beautiful—present a rather miserable aspect, the white plumes on the head being soiled and glued together, and all the wing-feathers faded into a dirty gray, with the vanes disconnected and the edges ragged. All the birds taken on the nest, July 21, were in that deplorable condition, only that the wings were spotted with slaty black as the new coverts made their appearance now, the middle row being complete already. Also the four or five inner primaries were shed, and the new ones, in different stages of development—the three innermost full grown—contrasted favorably against the faded-out remnants of the old ones. The tail-feathers are still unshed, but their condition plainly shows that they will be moulted before long. The ornamental feathers are worn down, the crests are thin, and many of the long plumes have already disappeared. These specimens prove beyond a possibility of doubt that the remiges and rectrices are moulted towards the end of the breeding season, and that the process commences with the inner primaries\*. But not only are the wing-feathers shed now, but also the contour-feathers; all over the body protrude now the bluish sheaths containing the new feathers, which in some places have already burst through the tips. The post-nuptial moult, therefore, is a complete one.

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\* That the process is similar in the allied *Ptychoramphus aleuticus* (PALL.) is evident from a specimen (U. S. Nat. Mus. No. 100070) collected by Mr. Charles H. Townsend at the Farallon Islands on September 11, 1854. It has just moulted all the primaries which are full grown, except the first one, which is still partly in the sheath.

At this time the brightness of the bill has likewise faded away, the white tip gets bluish, and the basal parts darken. The upper layers of the horny covering scale off, but I feel satisfied that a regular shedding of the basal parts, such as in the *Fraterculea* does not take place. In order to sustain this opinion I quote from my original notes taken down when examining four fresh birds on Copper Island, July 21, 1883: "The nasal shield is blackish brown, but of a peculiar appearance, as if veiled by a thin translucent crust. This was easily removed with the knife, and when detached presented a very thin and translucent piece of oval shape, but with lacerated edges. In the same manner the small space between the two ridges behind the nostrils was easily deprived of a similar crust. In two specimens the covering of the terminal part of the bill is scaling off in a similar manner, bursting irregularly near the border of the basal part, and along both sides of the culmen, and the same process seems to begin on the lower jaw also. *The layer underneath is not perceptibly softer.*" It should be remarked that the basal parts were hard, as they were in all the specimens collected in December and January, and also in the young birds. The reverse was the case in specimens of *Lunda cirrhata* and *Fratercula corniculata* of corresponding date and age.

It remains now to point out and correct some minor errors of my predecessors, particularly Messrs. Dr. Dybowski and L. Bureau. As to the latter's statement (B. S. Z. F., 1879, p. 63), "En hiver, ces lamelles [la cuirasse nasale] se détachent sans doute, et laissent à découvert une simple membrane nasale," it may suffice to refer to my remarks above. In reference to the descriptions given by the former (Orn. Centrbl., 1882, p. 41), it is at once apparent that the colors of the bill and feet are taken from the dried specimens, consequently being quite erroneous. The bill is not "dark violet towards the tip and the tip itself whitish violet" in the fresh or living bird, but turns so after the lapse of some time; nor are the feet "reddish or yellowish ashy gray," but light bluish gray!

His description of the different crests and ornamental feathers are not quite correct, as will be seen by comparing them with my figure (Pl. IV, Fig. 2), which was drawn and colored from the fresh bird, *before skinned*, and with Dr. Dybowski's descriptions lying before me. It is particularly the note, designated by him as D, 4, a, which is inaccurate. Furthermore, he asserts in a very general way, that the white ornamental feathers on the side of the head stand out like

crests in the living bird.\* I do not know what facilities he had for observing the living birds, but I can affirm that on five living birds which I possessed for several days, neither the anteocular nor the subauricular plumes were ever raised, nor did I observe it in any of the many birds I had the good fortune to observe in the free state. That these ornaments may occasionally be raised is not improbable, but it is not the general manner in which they are carried.

But the most curious blunder of Dr. Dybowski in connection with this species is the assertion that all the plumes forming the curious curved black crest on the forehead originate from a single common shaft: "Alle 12 Federchen haben eine gemeinsame Federspule"! Any one familiar with the structure of birds' feathers will at once suspect this wonderful discovery, and consequently I investigated the case very thoroughly; in fact, I dissected the crest out of No. 2334 (U. S. Nat. Mus. No. 102224), which was obtained at Copper Island on July 21, 1883, and the preparation is now in the United States National Museum. This shows, as might be expected, quite a different state of affairs, each plume having, as a matter of course, its own separate shafts, springing from individual follicles, and being in no way connected with its neighbor, as the roots are inserted about 0.3<sup>mm</sup> apart from each other. The specimen in question possesses seven plumes, which are arranged thus: First come three plumes alongside each other; just behind the intervals between them are two feathers, forming the second row; next come two feathers, a third one having dropped out, if I am not mistaken; in front of the first row are two empty follicles, the plumes of which must have dropped out only recently; ten plumes can thus be traced, and are situated in the following order: 2-3-2-3, thus:



They are consequently arranged in "quincunx," or, in other words, in the same manner as all the other feathers. The "plumes" are only extremely lengthened, but otherwise they are normal contour-feathers!

\* "Alle diese drei Federzüge stehen beim lebenden Vogel schopfartig vom Körper ab." (*l. c.*).

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92960	1823	Bering Island . . . . .	Dec. 29, 1882	♂ ad.	185	11	105	33	10	22	30
92961	1829	...do.....	Dec. 30, 1882	♂ ad.	181	3	109	31	10	21	30
92962	1837	...do.....	Jan. 3, 1883	♂ ad.	195	.....	106	30	10	22	31
92966	1841	...do.....	Jan. 3, 1883	♂ ad.	190	.....	113	31	10	22	31
92967	1842	...do.....	Jan. 3, 1883	♂ ad.	195	.....	108	30	10	22	31
92964	1839	...do.....	Jan. 3, 1883	♂ ad.	195	.....	114	35	10	22	32
92968	1854	...do.....	Jan. 5, 1883	♂ ad.	192	.....	112	35	10	22	31
92969	1836	...do.....	Jan. 9, 1883	♂ ad.	191	.....	105	33	10	22	32
92970	1871	...do.....	Jan. 16, 1883	♂ ad.	193	0	108	33	10	21	32
92973	2263	Copper Island . . . . .	June 28, 1883	♂ ad.	207	17	113	33	10	22	31
89140	1475	...do.....	July, 1882	(♂)ad.	.....	.....	110	30	.....	23	31
89139	1474	...do.....	July, 1882	(♂)ad.	.....	.....	107	27	9	22	30
89141	1476	...do.....	July, 1882	(♂)ad.	.....	.....	.....	.....	.....	.....	.....
92959	1808	Bering Island . . . . .	Dec. 14, 1882	♀ ad.	188	0	104	29	9	22	30
92963	1838	...do.....	Jan. 3, 1883	♀ ad.	184	.....	105	30	10	22	32
92965	1840	...do.....	Jan. 3, 1883	♀ ad.	192	.....	106	30	10	22	.....
92971	1894	...do.....	Jan. 30, 1883	♀ ad.	203	.....	110	31	10	22	31
92972	2014	...do.....	May 6, 1883	♀ ad.	211	.....	110	31	10	23	33
92975	2285	Copper Island . . . . .	July 21, 1883	♀ ad.	.....	.....	105	27	10	22	.....
102224*	2334	...do.....	July 21, 1883	ad.	.....	.....	.....	.....	.....	.....	.....
92974	2266	...do.....	July 18, 1883	♂ jnv.	195	9	105	30	10	23	33
89099	1486	Bering Island . . . . .	Aug. 22, 1882	jnv.	180	.....	107	31	10	21	32
92976	2235	Copper Island . . . . .	July 12, 1883	♀ pull.	171	.....	68	.....	9	21	27
92977	2202	...do.....	June 28, 1883	♂ pull.	128	.....	.....	.....	7	17	22

\* Preserved in alcohol.

No. 92960.—Iris white. Bill, milky white at tip and at base of lower mandible; rest of the bill, including culmen, upper tomia, and a median cross-band on lower mandible, vivid blood-red; nasal cuirass and a small portion in front of nostrils, as well as the soft cere at base, blackish brown. Feet light bluish gray, with the joints somewhat brownish violet, the tinge of the blue being different from that of *S. pusillus* (L. S., No. 1818), mixed as it is with "neutral tint;" soles and webs blackish. Contents of crop and stomach Gammarids. Colored drawing (pl. iv, fig. 1) prepared immediately.

No. 92961.—Iris white. Testes somewhat swollen; crop and stomach contained Gammarids.

No. 92962.—Iris white. Bill, blackish brown on nasal cuirass, and a little in front of nostrils, then dull red, and at tip horny, brownish white. Feet, light bluish gray, with a faint violet tinge. Testes small, not swollen. Lean; crop contained Amphipods.

No. 92966.—Iris white. Testes, small, not swollen. Fat. Crop contained small Amphipods.

No. 92964.—As foregoing, but feet a trifle more bluish. Not fat. Amphipods.

No. 92968.—Iris white. Bill somewhat pale, the red portion being hardly deeper colored than reddish flesh-color. Feet a little more bluish than usual. Testes small, not swollen.

No. 92959.—Iris white, with a faint, yellowish tinge. Bill dull blood red, with the base of culmen, the nasal cuirass, and a small portion in front of the nostrils blackish brown; base of upper tomia pale brownish gray; tip of upper mandible dark brownish gray; lower mandible somewhat paler, almost flesh-colored at base, and behind the brownish tip. Feet, light bluish gray, with a faint brownish tinge on the joints; soles, nails, and webs, blackish; interior of month white, with a light flesh-colored tinge; stomach empty, with the exception of the shell of a small Gastropod and three horny hooks of a Decapod.

No. 92971.—Stomach and crop filled with Gammarids.

No. 92972.—Iris white. Bill vivid scarlet, the nasal cuirass tinged with carmine, the rest slightly mixed with orange; edges and angles of nasal cuirass with blackish marks; tip of both mandibles



and a narrow space round the base of the lower one milky white, with a faint shade of blue, strongly contrasting with the red; feet bluish gray, tinged with violet; joints, darker gray; webs and soles blackish. Eggs in ovarium swollen, the largest one  $4\frac{1}{3}$ mm in diameter. Stomach and crop, empty. Lean. New feathers protruding, especially on belly, neck, and head.

No. 92974.—Iris, inner ring, bluish gray, narrow; outer one, faint bluish white; when alive the pupil was contracted and very small. Bill, blackish brown, underneath the nostrils lighter grayish, as is also the lower mandible; feet, light bluish gray; joints, brownish; webs, dark gray; soles, blackish; colors from the living bird. Testes, very small and undeveloped. Bones, well ossified. Most feathers yet in their sheaths. Not fat.

No. 89099.—Iris white, with a faint yellowish tinge. Bill, reddish black, lighter at base. Feet, violet, bluish in front, reddish on sides, black behind and below, as are also the webs. Interior of mouth whitish.

No. 92976.—Iris, inner ring, narrow, bluish gray; outer one, light bluish white. Bill dark brownish gray; upper mandible almost blackish; a faint violet tinge below the nostrils, and on the lower mandible towards the base. Feet, gray, strongly tinged with violet; joints darker brownish; webs dark gray, below, blackish. Extremely fat.

No. 92977.—Iris clear gray with a faint bluish tinge. Bill blackish gray; culmen and middle portion of lower mandible lighter, somewhat violet-gray; nasal cuirass and angle of mouth, blackish, as is also the naked eye ring. Feet light gray, with a violet bluish tinge; joints darker gray; claws light, horny gray, with blackish tips; tarsus and toes underneath, blackish gray. Testes, recognizable. Crop, filled with Gammarids; very fat.

This little Ank, certainly the prettiest species of the whole family, has apparently the center of its distribution on the islands visited by me. On Bering Island it is rather rare, however, though it breeds in the crevices of the outlying islet Arij Kamen, in a precipice near the fishing-place Saranna, and probably in several places on the southern part of the island, for instance, at Dikij Mys. Copper Island, with its steep rocky shores, is the favorite home of this bird, however. It may be found breeding all around the coast where suitable holes and crevices occur. I know of nesting places near the main village, at Karabeluij, and on Tschornij Mys. At the latter place it occupied holes in the basaltic cliff along side those of *Oceanodroma furcata*, the latter inhabiting the deeper ones. It could be told at once by the peculiar smell emanating from the caverns of the latter bird, which species was to be found inside.

Notwithstanding the fact that the birds are rather common, it must be considered good luck to meet them and get opportunity of observing them, for they are rather shy and live quite retired in their deep holes.

They are early breeders, in that respect being considerably ahead of their allies, for instance, *Lunda cirrhata*; so early, in fact, that no eggs could be procured in the latter part of June, when I had the opportunity to go in search of them. The nests at that time already contained young ones. These remain in the nest until full fledged. A specimen having left the nest only a few days previous, was taken alive on board the steamer when at anchor at Glinka, Copper Island, July 18. This bird was found early in the morning, concealed in a fold of one of the sails, the inexperienced youth having probably mistaken it for the

crevice of a rock. This would indicate that they pass the nights in holes as long as they stay near land.

When the breeding season is over, they, like all the allied forms, retire to the open ocean, part of them at least, going to more southerly latitudes to winter. That many stay in the neighborhood of the islands is evident from the fact that I obtained numerous specimens at Bering Island in December and January. A single female came near the coast on December 14, 1882, and was shot; but from the 29th of the same month until January 5, 1883, a few could be met with every day. They could then be seen in small societies of two to four, swimming along the rocky shores, alternately diving for food, which chiefly consisted of Gammarids. When diving they raised themselves a little on the water, and then made a sudden jump downward. The weather was not stormy, but we had during that week a very cold spell. Later in January they became scarce, but a few specimens were secured, the last one on January 30. They appeared again at their breeding places during the first days of May.

Owing to the comparative scarcity of this species at Bering Island, the natives there are not so familiar with it as are the Copper Islanders, and have therefore no peculiar name for it, calling it sometimes the "Malinka Konjuga" (small *S. cristatellus*), or using the more general and indefinite term "Petuschka." The inhabitants of Copper Island have no Russian name for it either, but it is well known to them under the Aleutian name "Turuturk" (pronounce: Too roo-toork).

#### 11. *Simorhynchus cristatellus* (PALL.)

- 1769.—*Alca cristatella* PALLAS, Spicil. Zool., V, p. 18, pl. iii, et pl. v, figs. 7, 8, 9.—*Uria c.* PALL., Zoogr. Ross. As. II, p. 370 (1826).—*Phaleris c.* SCHRENCK, Reis. Amurl. I., p. 500, tab. xvi, figs. 4 and 5 (1860).—COINDE, Rev. Mag. Zool., 1860, p. 402.—SWINH., P. Z. S., 1863, p. 330.—WHITELY, Ibis, 1867, p. 209.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 309.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 11 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 11 (1874).—SEEB., Ibis 1879, p. 21.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 179.—*Id.*, *ibid.* X, 1882, p. 89.—PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 201 (1883).—BLAKIST., Amend. List B. Jap., p. 31 (1884).—*Simorhynchus c.* SCHLEG., Mus. P. B. Urin., p. 25 (1867).—BRANDT, Mel. Biol., VII, 1869, p. 223.—FINSCH, Abh. Brem. Ver., III, 1872, p. 81.—COUES, in Elliott's *Aif. Alaska*, p. 206 (1875).—TACZAN., Orn. Faun. Vost. Sibir., p. 74 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 51.—*Id.*, *ibid.*, 1882, p. 398.—DYBOWSKI, Sitzb. Dorpat. Naturf. Ges., 1881, p. —.—*Id.* Orn. Centralbl., 1882, p. 28.—*Id.*, Bull. Soc. Zool. France, 1883, p. 349.—ELLIOTT, Monogr. Seal Isl., p. 134 (1882).—SEEB., Ibis, 1882, p. 368.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 171.—NELSON, Cruise Corwin, p. 116 (1883).—TURNER, Auk, 1885, p. 159.—*Tylorhamphus c.* TACZAN., J. f. Orn., 1876, p. 203.

- 1769.—*Alca tetracuta* PALL. Spicil. Zool. V, p. 23, pl. iv, et. pl. v, figs. 10, 11, 12.—KITTL., Denkw., II, p. 214 (1858).—*Uria t.* PALL., Zoogr. Ross. As., II, p. 371.—*Phaleris t.* MIDDEND., Sibir. Reis., II, 2 (p. 239) (1853).—SWINH., P. Z. S., 1863, p. 331.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 309.—TACZAN., Orn. Faun. Vost. Sibir., p. 74 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 52.
- 1776.—*Alca cristata* MÜLL., Syst. Nat. Suppl., p. 104.
- 1826.—*Uria dubia* PALL., Zoogr. Ross. As., II, p. 371.—*Alca d.* KITTL. Denkw., I, p. 300 (1858).
- 1839.—*Phaleris superciliata* AUDUB., Orn. Biogr., IV (pl. 402).
- 1878.—*Phaleris mystacea* BLAKIST. & PRYER, Ibis, 1878, p. 210 (*part.*).—SEEB., Ibis, 1879, p. 21.

The changes of plumage of this species are identical with those of *Simorhynchus pygmaeus*, and as the latter have been described with considerable detail, I shall content myself by referring to my remarks under the heading of that species.

I may, however, call attention to a feature of the nuptial plumage of the present species, which has not been noticed by previous authors, so far as I am aware. I refer to the numerous and exceedingly fine hair-like white plumes which are interspersed with the others on the crown and nape. They are particularly noticeable and numerous on a ♀, shot May 16 (No. 89096). In a ♂, collected June 4 (No. 92955), they are greatly reduced, and in all probability they are only present during a very short period.

During the breeding season the bill of this species differs greatly from that of *S. pygmaeus*, though in winter they are very much alike. The sides of the mandible, of the maxilla, and the nasal cuirass are swollen, and the different pieces separated by deep grooves, and at the base of the maxillar tomium is developed a more or less irregularly rounded horny and hard piece, which has a superficial resemblance to the "rosette" of the genera *Lunda* and *Fratercula*, without in any way being homologous with the latter structure. The "rosette" is more or less soft, being a kind of wattle lining the angle of the mouth all round, both above and beneath; the tomial plate of *S. cristatellus* is hard, horny, and is only affixed to the upper edge of the basal part of the tomium. It is only fixed to the edge of the commissure along its lower border, the upper half being entirely free and concealing the feathers behind it. These different basal pieces are evidently regularly shed, as in the *Fratercula*, and at the same time. Of all the rich material at my disposal, no specimen was taken during the more advanced stage of this shedding, so it is impossible to say just how many pieces fall off separately. So much is certain, however, that the above-mentioned circular corner-

piece is shed first, and comparatively early, several specimens affording evidence that it drops off before the birds leave the rookeries. The material at hand also indicates that the outgrowth in spring and the change of color of the basal parts of the bill takes place rather late and very rapidly, much more so than the corresponding process in *Lunda* and *Fratercula*.

As to the condition of the bill and the basal part of the upper tomium in winter, I refer to fig. 5, on plate iv, and to the following description of these parts which I took down from the fresh specimen (No. 92952) as follows: "The feathering at the base of the maxilla does not (as in *S. pygmaea* and *pusilla*) cover the tomium, which is soft and forms a whitish, broadened lobe above the corner of the mouth." No corresponding structure was observed in the other species. This soft lobe, the "matrix" of the horny circular corner-piece, is hardly noticeable in the dried skins.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89097	1058	Bering Island .....	May 16, 1882	♂ ad.	240	.....	134	39	11	27	37
92955	2122	.. do .....	June 4, 1883	♂ ad.	260	9	134	40	12	28	39
92954	2130	.. do .....	June 4, 1883	♂ ad.	273	11	134	38	13	29	....
89096	1057	.. do .....	May 16, 1882	♀ ad.	249	.....	138	37	11	29	40
92956	2093	.. do .....	May 19, 1883	(♀) ad.	(235)	.....	133	40	12	29	38
92957	2172	.. do .....	June 14, 1883	♀ ad.	266	15	134	36	12	28	38
92952	1765	.. do .....	Dec. 2, 1882	♀	247	.....	125	33	11	28	39
92951	1832	.. do .....	Jan. 1, 1883	♀	265	23	126	35	11	27	39
92953	1875	.. do .....	Jan. 18, 1883	♀	254	.....	133	35	11	26	37
92958	1932	.. do .....	Mar. 1, 1883	♀ ad.	270	.....	135	35	11	29	39

No. 89097.—Iris white. Bill reddish orange; tip horny white, shaded with dusky, on upper mandible. Feet light violet gray; joints darker; webs blackish; tarsus and toes below black; nails gray at base, blackish at tip.

No. 92955.—Iris white. Bill bright reddish orange; tip horny brownish white. Feet light violet gray; joints darker. Crop and stomach empty.

No. 92954.—Iris white. Color of bill and feet as foregoing number, only that the feet have a more pure bluish hue. Stomach empty. Very fat.

No. 89096.—Iris white. Bill reddish orange; tip brownish gray; tip of lower mandible somewhat lighter; interior of mouth white, with a slight tinge of flesh color. Feet light violet gray; joints darker; web, soles, and nails black.

No. 92952.—Iris white. Bill horny brown; both mandibles at base and the gonys lighter; soft edge at base of upper mandible whitish; interior of mouth white, faintly tinged with flesh color. Feet violet pearly gray; joints brown; webs and soles dark brownish. Stomach empty.

No. 92951.—Iris white. Bill horny brown; tip of upper mandible more grayish; lower mandible lighter, almost brownish flesh color. Feet bluish gray, a trifle darker and more violet than in *Simothynchus pygmaeus*; joints brownish; webs and soles blackish. Extremely lean.



No. 92953.—Iris white. Bill brownish gray. Feet light bluish gray. Found dead on beach. (Esophagus, crop, stomach, and intestines filled with a semifluid violet red matter, which I take to be the remains of a cephalopod. Tolerably fat.

No. 92958.—Iris white. Bill, see colored drawing taken immediately from the fresh bird (tab. iv, fig. 5). Feet bluish gray; joints violet brown; webs and soles blackish. Some of the eggs in the ovary had commenced swelling. New feathers in their sheaths on upper head and neck.

The present species is a regular breeding bird of both islands, without being very plentiful, however, and seems to be rather scarce on Copper Island, where *S. pygmaus* is more common than the "Konjuga," a name by which *crisatellus* is known on Bering Island.

Like most of the members of the family, many winter on the ocean, not very distant from the islands, as it was among the species which I picked up on the beach after severe gales.

## 12. *Simorhynchus pusillus* (PALL.)

- 1826.—*Uria pusilla* PALLAS, Zoogr. Ross. As., II, p. 373.—*Phaleris p.* COINDE, Rev. Mag. Zool., 1860, p. 403.—CASSIN, Pr. Philada. Acad., 1862, p. 324.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 309.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 179.—*Id.*, *ibid.*, X, 1882, p. 89.—BLAKIST., Amend. List B. Jap., p. 31 (1884).—*Simorhynchus p.* FINSCH, Abh. Brem. Ver. III, 1872, p. 81.—COUES, in Elliott's Af. Alaska, p. 208 (1875).—ELLIOTT, Monogr. Seal Isl., p. 134 (1882).—TURNER, Auk, 1885, p. 159.—*Cicronia p.* TACZAN., J. f. Orn., 1876, p. 203.—*Id.*, Orn. Faun. Vost. Sibir., p. 74 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 51.—DYBOWSKI, Sitzb. Dorpat. Naturf. Ges., 1881, p. —.—*Id.*, Orn. Centralbl., 1882, p. 28.—*Id.*, Bull. Soc. Zool. France, 1883, p. 350.—NELSON, Cruise Corwin, p. 116 (1883).
- 1831.—*Phaleris corniculata* ESCUSCHOLTZ, Zool. Atlas, IV (tab. 16).
- 1837.—*Phaleris pygmaea* BRANDT, Bull. Scientif., II, 1837, p. 347 (*nec* GMEL., 1788).—*Simorhynchus p.* SCHLEGEL, Mus. P. B. Urinat., p. 23 (1867).—SEEB., Ibis, 1884, p. 31.
- 1837.—*Phaleris microceros* BRANDT, Bull. Scientif. II, 1837, p. 347.—DALL & BANNIST., Tr. Chic. Acad., I, 1869, p. 309.—*Cicronia m.* PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 201 (1883).—SAUNDERS, Ibis, 1883, p. 348.
- 1838.—*Phaleris nodirostra* BONAP., Comp. List, p. 66.
- 1839.—*Cerorhinca occidentalis?* VIGORS, Zool. Voy. Blossom, Orn., p. 33 (*nec* BONAP.).
- 1878.—*Mergulus sp. inc.*, BLAKIST. & PRYER, Ibis, 1878, p. 210.

### List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex.	Total length.	Tail beyond wings.	Wing.	Tail feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92979	1818	Bering Island.....	Dec. 29, 1882	♂	170	.....	92	29	9	18	26
92981	1826	....do.....	Dec. 29, 1882	♂	184	.....	93	34	9	20	27
92980	1825	....do.....	Dec. 30, 1882	♂	175	3	94	32	9	20	28
92983	1835	....do.....	Jan. 3, 1883	♂	168	.....	96	28	9	19	28
92978	1763	....do.....	Dec. 1, 1882	♀	173	.....	92	31	9	20	27
92982	1827	....do.....	Dec. 29, 1882	♀	169	0	91	27	9	21	27
92984	1836	....do.....	Jan. 3, 1883	♀	172	.....	91	28	9	19	....

No. 92979.—Iris white. Bill horny brown; gonys and tomia somewhat lighter; extreme tip of lower mandible whitish. Feet light whitish cobalt blue; joints darker, a little purplish; soles and webs blackish. Crop contained several small Gammaridæ; in the stomach remains of a larger one.

No. 92981.—Iris white. Bill horny brown; tip whitish; gonys reddish flesh color. Feet light bluish gray; joints marked with brownish violet; soles and webs blackish. Testes large and swollen. Stomach and crop empty.

No. 92980.—Iris white, with a faint rosy tinge. Bill horny blackish brown: under mandible lighter; tip whitish. Feet light grayish blue, with a faint yellowish tinge, except on the joints, which are darker and marked with purplish blue; soles and webs blackish. Testes small, not swollen. Stomach and crop contained Gammaridæ and Palæmonidæ.

No. 92983.—Iris white. Bill horny black; extreme tip of lower mandible whitish. Feet light grayish blue; darker blue on the joints; webs and soles blackish. Testes small, not swollen. Several new feathers in their sheaths on the back. Crop crammed with small Palæmonidæ. Lean.

No. 92978.—Iris white, with a faint rosy tinge. Bill horny black; gonys and base of lower mandible light flesh color; interior of month whitish. Feet light grayish blue; joints somewhat brownish; webs and soles black. Stomach empty.

No. 92984.—Iris white. Crop contained Amphipods.

In addition to the above notes on the color of the naked parts, contents of stomach, &c., a series of remarks were taken down from the fresh birds in order to show the relative proportions of different parts and other points which might be of interest as showing features not observable in the dried skins. The original notes read as follows:

No. 92978.—Membrane covering the nasal groove soft, except the prominent ridge forming the hind and upper border of the nostrils. The cere covering the culmen between the nostrils entirely soft, and of the color of the bill. No knob.

No. 92979. When the legs are stretched backwards the distal end of the first phalanx of the middle toe reaches tip of tail; tip of folded wings reach a little beyond the digito-tarsal joint. Middle toe without claw decidedly longer than the outer one; end of inner toe reaches penultimate phalanx of the middle toe. Feathering on mental angle reaches as far as the fore border of the nostrils. No knob.

No. 92981.—Proportions similar to those of the foregoing number, only that the wings hardly reach beyond the tarsal joint. On the bill the cere is raised a little on the culmen, on which several longitudinal furrows are visible, indicating the beginning of the knob.

No. 92982.—Tips of closed wings and end of tail reach middle of basal phalanx of middle toe, legs being stretched backwards. Middle toe decidedly longer than outer one. Knob very small, but fairly perceptible.

No. 92980.—Tip of tail reaches first joint of middle toe; the latter without claw longer than the outer toe. At base of culmen a compressed knob, 1.5<sup>mm</sup> long, 0.5<sup>mm</sup> broad, and 1<sup>mm</sup> high, highest behind. The upper surface of the knob is furrowed lengthwise, as if the knob were composed of four or five vertical leaves or layers. This is the original of the drawings.

Almost every one of the specimens had some injuries to their feet, phalanges wanting, webs split, &c. No. 92984 had even the whole left foot amputated, just beneath the heel, and the wound completely healed, and No. 92980 had the bone of the right tibia in the middle grown out to a big knot many times as thick as the bone in its normal condition.

All the specimens were lean, several of them even extremely so.

The plumage is still the so-called winter plumage; that is, the lower surface is still pure white, except in one skin (No. 92981), in which a few feathers on the abdomen are edged with dusky, as in summer specimens. But the white ornamental plumes of the face are present in all stages of development, from mere white specks until fully grown out, as in the head figured. The sequence of the following numbers indicates the

gradual increase of the number and size of these plumes: 92979, 92984, 92983, 92982, 92981, 92978, 92980.

Considering that most of the above specimens were obtained during the week between Christmas and New Year, the following conclusions seem to be justified:

The Least Auk, after the breeding season is over, probably at the same time as the corresponding process takes place in the allied species, loses the peculiar knob at the base of the culmen together with the lengthened and pointed white plumes ornamenting its face and head. About the end of the year, in some individuals earlier, in others later, a new knob and new ornamental feathers grow out, and, shortly after, the moult of the feathers of the body commences. The color of the bill also begins to change at the same time.

Dr. Dybowski asserts that he has found *Ciceronia pusilla* "nesting" at the Commander Islands ("nistend," Orn. Centrbl., 1882, p. 28). He gives no particulars, however, and during my subsequent sojourn on the island I could learn nothing about it. One thing is sure, that he got no eggs from there, and I doubt very much that the species has ever been found "nesting" on the islands. The birds are unknown to the inhabitants, at least to those of Bering Island, which I learned by showing them my winter specimen. Nor have they any vernacular name for the bird. In all probability Dr. Dybowski has been misinformed about the date of his specimen, which, curiously enough, is not mentioned by Taczanowski in his lists of the birds from Kamtschatka.

It was on December 1, 1882, that a specimen was brought me from Ladiginsk, on Bering Island. It was in full winter plumage, entirely white beneath, without knob, and with only a few traces of white feathers on the face. A few days before the end of the year several birds came near the shore, where they now could be seen to swim in small troops, or more frequently by twos and threes, parallel to the coast about a hundred yards off shore, according to the depth, usually in three-fathom water, where they dived with great expertness for Amphipods, which at that time seemed to be their chief or only food. When diving they lifted themselves up a little, and went down with a quick jump.

We were having a severe spell of cold when they made their appearance, and when it was over they disappeared again, none being seen after the 5th of January. They evidently winter on the open ocean somewhere about the islands.

13. *Cyclorhynchus psittaculus* (PALL.)

- 1769.—*Alca psittacula* PALLAS, Spicil. Zool., V (p. 13, pl. ii et pl. v, figg. 4, 5, 6).—*Lunda ps.* PALL., Zoogr. Ross. As., II, p. 366.—*Ombria ps.* ESCHSCHOLTZ, Zool. Atlas, IV (p. 3, tab. 17) (1831).—MIDDEND., Sibir. Reise, II, 2 (p. 239) (1853).—SWINH., P. Z. S., 1863, p. 331.—BRANDT, Mel. Biol., VII, 1869, p. 237.—FINSCH, Abh. Brem. Ver., III, 1872, p. 82.—DYBOWSKI, Sitzb. Dorpat. Naturf. Ges., 1881, p. —.—*Id.*, Orn. Centralbl., 1882, p. 40.—*Simorhynchus ps.* SCHLEG., Mus. P. B. Urinat., p. 24 (1867).—*Phaleris ps.* COUES in Elliott's Aff. Alaska, p. 204.—ELLIOTT, Monogr. Seal Isl., p. 134 (1882).—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 89.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 171.—NELSON, Cruise Corwin, p. 115 (1883).—BLAKIST., Amend. List B. Jap., p. 31 (1884).—*Cyclorhynchus ps.* TURNER, Auk, 1885, p. 159.
- 1860.—*Phaleris aleuticus* COINDE, Rev. et Mag. Zool., 1860, p. 403 (*nec* PALL., cfr., also Bureau, Bull. Soc. Zool. France, 1879, p. 49).

In order to find out the types of the different generic and subgeneric names of the group *Phaleridinae* we will have to resort to the "method of elimination." The matter then stands as follows:

1819. Merrem is said to have established the genus *Simorhynchus* (*nec* KEYS & BLAS., 1840, *qui Terekia* BP.) upon *A. cristatella* PALL. As early as 1868 Dr. Coues asked, "Where is this genus named?" but nobody seems to have been able to give an answer. Nor do I know whether Merrem included more species than *cristatella* in this apocryphal genus. Anybody having the opportunity of investigating the matter would gain the lasting thanks of ornithologists by publishing the results—preferably a full extract of Merrem's paper as far as it relates to the present question—in any of the standard ornithological periodicals.\*

1820. Temminck, in the second edition of his "Manual," established the genus *Phaleris*, including two species, as he thought, but really three, as *A. tetracula* is the young of a third species and not of *psittacula*, as supposed by him. The three species are *pygmæus* (= *cristatellus* TEMM., l. c.); *psittaculus* and *cristatellus* PALL. (= *tetraculus* TEMM., l. c.) The latter is already the type of Merrem's *Simorhynchus*, leaving for *Phaleris* the other two, *pygmæus* and *psittaculus*.

1826. It shall here only be remarked in passing that Boie† in this year restricted the genus *Phaleris* to *pygmæus* (*cristella* TEMM. (!), as he calls it), including the other species under *Fratercula*. More conclusive is that, in

\* Should "*Simorhynchus* MERREM, 1819." prove to be a myth only, *Phaleris* TEMM. would stand as the name of the genus with *pygmæus* for type, while for *cristatellus* should be adopted the subgeneric term *Tyloramphus* BRANDT.

† Boie, Isis, 1826, p. 980.



1829 Kaup\* created the genus *Cyclorrhynchus*† for *psittaculus*, which leaves *pygmaeus* the type of Temminck's genus *Phaleris*. It may here be added that Bonaparte at last gained the same conviction. He says:‡ “Le nom de *Phaleris* doit appartenir, malgré M. Gray et comme je l'avais toujours cru, au genre dont *camtschatica*, Lepechin (*crisatella*, Temm. nec Pall.), est le type et l'unique espèce.” Also Brandt came afterward to the same conclusion (see Mel. Biol., VII, 1869, p. 227, where the subgenus *Phaleris* only embraces *pygmaeus pusillus*). It seems that Eschscholtz§ about simultaneously with Kaup, but certainly not earlier, named the same genus *Ombria*, but as the certain date seems to be involved in some doubt (I have seen quoted 1829 and 1831||), and as I have no means for investigating the question, I prefer the name of Mr. Kaup as the one the date of which is beyond dispute.

The types of the other genera and the date of their names are too well known to require discussion here. They may all be tabulated thus:

1819. *Simorhynchus* MERREM. Type *crisatellus*.

1820. *Phaleris* TEMMINCK. Type *pygmaeus*.

1829. *Cyclorrhynchus* KAUP. Type *psittaculus*.

1828. *Cerorhinca* BONAPARTE. Type *monocerata*.

1852. *Ciceronia* REICHENBACH. Type *pusilla*.

It will thus be seen that each of the species has received a separate generic appellation. The value of these sections can hardly be regarded as equal, some, perhaps, being only of subgeneric importance, but this does not interfere with the question of which name properly belongs to each section, inasmuch as all of them are entitled to recognition. We will therefore have three genera: *Cerorhinca*, *Cyclorrhynchus*, and *Simorhynchus*, the latter composed of three subgenera: *Simorhynchus* (= *Tyloramphus* BRANDT), *Phaleris* and *Ciceronia*.

\* Kaup, Entwickgesch. Europ. Thierw., p. 155. “Alken mit kurzem oben wie unten bogenförmig gewölbtem Schnabel.”

† Nec *Cyclorrhynchus* SUNDEVALL, 1836, qui *Rhynchocyclus* CAB.

‡ Comptes Rend., XLIII, 1856, p. 645.

§ “Zool. Atlas, IV, p. 3.”

|| It seems that “part iii” was published in 1829 and “part iv” in 1831, *Ombria* consequently dating from the latter year.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89093	1036	Bering Island.....	May 11, 1882	♂ ad.	234	.....	150	43	17	30	43
89094	1260	...do .....	July 11, 1882	♂ ad.	256	.....	149	45	16	31	43
89143	1471	Copper Island.....	July —, 1882	(♂)ad.	.....	.....	147	42	15	29	42
92948	2082	Bering Island.....	May 23, 1883	(♂)ad.	.....	.....	150	43	16	31	42
92950	2152	...do.....	June 5, 1883	♂ ad.	.....	11	152	47	17	32	44
92947	2157	...do.....	June 5, 1883	♂ ad.	264	0	147	41	18	30	43
89095	1261	...do.....	July 11, 1882	♀ ad.	244	.....	145	40	16	31	44
92946	2020	...do.....	May 9, 1883	♀ ad.	264	.....	145	42	18	30	42
92945	2087	...do.....	May 27, 1883	(♀)ad.	(257)	.....	147	43	15	30	43
92949	2227	Copper Island.....	July 3, 1883	♀ ad.	256	6	144	44	14	29	40

No. 89093—Iris white. Bill salmon red; nasal shield darker, grayish brown; soft part along base of upper tomia whitish flesh color; interior of mouth whitish. Feet bluish white, tinged with yellow; on the joints a well-defined dusky spot; webs blackish, along the toes bluish white; side of tarsus and toes, as also the nails, black.

No. 92946.—For the color of the bill, which was more yellowish than any other seen before, reference is made to the colored drawing pl. *f*, immediately made from the fresh specimen. Feet bluish gray; diameter of eggs in ovary 3<sup>mm</sup>.

Before proceeding to discuss the different changes which the bill and plumage of this species are subject to, I wish to call attention to a structural feature of its bill which hitherto has passed unobserved or, at least, unrecorded. The reason why it has been overlooked for so long a time can only be explained by considering the fact that the peculiarity which I am going to describe is only tangible in fresh specimens.

Dr. Dybowski (Orn. Centrbl., 1882, p. 40) says that "in this species the soft parts at the angle of the mouth are wanting altogether." This is correct, if only the "rosette" is meant, which, indeed, is wanting in all the *Phaleridinae*, consequently also in the present species. But it is not correct if it be understood to mean that no soft parts are situated near the corner of the mouth.

In fresh specimens there will be found at the base of the tomia of the upper mandible a soft tumor of lengthened form, commencing a little behind the posterior corner of the nostrils and following the tomia backwards, gradually becoming absorbed into the soft membrane lining the corner of the mouth. It occupies the space between the nasal shield and the tomium, and has a slight depression on the upper surface, which,

when the excrescence dries up, in the prepared skin forms a furrow. The color is white slightly tinged with flesh color, and in the fresh bird, therefore, stands out in bold relief against the surrounding parts. On the lower mandible the feathering does not entirely reach the horny part of the beak, and the intervening soft skin is also of a similar white color.

This tumor was perfectly soft in all specimens which I had the opportunity of examining, but as none of these were taken late in the season, and I have never seen a winter specimen, I am unable to say anything about its later development with certainty. In all probability, however, the surface becomes hardened towards the end of the breeding season; it then will scale off irregularly during the course of the late autumn, leaving only a small and not very prominent soft space, which again will commence to swell late in the winter, towards the approach of the propagation time, but, as remarked, this is a hypothesis only.

The shedding of the basal parts of the bill of this species is not so simple as Mr. L. Bureau has conjectured.\* In fact, the basal portion is not formed by a single piece, as supposed by him, but consists of several deciduous parts. In the spring these are rather difficult to distinguish because more concealed by the adjacent feathers and more completely fused together. During the breeding season, however, the dividing furrows become more distinct and deeper, showing the following separate pieces:

1. The soft white swelling at the base of the maxillary tomia, the *tomial tumor*. Comp. pl. iv, fig. 6, and pl. v, fig. 1 a.)

2. The *nasal cuirass*, an irregular piece above and behind the nostrils, not continuous with the corresponding piece on the opposite side. (Fig. 1 b.)

3. A small unpaired saddle-piece riding at the base of the culmen, rising knob-like above the latter, and with the ends of its legs just touching the upper corner of the nasal cuirasses. This piece seems to correspond to the "*orlet*" of the bill of the *Fraterculinae*. (Fig. 1 c.)

4. A small depressed and angle-shaped space behind and below the "*orlet*" and above the cuirass, between these two pieces and the feathering. (Fig. 1 d.)

The *tomial tumor* has already been treated of above. It partakes

\* "Les parties susceptibles de se modifier par l'effet de la mue sont du reste fort simples chez le *psittacula*: elles se réduisent à une seule pièce cornée, la *cuirasse nasale* (pl. v, fig. 2) qui ne fait jamais défaut dans la famille des *Mormonidés*." (Bull. Soc. Zool. France, 1879, p. 50.)

much of the character of the "rosette" in the *Fraterculinæ*, and has probably a similar fate after the breeding season.

The other three pieces are distinctly and separately deciduous, as shown by the series brought home by me. It will be sufficient in the following to refer to two specimens only, No. 89095 and No. 92949, as they are fully representative. Both are females, and taken during the first part of July, at a time when the young are still in the nests.

In No. 89095 all the basal pieces are very distinctly individualized, and separated by deep grooves, the post nasal border of the "cuirass" in fact already commencing to separate from the underlying stratum. This is the bird from which pl. v, fig. 1, has been drawn.

In No. 92949, which was taken alive on the nest, containing an egg with developed young in it, is already partially moulting, as the "orlet" has fallen off, and the intermediate pieces (fig. 1 *d*) are cracked in a couple of places, while the cuirass is still firmly attached. In both specimens the anterior, constantly horny parts, are flaking off in thin and irregular chips. These being the only facts in my possession concerning the moult of the horny basal pieces of the bill, I abstain from any generalizations.

As to the moult of the plumage, I have the observation to offer that the wing feathers are moulted after the hatching of the eggs is finished. I received living specimens of this species simultaneous with those mentioned under *Simorhynchus pygmaeus*. The appearance and moult of the wing feathers in these birds were so completely identical that every word applied to one species is equally applicable to the other; hence no need of repeating here what is said under the head of the latter species.

The living specimens could not be induced to take any food. They walked semi-upright when moving, like all the members of the family, and such was their position during rest, too, as I have also often ascertained when watching the free living birds; later on, when growing weaker, they would lie down on their bellies.

Their pupils were very large, and the white iris in the living bird, consequently, had the appearance of a narrow ring only. The case was reversed in the dead bird, in which the whole eye was white, with a small black point in the middle.

The pending post-ocular tuft of white feathers was kept close to the body, not forming a bristling crest. These feathers are erectile at the will of the bird, but are usually carried closed together.



The "*Bjele-bruski*," *i. e.*, the white-breasts, are common, in suitable places, on both islands, though not very numerous, breeding in steep, cracked, and inaccessible rocks both on Bering and Copper Islands, especially in those places which are called "Nepropusk," that is, steep rocks rising straight out of the sea prohibiting any passage along the beach. Such places are found near the main villages on both islands, and in both places there are nesting colonies of these birds.

They arrive in the Commander Islands about the end of April. In 1883 the first three were observed on Bering Island at the Reef Point Nepropusk on April 28. On the 2d of May they were numerous at the same place. It is especially in the early morning that these birds are seen, the best time being about 4 o'clock during the spring, and also at the same hour in the afternoon, as the rest of the day, before the breeding has begun, is passed way out at sea, and after that time in the deep holes of the rock, in which the nests are located. At the time mentioned they may be observed sitting on the rocky ledges outside the opening of the nest-cave, usually only solitary pairs, but before the breeding commences often in small companies.

Their voice is a clear vibrating whistle, somewhat resembling that of *Cephus grylle* and *columba*.

When the full grown young have left the nest all seek the high ocean, disappearing completely from the island, and not a single specimen could be secured during the latter part of the summer. Where do they go in winter? They probably stay on the ocean further south than their allies, for while *Simorhynchus cristatellus*, *pygmaeus*, *pusillus*, *Lunda cirrhata*, and *Fratercula corniculata* all were obtained during the winter, not a single Bjelebruschka was seen or heard of, nor was it ever during that season picked up dead on the beach after heavy gales.

#### 14. *Lunda cirrhata* PALL.

- 1769.—*Alca cirrhata* PALL., Spicil. Zool., V, p. 7, pl. i, et pl. ii, figs. 1, 2, 3.—KITTL., Denkw. II, p. 205 (1858).—BOLAU, J. f. Orn., 1880, p. 132.—*Lunda c.* PALL., Zoogr. Ross. Asiat., II, p. 363 (1826).—COINDE, Rev. Mag. Zool., 1860, p. 403.—DYBOW., Sitzb. Dorpat. Nat. Ges., 1881, p. —.—*Id.*, Orn. Centrbl., 1882, p. 40.—*Id.*, Bull. Soc. Zool. France, 1883, p. 349.—NELSON, Cruise Corwin, p. 115 (1883).—STEJNEGER, Naturen, 1884, p. 54.—TURNER, Ank, 1885, p. 159.—*Mormon c.* KITTLITZ, Isis., 1831, p. 1104.—*Id.*, Knpfertaf., p. 3, taf. 1, fig. 2 (1832).—MIDDEND., Sibir. Reise, II, 2 (p. 240), (1853).—SCHRENCK, Reis. Amurl., I, p. 503 (1860).—SWINH., P. Z. S., 1863, p. 331.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 308.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 10 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 10 (1874).—TACZAN., J. f. Orn., 1876, p. 203.—*Id.*, Orn. Faun. Vost. Sibir., p. 75 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 52.—*Id.*, *ibid.*, 1882, p. 398.—

BLAKIST. & PRYER, Ibis, 1878, p. 210.—*Id.*, Tr. As. Soc. Jap. VIII, 1880, p. 179.—*Id.*, *ibid.* X, 1882, p. 88.—SEEB., Ibis, 1879, p. 21.—PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 201 (1883).—SAUNDERS, Ibis, 1883, p. 348.—BLAKIST., Amend. List B. Jap., p. 20 (1884).—*Fratercula c.* VIGORS, Zool. Voy. Blossom, Orn., p. 33 (1839).—CASSIN, Pr. Ac. Philada., 1862, p. 324.—FINSCH, Abh. Brem. Ver., III, 1872, p. 82.—COUES in Elliott's Aff. Alaska, p. 203 (1875).—ELLIOTT, Monogr. Seal Isl., p. 134 (1882).

1-29.—*Fratercula carinata* VIGORS, Zool. Journ., IV, p. 358.

1851.—*Sagmatorrhina lathamii* BONAP., P. Z. S., 1851, p. 202, pl. 44.

1858.—*Sagmatorrhina labradoria* CASSIN in Baird's B. N. Amer., p. 904.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 309.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Chord of culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89067	1040	Bering Island .....	May 11, 1882	♀ ad.	385	.....	193	64	65	35	58
92919	2074	..do .....	May 17, 1883	(♀) ad.	(378)	.....	191	64	58	35	60
92921	2133	..do .....	June 4, 1883	♀	367	10	187	59	58	33	51
92923	2562	..do .....	Sept. 6, 1883	(♀) ad.	.....	.....	192	58	58	36	59
.....	2561*	..do .....	Sept. 6, 1883	ad.	.....	.....	.....	.....	.....	.....	.....
92924	2563	..do .....	Sept. 6, 1883	ad.	.....	.....	193	62	60	35	58
92925	2772	..do .....	Sept., 1883	(♂) ad.	.....	.....	187	60	59	35	60
92926	2773	..do .....	Sept., 1883	(♀) ad.	.....	.....	192	59	57	36	59
92920	1874	..do .....	Jan. 19, 1883	♂ ad.	397	8	189	53	53	35	61
92922	1907	..do .....	Feb. 12, 1883	♂ jun.	391	23	198	62	52	36	60
.....	1924†	..do .....	Feb. 24, 1883	jun.	.....	.....	.....	.....	.....	.....	.....
92933	1667	..do .....	Sept. 24, 1882	juv. <sup>1</sup>	310	.....	144	43	37	37	55
92927	2771	..do .....	Sept., 1883	pull. <sup>2</sup>	.....	.....	126	44	35	33	51
92930	2564	..do .....	Sept. 6, 1883	pull. <sup>3</sup>	.....	.....	105	28	31	29	47
92928	2770	..do .....	Sept., 1883	pull. <sup>4</sup>	.....	.....	98	20	33	31	46
92929	2565	..do .....	Sept. 6, 1883	pull. <sup>4</sup>	.....	.....	.....	.....	31	28	43

\* In alcohol.

† Head only.

<sup>1</sup> Only a few downs left.

<sup>2</sup> One-quarter downy.

<sup>3</sup> One-half downy.

<sup>4</sup> Seven-eighths downy.

No. 89067.—Iris creamy white. Bill, terminal part bright salmon red, on upper mandible shaded with brownish, towards the base; basal part light olive green, the cylindrical ridge on culmen more apple-green; the angle of the mouth and the narrow, naked stripe of skin between bill and feathering, and a longitudinal stripe on the "rosette," which is of a somewhat purplish flesh color, vermilion, as is also the naked ring round the eyes. Feet vivid salmon red; soles reddish brown; nails black.

No. 92921.—Iris light grayish cream-color. Color of bill similar to foregoing, but red part of bill more orange, and the green parts, except the crest on the top of culmen, duller and more brownish; eye-ring also less bright. Feet more orange colored. Fat. Eggs swollen.

No. 92920.—Iris dirty white, with a faint creamy tinge. Bill, fore part vivid salmon red, with dark brownish shades at tip of upper mandible and between the last groove and the basal part, which is dark brown, with the tomium of upper mandible reddish anteriorly and brownish flesh color posteriorly; the brown of the lower mandible is mottled with brownish flesh color; angle of mouth orange colored, as is also the mesial furrow of the "rosette," which is light flesh color. Feet very pale salmon-red, brownish beneath. Very lean. Stomach contained a blackish brown, tar-like fluid.

No. 92922.—Iris light yellowish gray. Bill, terminal part orange-red, more brownish towards the tip; tomia dark brownish, as is also the basal part of both mandibles, which is quite soft; the "rosette" light brownish flesh color; furrows and corner of mouth dull orange. Feet whitish, with a tinge of

yellowish flesh-color, and shaded with faint greenish blue on the joints and along the toes; webs light dirty reddish brown; tarsus and toes beneath dark brown; nails black. The feathers of the ear-tuft not yet fully out, their bases still in the sheaths. Very lean.

No. 92933.—Iris dark brownish gray. Bill brownish gray, darker on the basal portion, tip blackish; the "rosette" similarly colored; naked eye-ring blackish; interior of mouth light flesh color. Feet light pearly gray, each scutellum with a brownish spot in the middle; webs, soles, and nails blackish.

No. 92930.—Iris grayish brown. Color of bill like that of the foregoing, but a little darker, especially on the upper mandible. Feet of a middle gray, with a faint tinge of yellowish olive; webs and soles blackish.

No. 92929.—Iris grayish brown. Colors only a trifle lighter than in the foregoing.

There is still great confusion and uncertainty among authors concerning the changes of plumage and bill ornaments in the two groups, *Fraterculina* and *Phaleridina*. The observations which I have had the opportunity to make in regard to the moult of the wing-feathers of the latter, and which are recorded under the head of *Simorhynchus pygmaeus*, are conclusive, and sufficient as far as this group is concerned, there being no previous investigations published that I am aware of.

The moult of the wing feathers of the *Fraterculina* have been studied in *Fratercula arctica*, among others, by Mr. Gerbe.\* The process is said to be performed in April, at the commencement of the general moult, and before the season of the propagation begins. The moult is said to take place in such a manner that the primaries are thrown off simultaneously, the secondaries following a few days after, thus reducing the wings to mere fins, and making the bird incapable of flight for several days. (Cf. Bureau, Bull. Soc. Zool. France, 1879, p. 17.)

It will be seen that this process is exactly the reverse of what I have shown to take place in the *Phaleridina*, in which the moult occurs after the breeding, being, besides, gradual and normal in every respect.

None of the specimens of *Lunda* or *Fratercula* collected by me, although from different seasons, were in the act of moulting, and my material of these species is therefore less conclusive than that of *Simorhynchus pygmaeus*. The condition of the wing-feathers in the different specimens, however, indicate, with a probability very nearly approaching absolute certainty, that the moult of the remiges in *Lunda cirrhata* and *Fratercula corniculata* does not differ materially from that of the *Phaleridina*; consequently that it is a postnuptial, and *not* a prenuptial moult. This is pretty evident from the fact that my September specimens have the remiges much blacker, and fresher than those killed in May, in fact, quite new and perfect, while the female collected in the beginning of June has the remiges worn, and with all signs of being old

\* Observation sur la manière dont s'accomplit la mue des rémiges chez le Macareux moine (Rev. et Mag. de Zool., 1875).

feathers, ready to be exchanged for new ones after the incubating season.

I may, therefore, be excused for doubting the correctness of the statement that there is a prenuptial moult of the wing-feathers in *Fratercula arctica*, the much more so as the material of the latter, which I have been able to examine, in no way corroborates the observation of Mr. Bureau. That the process should be so radically different in the two species of *Fratercula* is more than improbable. The question as to the moult of the remiges of *F. arctica* may yet be regarded as an open one, and ornithologists, having the opportunity of making observations should not omit them in the belief that all is known about the matter.

About the moulting of the rest of the plumage in spring the previous statements are conflicting. Bureau (l. c.) says that the spring moult is complete, while Dr. Dybowski (Orn. Centrbl., 1882, p. 40) asserts that "in spring the moult is only partial," and restricted to the outgrowth of the ornamental feathers, and the moult of the wing and tail-feathers. Whether the latter statement, about the wing and tail-feathers, pretends to be based upon actual observations cannot be ascertained, and may therefore be regarded as valueless in view of the remarks above. As to the moult of the contour feathers, however, Mr. Bureau is undoubtedly correct, as I can testify from actual observation, only with the addition that the regular time is not in spring, but in the latter part of the winter. It may be remarked, though, that the individual variation in this respect is very great, as in so many other sea birds.

Dr. Dybowski has of late (Bull. Soc. Zool. France, 1884, p. 348) advanced another erroneous theory in regard to the moult of *Lunda cirrhata*. He states that the young of the latter in the first plumage has the under surface pure white, and that the same birds early in spring, before the spring moult, are dark all over, as are the adults. He, therefore, concludes that a moult must have taken place between these two phases, "something similar to that which occurs in the young *Tetraonidæ*" (!). In the first place, the young of *Lunda cirrhata* in the first plumage is not pure white below; they are of a light gray underneath, gradually deepening towards the chin. The shade of this gray is exceedingly variable, however; in some quite light, almost whitish; in others much deeper, corresponding to a similar variability of the intensity of the dark under surface of the adults; and of the four half-fledged young collected by me, and partly yet in the down, no two are exactly alike, while the full-grown young bird obtained in February (No. 92922) is completely inter-



mediate in color between the former and the old birds. This would indicate a gradual darkening of the first plumage of the young; at any rate, no second moult takes place before the regular prenuptial moult.

In default of a better opportunity, a curious mistake of Mr. Bureau may be corrected in this connection. He asserts, with the greatest positiveness, that the female of *Lunda cirrhata* differs from the male in being destitute of the long, pendant yellow ear-tufts (Bull. Soc. Zool. France, 1879, p. 33). This statement is completely unfounded in nature, as the female in external structure and coloration is absolutely indistinguishable from the male. I have seen thousands and thousands of both sexes during the breeding season, and they are all alike; there is not a single untufted adult bird on the rookeries at that period.\*

As the same author seems to believe that the summer and winter plumage of this species are identical (Bull. Soc. Zool. France, 1879, pl. iii, fig. 3, which, though having tufts and white mask, is a "restauration" intended to illustrate the winter plumage, and p. 33, where he most positively and most erroneously asserts that the plumage of the adult male in winter is "absolument semblable à celui des nocés"), a brief review of the sequence of the different plumages and their coloration may, perhaps, not be out of place.

In August and September the downy young, still in the nest-holes, become clothed with their first feathers in place of the dark fuliginous down. In this plumage, which is wholly developed before they leave the nest, the upper surface and the under tail-coverts are more or less glossy black; the sides of the head are blackish gray; under surface deep ashy on the chin and throat, fading backward into a light gray, the intensity of which differs individually to a considerable extent, darkening, as it appears, during the course of the winter. About the middle of February, earlier or later in the different individuals, according to the time when they left the egg, the first moult of the contour-

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\* Mr. Bureau's positiveness about this point is quite illustrative of the usual generalization of many ornithological writers. He had two specimens (apparently without authenticated dates) before him, said to be females, which had not the ear-tufts grown fully out (cf. "*aigrettes*, dont le point d'implantation est indiqué par une tache jaune paille"). And upon this extremely scanty material he boldly asserts: "Pallas, et, depuis lui, tous les auteurs que ont écrit sur cette espèce, considèrent à tort la femelle comme étant absolument semblable au mâle et pourvue d'aigrettes." If Mr. Bureau had taken the trouble of raising the feathers of the "tache jaune" he would have found them still in their sheaths, the yellow spot being formed by the tips of the ear-tufts in the progress of development. (Cf. Bureau, l. c., pp. 33, 34.)

feathers commences, the ear-tufts at the same time making their appearance; these are at first of an isabella-brown color, afterwards changing into pale straw-yellow, (plate ii, fig. 4). The under parts of the new plumage are darker (though never glossy), and the contrast between the under tail-coverts and the rest is, consequently, less conspicuous, but the most radical change occurs in the coloration of the face, which now assumes the white "mask," and the young of the year is now indistinguishable from the old birds as far as plumage is concerned.

As mentioned above, the material at hand seems to justify the conclusion that remiges and rectrices are not shed at this moult, but at the next one, which takes place in September (earlier or later according to circumstances), or when the incubation is finished. At this moult the long ear-tufts are thrown off, the white "mask" is replaced by blackish gray feathers; all the other feathers are likewise shed, without any change, however, in the general color of the rest of the plumage. It has also been mentioned above that the time when the moult takes place is very variable in different individuals, a fact which should always be borne in mind. On the 22d of August, 1882, I observed a single old bird, with large red bill, having already changed its mask and dropped the ear-tufts, but it was the only one in a large flock of many hundreds; on the other hand, individuals are found which have not assumed their winter plumage as late as the end of October. The adult bird in winter is represented in fig. 2, pl. i.

Parallel with and corresponding to this moult of the plumage the remarkable shedding of the basal parts of the bill takes place. Mr. Bureau has the honor of first having pointed out this fact, but for want of sufficient material he had to content himself mostly with hypotheses and assumptions, consequently falling into several errors. Dr. Dybowski afterwards observed parts of the process, but, not content with the facts observed, went on speculating, and, needless to say, consequently, also made grave mistakes. It will, therefore, be expedient to point out and correct these before proceeding to a detailed account of the process as it actually takes place.

The figures representing the heads of *Lunda cirrhata*, and accompanying the two articles of Mr. Bureau are not only crude, but in several points absolutely erroneous, it being sufficient to compare fig. 4 of pl. v, Bull. Soc. Zool. France, 1877, with those on pl. iii, *op. cit.*, 1879, particularly the grooves, the crest, and the lower end of the horny



“*orlet*,”\* not to speak of the color of the deciduous parts which are painted red instead of green, and of the “*rosette*,” which is made bright yellow instead of flesh color.

Mr. Bureau asserts (*op. cit.*, 1879, p. 39) that the mental cuirass is uniform in color with the rest of the under mandible, so that its existence is hardly suspected when the bird is in full summer or winter dress. From my drawings and descriptions, it will be seen that such is not the case. That piece is *always* differently colored from the rest of the mandible (except in the young birds), the latter being always red, while the former is green in summer and deep brown in winter. It is not more correct when he says (*l. c.*) that the “*atrophic triangle*” is so much reduced that its retraction does not sensibly modify the outline of the inferior mandible. A glance at my figures on pl. i shows at once that the lower outline of the mandible is considerably different in summer and winter, the gonydeal angle being, in fact, situated at the middle of the mandible during the latter season, while in summer the corresponding point is placed within the basal third of the mandible.

\* I follow Mr. Bureau's nomenclature of the different basal pieces as closely as possible. The following is a synoptical table of his terms with reference to the figures on pl. iii, B. S. Z. F., 1879, together with the equivalents employed by Dr. Elliott Coues in a review of Bureau's discovery in the Bull. Nutt. Orn. Cl., 1878, p. 89, and by Dr. Theo. Gill in an article of similar object in Baird's “*Annual Record of Science and Industry*” (“*Harper's*”), 1878, p. 460. In the last column will be found the English term corresponding to the French appellation, which I propose to adopt.

B. Z. S. F., 1879, pl. iii.	French appellation by Mr. Bureau.	Terms employed by Dr. E. Coues.	Terms employed by Dr. Th. Gill.	Terms employed in the following account.
Fig. 1 and 4 a.....	<i>Ourllet corné</i> .....	Boss .....	Basal lamella .....	<i>Horny orlet.</i>
Fig. 1 and 4 b.....	<i>Cuirasse nasale</i> ..	Nasal buckler.....	Supranasal saddle.	<i>Nasal cuirass.</i>
Fig. 4 c .....	<i>Lamelle sous-nasale.</i>	Subnasal lamellæ.	Subnasal lamellæ.	<i>Subnasal lamellæ.</i>
Fig. 1 and 4 f.....	<i>Lisééré corné</i> .....	Horny selvage....	Mental lamellæ ...	<i>Horny selvedge.</i>
Fig. 1 and 4 g.....	<i>Cuirasse mentonnière.</i>	Mental buckler ...	Inverted saddle...	<i>Mental cuirass.</i>
Fig. 1 i.....	<i>Rosace</i> .....	Rosette .....		<i>Rosette.</i>
Fig. 3 a'.....	<i>Ourllet membraneux.</i>	Membranous boss.		<i>Membranous orlet.</i>
Fig. 3 b'.....	<i>Membrane nasale.</i>	Nasal membrane..		<i>Nasal membrane.</i>
Fig. 3 f'.....	<i>Lisééré membraneux.</i>	Membranous selvage.		<i>Membranous selvedge.</i>
Fig. 3 g'.....	<i>Matrice mentonnière.</i>	Mental matrix .....		<i>Mental matrix.</i>
Fig. 3 b''.....	<i>Cimier membraneux.</i>			<i>Membranous casque.</i>

The horny subcylindrical protuberance at the base of the culmen is not marked by a distinctive letter on the figures; in the text it is called “*cimier corné*,” a term here transcribed by “*horny casque*.”

Dr. Dybowski's mistakes are more serious. In the article in *Ornith. Centrbl.*, 1882, he says *positively*: "During the further development of the moult the entire fore part of the bill scales off and assumes a dark color; the entire head becomes covered with black feathers, and the iris becomes blackish brown." And to strengthen his assertion he adds in a foot-note in this very place: "In my collection all these stages of moult are represented by splendid specimens."\*

Nevertheless, this startling discovery of the shedding of the anterior part of the bill, too, is not at all based on facts, being a mere supposition, young birds having been mistaken for adults. Dr. Dybowski himself has afterwards become doubtful about this point, which, at first, was asserted with so great positiveness. His doubts are expressed thus in the *Bull. Soc. Zool. France*, 1883, p. 349: "I am convinced that the worn bill cannot obtain the form it has in spring without having first changed its *entire* superficial sheath. Therefore, *although I do not possess such a sheath*, I persist in my conviction that the bill is wholly shed,"† (italics mine). What has become of the "splendid specimens of *all* the stages of shedding"? It is, then, clear that the "discovery" is not founded upon observation but upon a "conviction." The mistake rests upon the circumstance that he got young birds, some with light and others with dark colored undersides; the latter he took for adults, not taking into account that the former were obtained in November (*B. S. Z. F.*, 1883, p. 348) while the latter were taken later in winter and spring (*Orn. Centrbl.*, 1882, p. 28).

The wear and tear of the anterior part of the bill is overcome and remedied by the same process as in other birds, the external horny layers flaking off irregularly, substituted by the successive growth of the underlying ones. There is no need of assuming a regular shedding of that part, and most certainly it does not take place; conclusive evidence, besides, is furnished by No. 92920 (pl. i, fig. 2).

The statement of Dr. Dybowski that the iris of the adults changes from whitish to blackish brown is a result of the same confusion of the adults and young, and so is the assertion that the color of the whole bill of the adults is dark in winter.

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\* Im weiteren Verlauf der Mauser schält sich der ganze vordere Theil des Schnabels und bekommt eine dunkle Farbe; der ganze Kopf bedeckt sich mit schwarzen Federn und die Iris wird schwarzbraun. In meiner Collection sind alle diese Mauser-Stadien durch practvolle Exemplare repräsentirt. (*L. c.*, p. 40.)

† Je suis persuadé que le bec usé, ne peut parvenir à sa forme de printemps qu'après avoir changé en entier son fourreau super      Ainsi donc, quoique je ne possédés pas de fourreaux pareil, je persiste dans ma conviction que le bec mue en entier.

Other misstatements as to the color of the naked and soft parts have originated in describing them from dried skins, or at least from specimens not absolutely fresh. This is evident, for instance, where the bill and feet of the young birds are described as black (Orn. Centr., 1882, p. 29: "Beine immer noch schwarz"), and the rosette of the adults as "pæonia-red."

Another mistake is probably due to lack of material, the stage in question *not* being represented in the "splendid" series. I allude here to his statement (Orn. Centrbl., 1882, p. 30) that when the horny orlet falls off it is replaced by *black* feathers. The fact is that the feathers which are growing out when the orlet drops off are *white*, as my specimens conclusively prove; this part drops off before the white face-mask has changed to black; when that change takes place then the white feathers on the "membranous orlet" are first exchanged for black ones.

The series of plain and colored drawings which accompany this account were carefully prepared on the island from specimens perfectly fresh and still in the flesh; they were not merely sketches, but *finished* on the spot, and have not been touched since. I claim for them the merit of being true in outline and color. They illustrate most of the different stages of development and transformation, and, in consequence, are frequently referred to in the following, as they certainly convey a better idea of the specimens than the most explicit description; besides, the descriptions have been given above under the remarks following the "list of specimens collected," p. 44.

The color and shape of the bill of the downy young (pl. ii, fig. 1) is exactly that of the more developed young represented in the same plate, fig. 2. Passing through the stage of fig. 3, the bill grows gradually during the winter, simultaneously reddening in the anterior part. Birds hatched very early will have attained a development corresponding to fig. 4 at the middle of February, while late birds at the same time will not have advanced farther than the stage represented by fig. 3. The next step is the swelling and growth and subsequent hardening of the basal parts accompanied by their change of color into an olivaceous green. At the same time the semilunar vertical grooves on the anterior part of the upper mandible commence to be visible. It seems as if they are formed by a constant flaking off, as the superficial corneous layer of the grooves is always more or less lacerated, detached, and in course of scaling, causing the whitish coloration of the grooves. When this

process is finished the young bird is essentially like the adults, but whether partaking in the breeding during the first year I cannot say with certainty. I am inclined to think, however, that the still immature birds remain on the high sea away from the rookeries during the breed-

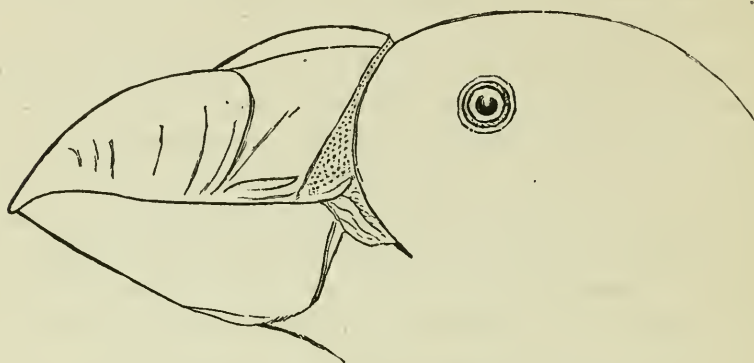


FIG. 1.—*Lunda cirrhata*, jun. Copper Island, July 30, 1883.

ing season, for I never saw a breeding bird like that shot by me on Copper Island on the 30th of July (fig. 1, text), which even at that late date had the grooves only just perceptible; it was shot a distance off shore, and judging from its conduct and its perfect plumage at that

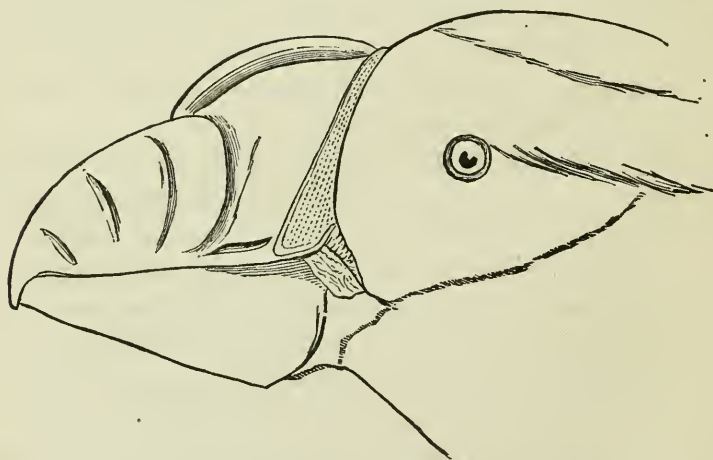


FIG. 2.—*Lunda cirrhata*, jun. Bering Island, June 4, 1883.

time was not engaged in the incubating business. In all probability this is only a very late bird, holding the same relation to pl. ii, fig. 3, as does fig. 2, text, to pl. ii, fig. 4. But while I feel quite sure that this bird and others of the same stage did not breed that season, I



am not so certain in regard to fig. 2, text. That bird was picked out of a lot of similar ones which I examined when visiting the rookery on Toporkof Island on the 4th of June, 1883. Here are the remarks concerning these specimens, written down on the spot: "The bill is considerably shorter and lower, and the casque is arched and not straight as in the old birds; the colors are less bright, the red being paler and more orange, and the green more olive, the casque alone being clear apple-green; the rosette is less vivid, the red especially less conspicuous and more pinkish; the naked eye-ring is narrower and more dull colored, while the feet are more orange." These were evidently birds of the foregoing year, and their presence on the rookery so late would seem to indicate that they were going to breed that season, an assumption the more probable, as the eggs in the ovary were quite swollen. It may be, therefore, that the early-hatched birds breed the next season, while those reared late in the year—and downy young are found in the nests as late as the end of September—pass the first summer without partaking in the reproduction.

Towards the end of the breeding season, and a little before the moulting of the contour-feathers commences, the green color of the deciduous parts becomes more brownish, the rosette shrinks, becoming rather pinkish of color, the edges of the different pieces are raised and hard, and the grooves between them deepened. The distinction between the apical and basal parts of the lower mandible, which until then has only been indicated by the difference in color, is now clearly marked by a sharp and deepened line.

The first part to come off is the horny orlet, the process usually beginning in such a way that the orlet bursts on the culmen where it is quite narrow, and much more so than shown in Bureau's figure (fig. 4a, pl. iii, B. S. Z. F., 1879), and from the culmen the two detached halves of the orlet flake off downward to the tomia, exposing the membranous orlet, which is now covered with rows of about 1<sup>mm</sup> long *white* feathers. Next comes the nasal cuirass, which, unlike the former, first detaches itself along the upper margin of the nostrils. This nasal cuirass is separated from the adjacent pieces all around by deep furrows, except at two narrow points behind and in front of the nostrils, and in loosening, these narrow bridges break irregularly. Simultaneously the basal part of the mandible is shed, first loosening along the feather border, then along the tomia until it finally breaks at the lately formed line across the mandible. In Bureau's figure the horny selvedge is repre-



sented as a well defined and separate piece; I may therefore remark that in all my specimens the lower half of this piece is connected with the mental cuirass, and that they are shed together; it must be remarked, however, that any violence during the process is apt to break the different parts irregularly. As to the subnasal lamellæ my material does not indicate any shedding, and as they are colored reddish like the persistent part of the bill, and not greenish as the deciduous pieces, I am inclined to think that they are not shed at all.

These changes occur during the months of September and October, some individuals commencing as early as the beginning of the former, while others are not yet through at the end of the latter.

The bird now looks like fig. 2, on pl. i. It will be seen that neither is the anterior part shed, nor dark colored, nor the iris changed to blackish brown, the specimen figured having been obtained on the 19th of January.

In the early part of the next spring the soft parts again become hard and change color, and as soon as the breeding season is at hand the fully adult bird looks like fig. 1 on pl. i.

It may be added that the birds take to the open ocean shortly after the shedding commences, remaining far from any land until the vernal transformation is finished. Only severe storms or excessive cold bring them in winter near the shore.

I observed a few individuals which had four grooves on the anterior part of the maxilla, but out of a hundred birds I found only two or three. These were probably very old birds.

One specimen, No. 92924, shows trace of corresponding grooves on the lower mandible.

The "*Toporok*" (plur. "*Toporki*"), together with the "*Are*" (*Uria arra*), is the most numerous of the many species of the *Alcidæ* on the islands, and as both are also the largest in size, they become of eminent importance to the natives as sources of fresh meat. This is especially the case on Copper Island, the area of which is more limited, and where the inhabitants have fewer facilities for preserving the meat of the fur-seals slaughtered during the short season of the summer. To them the adults, young, and eggs are most welcome additions to their bill of fare, and, indeed, I myself was very often gratified by a good meal of fried "*Toporki*," for the meat, although very dark, is by no means distasteful. I remember occasions when I thought I had never eaten anything better, when fur-

seal-tongues and toporok-breasts were esteemed higher than deer-tongues and goose-breasts are to-day.

But it is not only for food that these birds are used. The skins are carefully flayed off, and made into wide and long, very warm and nice garments, the so-called "*parka*," with the feathers turned inside. About fifty skins are required for one "*parka*." In order to remove the fat from the skins, they are chewed over and over again by the women and children until all the fatty matter has been chewed out, that being their method of tanning. These "*parki*" are rather easily torn, but are extremely warm and light, as I can testify from my own experience. Dressed in one I could go driving in a dog-sledge in the severest cold without feeling any inconvenience, and its lightness would allow me to keep it on when strolling about, away from the sledge, hunting ptarmigans or other ornithological and gastronomical objects.

The yellow feathers of the long ear-tufts are in great demand for decorative purposes. The seams of a fine "*Kamlejka*" (rain coat made of seal-guts) is often tastefully adorned with them.

With the beginning of May these birds commence making their appearance on the coasts of the islands,\* looking out for their old homes, but for a while they stay mostly on the water, not far from land, until the nests are taken possession of in earnest, which happens about the beginning of the second week of June.

The natives, heartily tired of their winter food, the salted seal meat, look forward to the arrival of the Toporki with great impatience, and as soon as a sufficient number are observed in the neighborhood of the old rookeries parties start off in order to catch a good supply for food and clothing, advantage being taken of the peculiar habits of the birds

I shall in the following attempt a short description of such an excursion:

On a bright afternoon in May—and at that season really some fine, bright days occur, even on the Commander Islands—we started, a gay picnic party, consisting mostly of Aleuts and their wives or lady friends,

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\*Dr. Dybowski states that they do not arrive on the coast of Kamtschatka before the second week of June ("*Ende Mai. a. St.*," *Orn. Centrbl.*, 1882, p. 28). That may be, but it is certain that they appear about five weeks earlier at the islands, for when, in 1882, I landed on Copper Island on the 5th of May Toporki were already plentiful, and in 1883 they were noted as arrived at Bering Island on the 7th of the same month. In fact the first egg was found on June the 12th, which corresponds to the last of May, "old style."

for the small island Toporkoff, about three miles off from the village. During our passage out only few birds were seen, as it was no "land day," but I was assured that they would be in on the following morning. The Toporki and their allies show during this season, previous to the breeding, the peculiarity of appearing regularly, as it seems, in great abundance near shore on one day, while next day they have all disappeared, staying away on the high sea for two days, when they again take a "land day." The natives had calculated that the following day would be such a regular land day.

The afternoon passed pleasantly; some were out fishing, the younger members of the party were playing ball, while I was busily engaged in securing specimens of *Troglodytes pallescens*, *Acanthis linaria*, &c., besides odds and ends of plants, insects, mollusks, and crustaceans.

Toporkoff, which has received its name on account of being a rookery of the "Toporki," is a small island consisting of a level plateau about 30 feet above the surface of the sea, rising abruptly from a 50 to 200 feet broad, sandy or rocky beach. The upper surface of the plateau is covered with a thick, hummocky sod, which in every direction is perforated by the numberless holes dug by the "Toporki" and used by them for dwellings to rear their young in.

Water birds were rather scarce near the island, though at a distance large flocks, like black patches, were seen resting on the sea. Now and then a solitary Toporok would cross overhead in its straight flight; a few cormorants (*Phalacrocorax pelagicus*) aired their wet wings on the outlying rocks, stretching their long necks in all directions; noisy gulls (*Larus glaucescens*) flew up and down, screaming and scolding at the intruder.

Evening set in, and the picnic party returned, leaving us men with the bajdarkas. Toporki crossed the island more frequently, but not in such numbers that it was thought worth while to try catching them. A camp fire was started for the preparation of the tea, and soon the indispensable "samovar" was humming its cheerful tune. My Aleuts were unusually silent and dull, and we soon crept into the hull of the bajdarkas, a snug and rather comfortable bed, though smelling considerably from seal-oil, that peculiar smell which characterizes almost everything on the islands, and to which the outsider will have to adapt himself, if he wants to feel comfortable during his sojourn on the seal islands.

The ornithological spectacle at daybreak the following morning was quite different from what it had been the foregoing day. Hundreds and thousands of *Lunda cirrhata* crossed and recrossed the island, coming from all directions, and disappearing on the opposite side, in order to return again and again. A wonderful sight! The black birds, with their conspicuous white face-mask, the long and floating yellow ear-tufts bent like the horns of a ram, and the large green-and-red-colored beaks and red legs, looked more like fantastical creatures of the tropics than inhabitants of the less extravagant north. Their flight seemed to have no particular aim except to view and review the spot where they were going to take up their summer abode, for they flew singly upon their straight courses, no one taking notice of the others. Like black specks they rose from the horizon heading for the island; the nearer they came the bigger they grew, until they passed over us, disappearing as specks again on the other side, and when first started nothing seemed to be able to bring them out of their straight course. These clumsy looking, puffy birds possess, nevertheless, a very rapid flight, so that at the first acquaintance one is rather apt to shoot behind them, but they do not rise very high in the air, especially when passing over the upper plateau of the island.

The natives take advantage of these peculiarities, and their device for catching the Toporki is based upon the apparent difficulty of the bird to make a sudden turn in its straight flight.

A piece of wide-meshed net-work stretched on a hoop, about 4 feet in diameter, fixed to a light pole, 10 to 12 feet long, is the instrument used in catching the Toporki, by suddenly throwing it in the way of the bird, who flies directly into it, and thus falls to the ground and is captured.

When I turned out the Aleuts were already in their places waiting for the rush of the birds, which had not yet begun. They were scattered pretty evenly around the island, seated on the edge of the bluff. Their immovable figures, wrapped in the warm "parka," or the lighter "kamleika," were clearly visible against the gray western sky, and now with the dawning day we discern the net at their side, but, what is more surprising, each one surrounded by a small flock of Toporki. These stretch their necks and point with their bills straight up in the air in quite an unaccountable manner, remaining so long in that rather unnatural position that we become suspicious. A closer



inspection reveals that these are only decoys, empty skins held in position by a stick protruding between the jaws and with the other end thrust into the ground.

Before long the sea and the horizon become lively with birds, and soon the sky above us literally swarmed with these red-and-green-beaked, white-masked, yellow-horned masses. It was "land-day," indeed! I only wondered that they did not suffer collision with each other during their airy sailing, for they were thick as May-flies round an electric light, and flew both straight and rapid.

When a Toporok crosses overhead of an Aleut he suddenly raises his net; the bird, unable to turn aside, runs into it with a clash, falls to the ground, and in a twinkling is added to the heap of other unfortunates with broken necks.

When full day has set in this sport is at an end, as then the birds fly higher, and now comes the moment for me and my gun, for we, too, want fresh Toporki for dinner!

To the accompaniment of the buzzing breakfast-"samovar," I wrote down my memoranda on fresh colors, individual variation, moulting, &c., surrounded by hundreds of specimens, selecting desirable objects for skinning, and preparing colored sketches of the fresh colors of bills, eyes, &c., before they fade away and dry up.

After a successful hunt we then returned in the "bajdarkas."

The eggs are white, without gloss, usually with faint lilac spots, which are more numerous in a wreath around the blunt end. Owing to the location of the nests in holes dug in the soil, the eggs are always more or less stained.

*Dimensions of eggs.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	Date.	Long diam.		Short diam.	State of incubation.
				mm.	mm.		
21788	2245	Copper Island .....	July 12, 1883	71	50	Fresh.	
21789	2246	.....do .....	July 12, 1883	68	48	Do.	
21790	2283	.....do .....	July 18, 1883	68	45	Do.	
20791	2284	.....do .....	July 18, 1883	71	50	Cont. smallembryo.	



15. *Fratercula\* corniculata* (NAUM.).

- 1788.—*Alca arctica* 3, GMEI., Syst. Nat., 1, 2, p. 549.  
 1821.—*Mormon corniculata* NAUMANN, Isis, 1821 (p. 782, taf. 7, figg. 3, 4).—KITTLITZ, Kupfer taf., I, p. 3, taf. 1, fig. 1 (1832).—*Id.*, Denk w., I p. 301 (1858).—MIDDEND., Sibir. Reise, II, 2, p. 240 (1853).—CASSIN, Pr. Acad. Philada., 1862, p. 324.—SWINH., P. Z. S., 1863, p. 331.—DALL & BANNIST., Tr. Chic. Acad. I, 1869, p. 308.—DALL, Avif. Aleut. Isl. Unal. east w., p. 10 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 10 (1874).—TACZAN., Orn. Faun. Vost. Sibir., p. 74 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 52.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 179.—*Id.*, *ibid.*, X, 1882, p. 89.—PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 201 (1883).—SAUNDERS, Ibis, 1883, p. 348.—BLAKIST., Amend. List B. Jap., pp. 29, 31 (1884).—SEEB., Ibis, 1884, p. 174.—*Fratercula c.* KITTL., Denk w. Reise, II, p. 224 (1858).—*Id.*, Journ. f. Orn., 1858, p. 389.—FINSCH, Abh. Brem. Ver., III, 1872, p. 82.—COUES, in Elliott's Af. Alaska, p. 202 (1875).—DYBOW. Sitzb. Dorp. Nat. Ges. 1881, p. — *Id.* Orn. Centrbl., 1882, p. 40.—ELLIOTT, Monogr. Seal Isl., p. 133, (1882).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 171.—TACZAN., Bull. Soc. Zool. France, 1882, p. 398.—NELSON, Cruise Corwin, p. 115 (1883).—TURNER, Auk, 1885, p. 159.  
 1826.—*Lunda arctica* PALL., Zoogr. Ross. As. II, p. 365 (part).—*Fratercula a.* BUREAU, Bull. Soc. Zool. France. 1879, p. 23 (!).  
 1831.—*Mormon septentrionale* KITTLITZ, Isis, 1831, p. 1105.  
 1835.—*Mormon glacialis* AUDUIN, Orn. Biogr., III (p. 599, pl. 293, fig. 1) (*nec* TEMM., 1820).—*Fratercula g.* VIGORS, Zool. Voy. Blossom, Ornith. p. 33 (1839).

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Chord of culmen.	Tarsus.	Middle toe with claw.
					mm	mm	mm.	mm.	mm.	mm.
92930	2076	Bering Island.....	May 26, 1883	(♂) ad.	(341)	183	70	55	29	30
89088	1209	.....do.....	June 14, 1882	♂ ad.	.....	173	61	50	30	49
89089	1063	.....do.....	May 21, 1882	♀ ad.	.....	177	62	51	32	52
89090	1136	.....do.....	May 31, 1882	♀ ad.	342	173	61	51	29	49
89091	1178	.....do.....	June 8, 1882	♀ ad.	343	188	65	50	32	51
92932	1920	.....do.....	Feb. 24, 1883	♂ jun.	357	174	64	40	31	51

No. 89089.—Iris, dark gray with a tinge of brownish. The soft "eye-horns" brownish black with a delicate, silky gloss; naked eye-ring vermilion. Tip of bill, until between second and third groove, salmon-red along culmen and gonyx, elsewhere brownish red; base of bill very light and bright lemon yellow, the callosity at the corner of mouth bright orange, as is also the interior of the mouth and the tongue. Feet colored between salmon-red and flesh-color; webs scarcely darker; under side of tarsus and of outer and inner toes brownish; that of the middle toe and of the webs only a little deeper red than the upper surface; nails brownish black.

No. 89090.—Iris dark brownish gray. Bill: Tip blood-red, brownish behind and below, border of hind groove almost black; basal part light lemon yellow; callosity at corner of mouth bright orange. Eye-ring vermilion; horn above and below the eye brownish black with silky gloss. Feet reddish orange, outside paler, livid; soles reddish brown.

No. 89091.—Iris brownish gray.

No. 92932.—No detailed description of the color of the bill made, as it was drawn and painted immediately (see pl. iii, fig. 3). Feet whitish flesh-color tinged with bluish; webs brownish gray, tarsus and toes below blackish brown. Stomach empty. Very lean.

\* The application of the generic name, as indicated in Cones's second check-list, seems somewhat far-fetched (in the second edition of the "Key" he asks, "What appli-

Dr. Dybowski is only partly correct when he (Orn. Centralbl., 1882, p. 40) describes the feet of this species as "orange yellow" (*orangegelb*). The color varies considerably, being much paler before the breeding season, so pale even that it often approaches dirty flesh-color. The brightest color is assumed in May or June, during which months the feet are of an intense red, in some cases tending to salmon color, in others to orange; but out of the many scores of these birds examined by me at that time not a single one had the feet yellower than a rich "reddish orange," this being the extreme and the exception. The soles are usually lighter or darker reddish brown. It is only after the breeding season that the feet of the adult birds assume an orange yellow color, a change which takes place in the latter part of July, at which time the webs are even brownish orange, this color lasting until late in the following winter. In an old bird obtained on February 24, 1883, (L. S. No. 1915) I find the colors described as follows: "Feet orange yellow, webs more reddish; tarsus and toes below dark brown." In the young bird during winter the feet are almost white, with brownish gray webs.

I must also add that I never saw an iris which could be termed "whitish gray or brownish white" (*weisslich grau, oder brüunlich weiss* Dybow., *l. c.*) It was invariably rather dark brownish gray; in fact so dark as to almost do away with the color of the iris as a distinctive character of this group of birds.

From my plate and the description of the fresh specimens, as given above, it is clear that the coloration of Bureau's figure of the head (Bull. Soc. Zool. France, 1879, pl. ii) is entirely erroneous. His "Figure idéale de l'adulte en hiver" (*l. c.* fig. 2) is better, although the outlines of the

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cation?). *Fratercula* is probably a comic diminutive of *frater* in the sense of a member of a brotherhood of monks (friars), on account of its plumpness of figure and its ridiculous grave air. This supposition is confirmed by analogous vernacular names in different languages. Faber tells us that *Fratercula arctica* in Iceland is often called "Prestr" (priest), "seiner Gebährden auch seiner Farbe wegen" (Isis, 1827, p. 664). Compare also the French name *Macareux moine* (moine = monk); and the Italian *Fraticella*. Naumann quotes as German vernaculars "*Das Brüderchen, der Mönch*," though these may possibly have originated in translation, the former from the Latin, the latter from the French.

The German name for the Sea-Parrots, "*Maskentaucher*" or "*Larventaucher*," does not apply to the bill as the "mask," but to the whitish patch of the face, for which Naumann expressly uses the word "Gesichtsmaske." The generic name *Larva* has the same application, and *Mormon* is only the Greek equivalent for *Larva*; "*larvata*" is a common designation for a bird having the face colored differently from the other parts of the head. Of course, "*Larventaucher*" is a mere misprint (cf. Coues, Bull. Nutt. Orn. Cl., 1878, p. 88).

soft parts are somewhat wrong, as will be seen by a comparison with my figure drawn from the fresh specimen. But he commits a rather curious mistake in the same figure by retaining the summer coloration of the plumage, when it is intended to show the bird as it is in winter. My figures, both of the adult and the young, obtained February 24, 1883, are taken from the fresh specimens, and are so accurate and detailed as to make a special description of them superfluous. His suppositions as to the shedding of the different parts is undoubtedly correct.

•A few corrections to his article (*op. cit.* pp. 28-31) are necessary, however. It is superfluous to call attention to the erroneous description of the color of the bill which is given as "orangé, unicolore."

"Sommet de la tête d'un noir grisâtre" (*l. c.*, p. 29, top of head of a grayish black), gives an entirely wrong idea of the color of the cap, which is blackish brown, contrasted strongly and in a well-defined straight line across the nape with the glossy black of the neck and back.

The term "horns," for the deciduous caruncles above and below the eyes is very misleading. Being hard in the dried specimen, the general impression is that these "horns" are "horny" in the living bird, and that this is also the opinion of Mr. Bureau is evident from his expression, "deux appendices cornés, allongés, libres, en forme de cornes d'un gris de fer." This is a mistake; however, for the "horns" are only soft and flexible caruncles or wattles, covered with a delicately glossed skin, as if made of silk, which, moreover, is not "d'un gris de fer," but of a decided blackish brown. The "horns" are soft as late in the season as I had opportunity of examining specimens. I have no note, however, of any later than the beginning of August.

The winter plumage differs from that of the summer bird only in the coloration of the sides of the head, which at that time are blackish in front of and round the eyes, shading into gray behind and below.

The young in the first plumage are similarly colored, only somewhat duller, and the color of the under parts is absolute pure white, differing in that respect from the young of *Lunda cirrhata*, which is always grayish, or washed with this color, at least. The downy chicks are still easier to distinguish, for in *cirrhata* they are uniform black fading into a smoky brownish, while the pullus of *corniculata* has the downs of the breast and abdomen pure white, in strong contrast to the black of the other parts, consequently like the chicks of *Fratereula arctica*.

On the Commander Islands the name "*Ipatka*," or "*Ipatok*," as it is pronounced on Copper Island, is exclusively used for this species,

which here is never called "*Toporok*," a name reserved for *Lunda cirrhata* only.

The Pacific or Horned Puffin is not very common on the islands as compared with the Tufted Puffin (*Lunda*), probably because suitable breeding places are scarce, as they require rather deep holes in rocks or between stones. A few pairs, or where the locality offers more nesting opportunities, some small colonies are found scattered among the rookeries of the other water birds, sometimes higher, sometimes lower than the other species, sometimes in the midst of them, according to where the holes and cracks in the rocks are situated.

As stated above, the nest-holes are found in the rocks, and I never saw a single pair breeding in a hole dug out of the soft ground, as is often the case with *F. arctica*, and invariably, so far as my experience goes, with *Lunda cirrhata*.

The voice is an angry *orrrr* somewhat similar to that of *Uria lomvia arra*.

Their attitude, while walking or standing, is upright, although not so straight as in *Uria*. While walking they touch the ground with the toes and webs only, but rest on the whole sole when sitting.

## Superfamily LAROIDEÆ.

### Family LARIDÆ.

#### 16. *Larus glaucescens* NAUMANN.

- 1840.—*Larus glaucescens* NAUMANN, Naturg. Vög. Deutschl., X, p. 351. (nec BRUCH 1853?).—KITTL., Denkw., I, pp. 359, 285, 335.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 304.—BAIRD, Tr. Chicag. Acad., I, 1869 (p. 842).—FINSCH, Abh. Brem. Ver. III, 1872, p. 83.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 8 (1873)—*Id.*, Avif. Aleut. Isl. west Unal., p. 9, (1874).—SWINH. Ibis, 1874, p. 163.—BLAKIST. & PRYER, Ibis, 1878, p. 217.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 189.—*Id.*, *ibid.*, X, 1882, p. 103.—SEEB. Ibis, 1879, p. 23.—BEAN, Pr. U. S. Nat. Mus. 1882, p. 168.—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 70.—TURNER, Auk, 1885, p. 158.
- 1853.—*Larus (Glaucus) glaucopterus* BRUCH, Journ. f. Orn., 1853, p. 101.—KITTL., Denkw. I, p. 335 (1858).
- 1873.—*Larus fuscus* PELZELN, Verh. Zool. Bot. Ver. Wien, 1873, Sep. p. 8 (*vide* PELZELN in *lit.*) (nec LIN.).
- 1882.—? *Larus borealis* TACZAN., Bull. Soc. Zool. France, 1882, p. 397 (nec BRUCH).
- 1883.—*Larus leucopterus* NELSON, Cruise Corwin, p. 106 (*part* ? cfr. Stejneger, "The Auk," 1884, p. 360).

Quite a considerable amount of confusion has existed in the nomenclature of this species, caused by Bruch, who originally (1853) named a



bird *glaucescens* "Licht.," which was not the *glaucescens* of Lichtenstein (?)\* Lichtenstein's name is only a museum name which would take no precedence over Bruch's *glaucescens* of 1853 if no description had been published prior to that year. In that case the species would have to stand as *glaucopterus* Bruch (ex Kittlitz in MSS.), 1853.

Fortunately enough we have a much earlier description of the type of the Berlin Museum, and that a description which is much superior to any of the descriptions or diagnoses of Bruch or Bonaparte.

This description is found in Naumann's *Naturgeschichte der Vögel Deutschlands*, X, p. 351 (1840), and as this original and excellent characteristic of *L. glaucescens* has been entirely overlooked by all authors up to the present day, I propose to give a full translation of Naumann's remarks. He says:

"A much nearer ally [to *L. glaucus*] with much greater similarity [to it than to *L. leucopterus*] is a species of the same size, the *L. glaucescens*, of the Berlin Museum, from North America, where it seems to represent our *glaucus*. Although the size and shape (of bill and feet also) of both are very similar, still *L. glaucescens* in the adult plumage is easily distinguishable by the different color and pattern of the primaries, these being uniform bluish ashy gray, with large snow-white tips, the border of the two colors being very distinctly marked across the feathers; the white tips consequently are much more conspicuous than in *glaucus*, in which they pass gradually into the gray color, showing in fact the same pattern as in *L. marinus*, only that in the latter those parts are black which in *L. glaucescens* are but bluish ash. Besides, the mantle of the old *L. glaucescens* is of a somewhat more saturated gull-blue (similar to the color of *L. argentatus*), while in *L. glaucus* it is much lighter or more whitish. The young *L. glaucescens* is likewise distinguishable by the darker brownish gray of the primaries, the white tips of which, however, are less distinctly separated from the dark color, although much more so than in the young of *L. glaucus*; the spots on the mantle are larger and somewhat darker though more blended into the light edges of the feathers, the whole region thus being more broadly but at the same time more indefinitely blotched." To this he adds in a foot-note: "I am ignorant of any minute description or figure of this beautiful large species which in coloration is intermediate between *L. marinus* and *L. glaucus*. It belongs to the more recent discoveries."

Thus *Larus glaucescens* is "hunted down" to the original description!

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\* Bruch's *glaucescens* of 1855 is the same as Lichtenstein's, however.



Mr. H. Saunders, having examined the type of Lichtenstein's *L. chalconotus*, 1854 (which, however, is only a nomen nudum), pronounces it identical with *leucopterus*. What it is, may be regarded as being of little consequence, however, unless it is the same as *Larus (Laroides) chalconotus* of Bruch, 1855, which Saunders queries. But Saunders, when putting "*chalconotus* Bruch" in the synonymy of *leucopterus*, and "*Larus (Glaucus) glaucescens* Bruch 1853 [nec 1855]" in that of *glaucescens* Licht. [=gl. Naumann], is certainly wrong, for there can be no doubt that *chalconotus* Bruch, 1855, and *glaucescens* Bruch, 1853, are the very same thing, whatever may be their relations to the same names as applied by Lichtenstein to specimens in the Berlin Museum. To prove this conclusively I reprint here alongside each other the two monographs of Bruch as far as these names are concerned:

*Journal für Ornithologie*, 1853, p. 101.

III. *Glaucus*. Silber-Möve.

- 10) *Consul* Boie; *glauca* Brünn.  
Nord Europa und Grönland.
- 11) *Glaucopterus* Kittlitz.  
Kantschatka. Dem vorbergehenden ganz ähnlich bis auf die Schwungfedern, welche hier aschgrau sind mit runden, weissen Spitzenflecken.
- 12) *Leucopterus* Faber; *glaucoides* Temm.  
Nordische Hemisphäre. Unterscheidet sich von *L. Consul* durch die kleinere Gestalt und längeren Schwingen.
- 13) *Glaucescens* Licht.  
Amerikanische Küsten des Behringischen Meeres und Grönland. Dem vorbergehenden ganz ähnlich bis auf die Schwungfedern, die aschgrau sind mit runden weissen Spitzenflecken. Das Jugendkleid ist, wie bei *L. glaucopterus*, dunkelgrau. Bei Holböll als blosse Farbenverschiedenheit von *L. leucopterus* aufgeführt.

*Journal für Ornithologie*, 1855, p. 281, 282.

VI. *Laroides* Brehm (statt *Glaucus*). Silbermöve.

- 18) *Glaucus* Brünn., *consul* Boie.  
Nord Europa und Grönland.
- 19) *Glaucescens* Licht., *glaucopterus* Kittl.  
Kantschatka. Dem vorbergehenden ganz ähnlich bis auf die Schwungfedern, welche hier aschgrau sind mit runden weissen Spitzenflecken.
- 20) *Leucopterus* Fab., *glaucoides* Temm.  
[p. 282].  
Nordische Hemisphäre. Dem *L. glaucus* sehr ähnlich, jedoch durch seine kleinere Gestalt und die langen Schwingen leicht zu unterscheiden.
- 21) *Chalconotus* Licht.  
Amerikanische Küsten des Behringischen Meeres und Grönland. Dem vorbergehenden ganz ähnlich bis auf die Schwungfedern, die aschgrau sind, mit runden, weissen Spitzenflecken. Das Jugendkleid ist, wie bei *L. glaucopterus*, dunkelgrau.

Notwithstanding Saunders's identification of the types, the names *chalconotus* and *glaucescens* Bruch, 1853, are left out of the synonymy above, as there is a bare possibility that they may rather belong to *L. kumlieni*, or to *L. nelsoni*, or both (??)

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing beyond tail.	Chord of culmen.	Bill from nostrils.	Height of bill at nostrils.	Wing.	Tail feathers.	Tarsus.	Middle toe with claw.
			1882.		mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
89121	1080	Bering Island.	May 25	♂ ad.	626	20	.....	.....	.....	.....	.....	.....	.....
89122	1142	.....do.....	June 1	♂	670	.....	60	29	22	452	782	75	72
89123	1208	.....do.....	June 12	♂ ad.	.....	.....	54	24	20	415	162	70	66
92826	1741	.....do.....	Nov. 21	♀ ad.	603	5	51	24	20	415	178	68	67
			1883.										
92827	2219	Copper Island.	July 2	pull.	.....	.....	20	.....	.....	.....	24	.....	.....

No. 89121.—Iris light yellowish gray. Bill intense lemon-yellow; tips of both mandibles whitish; a vermilion red spot on each side of the angle of the gonys; corner of mouth flesh-color. Naked eye-ring reddish flesh-color. Feet flesh-colored; tarsus faintly tinged with brownish; nails black.

No. 89122.—Iris dirty white with a creamy tinge. Bill yellow with red spot. Feet flesh color: tarsus faintly shaded with bluish.

No. 92826.—Iris faint yellowish white with blackish mottlings. Bill yellowish white, pure straw yellow on culmen in front of nostrils and along tomlia; a reddish orange spot with dusky shadings on lower mandible; corner of mouth flesh-color, as is also the naked eye-ring. Feet reddish flesh-color, lighter below; webs more reddish; nails bluish black.

No. 92827.—Iris dark brown. Bill black; tip, abruptly, light brownish flesh-color; angle of mouth dull reddish flesh-color; naked eye-ring dark brownish gray. Feet dark brownish gray.

As in the other members of the genus *Larus*, there is an increase of the white on the primaries with the age of the individual. Thus, in No. 89122 (which is a rather young bird, with the tail still uniform gray, but which has already assumed the bluish mantle), the first primaries are uniform gray with a brownish tinge, and without any distinct pattern.

No. 89121 is somewhat older, having the tail wholly white, except the middle pair of rectrices, which is mottled with gray. In this specimen the primaries are very much worn, but the pattern as it was in the fresh feathers is plainly visible, agreeing closely with several other specimens in the National Museum; on the first primary is a subapical mirror, beyond which the tip is gray, with indications of the extreme tip being white in the fresh feather; the second and third primaries have only small terminal white spots. In No. 92826 on the first primary the mirror is considerably larger, having, besides, united with the white tip in the outer web, and leaving only a narrow bridge of gray separating the apical and the subapical spot of the inner web; the second primary has, in addition to the broader white apex in the outer web, a longitudinal oblong mirror, to which corresponds a larger but not

so well defined white spot on the inner web; the third primary has the white tip and the ill-defined white spot, though smaller, on the inner web, without any subapical spot on the outer web, however. These feathers are fresh, in fact, not yet fully out, and the gray parts lying between the spots are of a little more saturated gray than the rest of the quill.

No. 92827 is a downy young, only a few days old. The general color is of a very light grayish brown, whitish on the abdomen, and spotted with blackish on head and upper parts generally. It is very much like the downy young of *L. argentatus*, but has the dark spots and mottlings on the back much darker.

The Glaucous-winged Gull (Russ. *Tschaika*) is the only gull of the genus *Larus* proper breeding on the islands. Taczanowski (Bull. Soc. Zool. France, 1882, p. 397), however, asserts that he has received birds and eggs of "*Larus borealis*" from Bering Island, a statement not more to be relied upon than that of the same author when he gives *Somateria mollissima* (!) as breeding on the same island. As he does not mention *L. glaucescens* which is so very common, the inference is justifiable that he has mistaken this species for *borealis*, and consequently I put the latter name in the synonymy with a query. It may be, however, that some mistake in the labeling has taken place.

The Tschaika is a very common bird and rather numerous, although less so in winter than during the summer. To the hunting ornithologist they are a perfect nuisance, following him with their penetrating i-a, i-a, i-a—gagagagaga, the latter sounds in rapid succession, warning all the feathered tribes of the approaching enemy.

During and after the sealing season they feed chiefly upon the carcasses of the slain seals, especially on Copper Island, where a constant fight goes on between the tschaika, the raven, and the blue fox. In the fall, when only the skeletons are left, the gulls still visit the killing-grounds, which, at that period, are swarming with the big white larvæ of the flesh-fly.

The favorite breeding places on Bering Island are not so numerous as on Copper Island, where these birds breed everywhere all around the shore. On the former island colonies are especially numerous on Toporkof and Arij Islets, at Zapadniy Mys, some inaccessible rocks between the northern seal rookery and Saranna, at Tonkij Mys, Staraja Gavan, &c.

Eggs were found in 1883 on Arij Kamen as early as May 16 (U. S.

Nat. Mus. No. 21798, L. Stejneger 1173) and measure 73 by 54.5 and 73.25 by 55<sup>mm</sup>.

Compared with eggs of *Larus glaucus* those collected by me show a just perceptibly more greenish tinge and somewhat smaller, more numerous, and better defined spots.

### 17. *Larus schistisagus* STEJNEGER.

*Diagnosis*.—White; mantle dark bluish slate gray. First primary, with a long white tip, apical and subapical spots being fused together, and a gray "wedge" on the inner web; second, with a subapical white spot on the inner web only, and the gray wedge further down; third, with the wedge reaching the subapical spot; no gray wedge on outer web of the four first primaries. Feet pinkish flesh-color. Total length 670<sup>mm</sup>, wing 460<sup>mm</sup>.

1858.—*Larus argentatus* KITTL., Denkw., II, p. 225 (*part*).

1858.—*Larus cachinnans* KITTL., Denkw., I, p. 336 (*nec* PALL.).—SWINH., P. Z. S., 1863, p. 324.—*Id.*, *ibid.*, 1871, p. 421.—*Id.*, Ibis, 1863, p. 428.—STEJNEGER, Naturen, 1884, p. 6.

1860.—*Larus argentatus* var. *cachinnans* SCHRENCK, Reis. Amurl., I, p. 504.

1867.—? *Larus occidentalis* WHITELEY, Ibis, 1867, p. 210 (*nec* AUDUB.).

1871.—? *Larus fuscescens* "Mus. St. Petersb.," MEVES, Öfv. Vet. Akad. Förhandl., 1871, p. 787.

1871.—*Larus borealis* GRAY, Handl., III, p. 113 (*nec* Bruch).

1872.—*Larus marinus* RIDGWAY, Bull. Nutt. Orn. Cl., 1882, p. 60.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 168.—NELSON, Cruise Corwin, p. 107 (1883).

1876.—*Larus pelagicus* TACZAN., Bull. Soc. Zool. France, 1876, p. 263 (*nec* BRUCH).—*Id.*, *ibid.*, 1882, p. 395.—*Id.*, Orn. Faun. Vost. Sibir., p. 64 (1877).

1884.—*Larus schistisagus* STEJNEGER, Auk, 1884, p. 231.—BAIRD, BREWER, & RIDGW., Waterb. N. Amer., II, p. 229, (1884).

In order to find out what my bird is, it may be well first to point out what it is not.

It is *not* (compare pl. vi, fig. 3, and description p. 68), *Larus cachinnans* PALL., with the eye-rings "coccineis," the feet "pallide flavis," and the back like *ichtyactus*, "intense leucophæa seu cœrulescenti-cana." Nor is it Saunders's *cachinnans*, which apparently is the bird described by Pallas, being distinguished by its "darker mantle (than in *argentatus*), yellow legs and feet, and the deep orange-red ring around the outside of the eye", (P. Z. S., 1878, p. 170). Selater's *fuscescens* (P. Z. S., 1867, p. 315), has the back "nigrescenti-cinerea," but the feet, "læte flavi." Does not this belong rather to *affinis* than to *cachinnans*? "Chlamyde nigrescenti-cinerea," would hardly do for the latter.

Furthermore, it is *not borealis* of Bruch (*Larus (Glaucus) borealis* "Brandt," J. f. Orn., 1853, p. 101), which is "considerably larger than *argentatus*, but otherwise similar to this species." Whether *borealis* Brandt, is something different from *borealis* Bruch, I do not know, but I



have not been able to find any description of Brandt earlier than Bruch's of 1853. Bruch's *borealis*, at least, seems to belong to *cachinnans* Pall. & Saunders and not to *affinis* Reinh. (cfr. Seebohm, Ibis 1884, p. 32.)

Nor is it *Larus affinis* of Seebohm and Harvie Brown (Ibis 1876, p. 452), which has "yellow legs, and the circle round the eye brilliant vermilion, or the color of a Seville orange." Identical with this is evidently Meves' *Larus cachinnans* (Öfr. Vet. Akad. Förhandl., 1871, p. 786), in which the "legs had a beautiful lemon-yellow color," and the angle of the mouth and the eyelids were "orange-red."

It is not *Larus (Dominicanus) pelagicus* Bruch (J. f. Orn., 1853, p. 100), which has the back "mostly darker" than *marinus*, and which is "one-fourth smaller than the latter."

It is now time to look for what it is.

In the first place it is v. Schrenck's (and Middendorff's) *Larus argentatus* var. *cachinnans* with dark mantle and flesh-colored feet (Reis. Amurl. I, p. 505). It is also, most probably, the *fuscescens* of the museum in St. Petersburg (vide Meves, *t. c.*, p. 787). I also feel confident that it is the *marinus* from the North Pacific, as given from Alaska by Bean & Nelson. In all probability the *borealis* Seebohm (Ibis 1884, p. 32), is the same bird. Captain Blakiston identified that very specimen, as I learn from his manuscript notes, with the so-called *marinus* from Japan and gives the measurement of the wing as 430<sup>mm</sup>. Finally I conjecture Taczanowski's *pelagicus* (Bull. Soc. Zool., France, 1876, p. 263), from the Bay of Abrek, to belong to the present species.

Unfortunately only a single specimen was prepared, but several others were shot at Petropaulski in the latter part of May, and their characters were noted as agreeing completely with those of the specimen from Bering Island.

This specimen may be described as follows :

*♂ ad.* (*U. S. Nat. Mus.*, No. 92885; *L. Stejneger*, No. 2007. *Bering Island, May 5, 1883.*) *Measurements.*—Total length, 668<sup>mm</sup>; tip of closed wings beyond tail, 42<sup>mm</sup>; middle claw reaches tip of tail, legs stretched backward. Weight, 4 lbs. Wing, 467<sup>mm</sup>; tail-feathers, 191<sup>mm</sup>; chord of culmen, 57<sup>mm</sup>; bill along gape, 81<sup>mm</sup>; bill from fore border of nostrils, 26<sup>mm</sup>; height of bill at fore border of nostrils, 22<sup>mm</sup>; tarsus, 71<sup>mm</sup>; middle toe with claw, 71<sup>mm</sup>.

*Notes on color of unfeathered parts* (see the colored drawing, pl. vi, fig. 3; which was made immediately after the bird was shot; it was not skinned before the next morning, when the eyelids were found to have changed into a vivid red flesh color) — Iris clear Naples yellow or rather a yellowish cream color. Bill deep gamboge yellow with whitish tips



and tomtia; an orange red spot on each side of the lower mandible; angle of mouth yellowish flesh color. Naked eye-ring, reddish violet gray. Feet pinkish flesh color; nails horny black with whitish tips.

New feathers were coming out on head, neck, and back, the whole plumage being quite fresh and new.

The whole plumage, except the wings and the mantle, dazzling white.

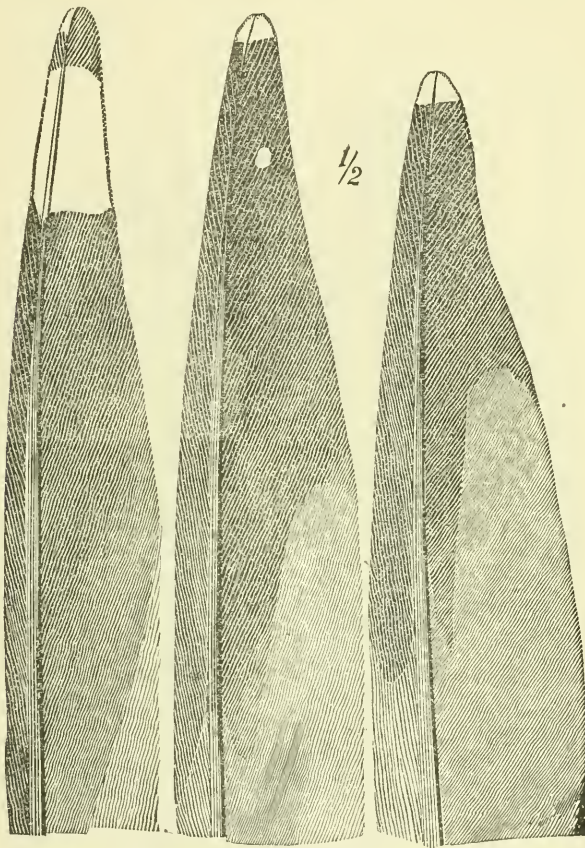


FIG. 3.—First three primaries of *Larus cachinnans*.

The latter pure bluish slate gray without any mixture of brownish, of a shade just between the same parts in *Larus occidentalis* and *L. dominicanus*, being a little lighter than the lightest *L. marinus* I have seen, and easily distinguishable from the latter by the pureness of the gray, which has a decided inclination to bluish. The coloration and pattern of the wings are essentially similar to those of *L. marinus* and *cachinnans* and

may be described in detail as under. I may mention that for convenience I adopt Saunders's terms "mirror" and "wedge," the former signifying the white subapical spot, the latter meaning the gray color on the webs from the base upwards. It is further to be remarked that the tips are very little worn.

First primary with the tip almost wholly white, a trace of the black crossbar only visible as a small spot near the edge of both webs; shaft

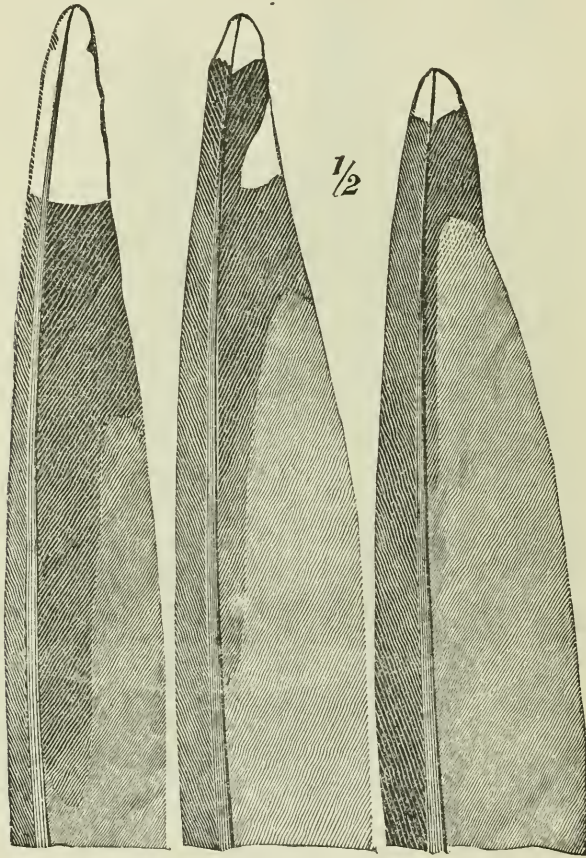


FIG. 4.—First three primaries of *Larus schistisagus*.

black in the black portion and in the white also; a well-defined bluish slate-colored wedge in the inner web reaches near the tip by about twice the length of the white apex. The second primary has a small apical white spot, and the "mirror" is reduced to a rounded spot in the inner web close to the edge; the gray wedge of considerably greater

extent than on the first primary. In the third the wedge occupies still more of the inner web and reaches the posterior border of the mirror which is larger than on the foregoing and of a different shape, still without reaching the shaft or the outer web, however.\* The fourth is essentially similar, and in the fifth a gray wedge occupies most of the outer web too, thus reducing the black to a subapical cross band, pre-

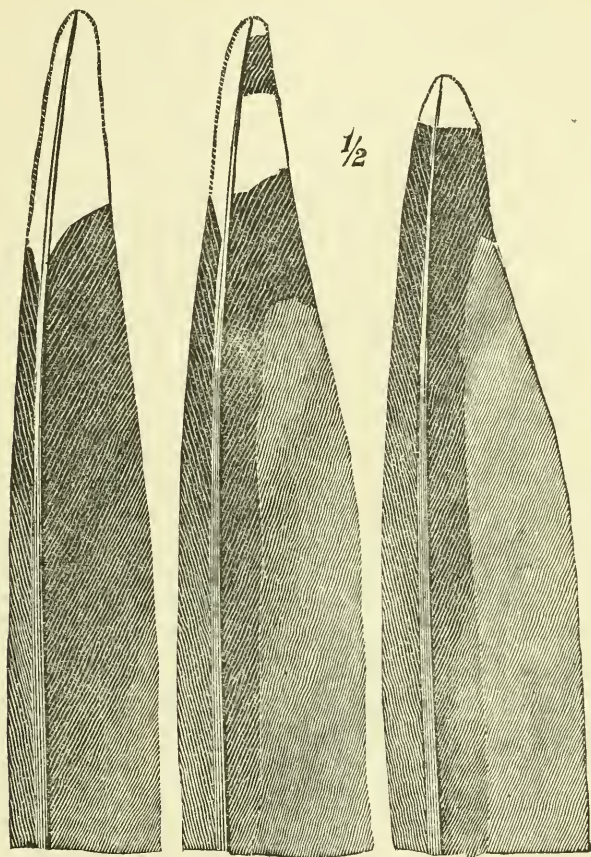


FIG. 5.—First three primaries of *Larus marinus*.

eisely as in a specimen of *L. marinus* now before me. None of the foregoing (1-4) primaries have any distinct gray on the outer web.

This species is so puzzlingly intermediate between *L. marinus* and *cachinnans* that it is difficult to say to which of these it is most closely allied, but on the whole I am inclined to look upon it as nearer to the former, with which it is placed at first sight on account of the darkness of the mantle, which in the live bird appears to be wholly black.

\* Not well represented in the drawing, Fig. 4.



In size it is somewhat intermediate between *marinus* and *argentatus*. My specimen comes very close to average measurements of *marinus*, while having wings an inch longer than the male specimen from Japan, collected by Captain Blakiston (No. 1085, Hakodadi, March 1, 1878), and determined by Saunders as *marinus*, but which I suppose belongs to the present species. The bill is decidedly slenderer than in either of these species, while of the same shape.

The colors of the naked parts are essentially the same, for although the angle of mouth and the eye-ring are rather pale in my specimens, these parts may possibly assume more vivid colors later in the season. The feet are more reddish than in *marinus*, being even slightly more so than in *argentatus*, and without the faintest trace of yellowish.

As already remarked, the shade of the mantel is rather dark, being only a trifle lighter than that of *marinus*, or intermediate between *occidentalis* and *dominicanus*, and exactly of the same tint as in *occidentalis*, only considerably deeper and darker. It consequently needs no comparison with *argentatus* or *cachinnans*, in this respect differing from them nearly as much as they do from *marinus*.

Characteristic of the wing pattern is the presence of a well-developed "wedge" on the inner web of the first primary as distinctive from *marinus*, as well as the absence of a similar wedge on the outer webs of the second to fourth primary, in which it differs from *cachinnans* and *argentatus*. The mirror on the second primary is also peculiar, resembling, however, the pattern of the corresponding quill in *L. cachinnans*. In the third primary the large white spot at the end of the gray wedge is very characteristic. It may thus be seen that while the second primary shows less white than in *marinus* and *argentatus*, the third has more of the same color than is the case in the latter two species and in *cachinnans*.

On the 20th of April, 1883, I observed for the first time, among numerous *L. glaucescens* on the reef at Staraja Gavan, eastern shore of Bering Island, a few gulls of about the same size, but with the tips of the wings black, and the mantle dark, almost blackish. Four days later I met a couple of birds on the western shore, near the village, and on May 2 and 5, I observed them at the same place, the latter date some twelve to twenty individuals, partly in company with *glaucescens*, partly by themselves. The same day the specimen described above was obtained. They were not seen on the island since, and were in fact, unknown to the natives, so that it is safe to say that this species only visits the Commander Island occasionally, inasmuch as a "Tschaika"



with blackish back is wholly unknown to the inhabitants of Copper Island also.

When I arrived at Petropaulski, Kamtschatka, on the 14th of May, 1883, I found the same species pretty common on the ice, covering the lake, or rather lagoon, to the north of the town, but as the ice was very dangerous, the birds were either out of range, or if shot, impossible to get at. Two were obtained, however, but being too badly damaged to be preserved, only notes of the colors were taken. The color of the feet of the living bird was also observed through a powerful binocular, and noted, being in all cases the same uniform pinkish flesh color.

From the inhabitants I learned that this bird breeds at Babusehkin Kamen, in the Bay of Avatscha, and on Staritskof Island, south of the entrance to that bay.

Two additional specimens have been received since the above was written, an adult (U. S. Nat. Mus., No. 101665) and a young changing into the adult plumage (No. 101666), both from Petropaulski. The mantle is slightly lighter than that of the type specimen, but otherwise they agree. The feet are now dark pink, and have evidently been pinkish flesh color in life, as were all the birds of the species I have seen. This character at once distinguishes *L. schistisagus* from *L. affinis*, which is said to have the feet yellow, and also from *L. marinus*, in which the flesh color is very pale and rather grayish.

In the following the first measurement is that of the adult bird (No. 101665), the second one that of the young (No. 101666); length of wing is not given, as both birds are moulting the primaries:

	Millimeters.
Tail-feathers.....	163-180
Chord of culmen.....	58- 56
Bill along gape.....	79- 83
From nostrils.....	28- 27
Height at fore border of nostrils.....	20- 22
Tarsus.....	69- 76

#### 18. *Larus kamtschatchensis* (BONAP.).

- 1826.—*Larus niveus* PALL., Zoogr. Ross. As., II, p. 320 (*nee* BODD., 1783, qui *Gavia alba* GUNN.).—BONAP., Consp. Av., II, p. 224 (1856).—WHITELEY, Ibis, 1869, p. 210.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 189 (*part.*).—*Ibid.*, X, 1882, p. 104.—TACZAN., Bull. Soc. Zool. France, 1883, p. 341.
- 1854.—*Gavia kamtschatchensis* BONAP., Naumannia, 1854, p. 215 (*cf.* *Id.*, Consp. Av., II, p. 224, and Rev. & Mag., 1857, Extr. No. 2, p. 10).
- 1878.—*Larus delawarensis* SAUNDERS, P. Z. S., 1878, p. 176 (*part.*; *nee* ORD).—SEEB., Ibis, 1879, p. 24.—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 104.—BLAKIST., Amend. List B. Jap., p. 20 (1884).
- 1878.—? *Larus californicus* SAUNDERS, P. Z. S., 1878, p. 175 (*part.*; *nee* LAWR.).—SEEB., Ibis, 1879, p. 24.

I cannot help thinking that Pallas's *Larus niveus* really belongs here, having nothing to do with either *canus* or with *californicus*. Notwithstanding the fact that the name is preoccupied, the question of the identity of Pallas's bird is of real importance.

In the first place I concur unconditionally with Mr. Saunders (P. Z. S., 1878, p. 175) in the view that Pallas's *niveus* is something entirely different from *canus*, his remarks so far being quite conclusive. I also feel convinced that Mr. Saunders was right in referring the Japanese specimen to Pallas's bird, but I do not believe that either of them are correctly placed with *L. californicus* LAW. R.

Both on Bering Island and Kamtschatka I collected a sea gull which corresponds so closely with Pallas's *niveus* as to leave no doubt in my mind that here at last is the bird to which belongs that most unfortunate name. A careful comparison of my specimens with numerous examples of *canus*, *brachyrhynchus*, *californicus* and *delawarensis* proves conclusively that they are more closely related to the last-named species than to any of the foregoing; but although evidently the Asiatic representative of *delawarensis* it is sufficiently distinct to deserve recognition by name. The future will have to decide, if it should be a trinomial. Let us hope, then, that no intergradation can be proven as *Larus delawarensis kamtschatchensis* would be an awkward appellation indeed.

This Asiatic form is in some respects intermediate between *delawarensis* and *californicus*, thus explaining how Saunders came to identify it with the latter. The color of the mantle is absolutely identical in tint and shade with that of *californicus*, consequently being considerably darker than in *delawarensis*, representing in fact a similar difference as that between *cachinnans* and *argentatus*. On the other hand, the coloration of the wing is much more like that of *delawarensis* than *californicus*, the black occupying a much larger area compared with the gray than in the latter. As to size and shape the bill differs in no way from that of *delawarensis*, but in coloration it disagrees with both the American species, the dusky ring before the tip being rather faintly indicated and fading almost completely out in the dried specimen, while in the two other species mentioned it keeps distinct for years and years.

A young bird (No. 92888, Bering Island) in transitional plumage, just assuming the bluish mantle, is in almost every respect an exact counterpart of a young *delawarensis* from Tehuantepec, Mexico, in the same state of plumage. But even in these the difference in shade of the gray

of the mantle is very perceptible, while the Mexican bird has a distinct ring on the bill, hardly appreciable in the specimen from Bering Island.

According to the above, the present form may be characterized as similar to *L. delawarensis*, but with the mantle of *californicus*.

Of course, the reference of Saunders's *californicus* from Japan to the species in question is merely hypothetical, as there is as much possibility for a Californian species occasionally straggling to Japan as for a European appearing in the same manner in America. Much less doubt is felt as to the other Japanese specimen, a young bird which Saunders determined as *delawarensis*.

Pallas's name *niveus* being preoccupied we will have to look out for another name. It may possibly be Middendorff's *L. canus* var. *major* (1853), but as I have serious doubts as to the pertinency of that name, and Saunders refers it to *canus*, and not to the Eastern Asiatic form, considered by him to be *niveus* = *californicus*, the varietal name given by the great Siberian traveler may rest in peace where Saunders has left it.

In 1854 Bonaparte, speaks of a new species in the following terms: (Naumannia, 1854, p. 215) "*Gavina kantschatchensis*, Bp., qui est la race kantschadale du *Larus canus* L." As this is all he says about it the name is a "*nomen nudum*," and consequently not entitled to recognition. But two years later we find in Bonaparte's *Conspectus Avium* (II, p. 224), as also in an article in the "*Revue et Magazin de Zoologie*" for 1857, a statement that the name is a synonym, partially so at least of *L. niveus* PALL., and as the description and the habitat assigned fit our bird we feel no hesitation in adopting it.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond tail.	Wing.	Tail-feathers.	Chord of culmen.	Bill from nostrils.	Tarsus.	Middle toe with claw.
			1883.		mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
92889	2052	Petropaulski, K. . . . .	May 21	♂ ad.	512	69	378	153	44	21	59	50
92890	2728	.... do .....	Oct. 18	♂ ad.	.....	.....	350 <sup>1</sup>	144	41	21	57	49
92880	2068	Bering Island.....	May 29	(♂)jun.	(482)	.....	370	137 <sup>2</sup>	42	20	59	50
101667	.....	Petropaulski, K. . . . .	1884.	ad.	.....	.....	(1)	149	39	21	56	.....

<sup>1</sup> Moulting.

<sup>2</sup> Very worn.

No. 92889.—Iris grayish cream color. Bill ochre-yellow tinged with olive, and with a dusky spot on both mandibles towards the tip. Naked eye-ring vermilion. Feet pale lemon-yellow with a bluish green tinge which is stronger on the joints. Testes large, swollen. Pl. vi, fig. 4.

No. 92890.—Bill pale straw-yellow, greenish gray towards the base; angle of mouth orange. Eye-ring dull reddish. Feet pale straw-yellow; webs more vivid.

The present species seems not to be common on the coast of Kamtschatka, where it probably breeds, however. The specimens procured by me were obtained in the harbor of Petropaulski in May and October, when only a few were seen at the time.

Another specimen was shot on Bering Island during my absence in Kamtschatka and preserved. It was probably only a straggler, as the species does not breed on the island.

Since the above was written, Capt. E. J. Hunter had the kindness to send me another specimen shot, in the fall of 1884, at Petropaulski. It closely resembles No. 92890, but the mantle is a shade deeper. The measurements are embodied in the table above.

#### 19. *Larus canus* LIN.

1758.—*Larus canus* LIN., Syst. Nat., 10 ed., I, p. 136.—MIDDEND., Sibir. Reise, II, 2 (p. 243) (1853).—SCHRENCK, Reis. Amurl., I, p. 509 (1860) (*part?*).—SWINHOE, P. Z. S., 1871, p. 420.—SAUNDERS, P. Z. S., 1878, p. 177.—BLAKIST., & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 189 (*part?*).—*Id. ibid.*, X, 1882, p. 104.—BLAKIST., Amend. List. B. Jap., p. 20.

A single specimen, evidently a straggler, was collected by me on Bering Island during the early part of the winter 1882. It is in every respect, color, and size a typical *canus*, being absolutely identical with a specimen from Denmark in the collection of the National Museum. In fact, I have seldom seen two members of the Larine family so alike as these two from the most extreme regions of the Palearctic continent. The Danish bird is a trifle larger, but it may have been a male, as the sex is not given on the label.

The measurements of my specimen are as follows:

♀ *ad.* U. S. Nat. Mus. No. 92894; L. Stejneger, No. 1747. Bering Island, November 26, 1882.

Total length, 472<sup>mm</sup>; wings beyond tip of tail, 30<sup>mm</sup>; wing, 337<sup>mm</sup>; tail-feathers, 139<sup>mm</sup> (fresh, unabraded); chord of culmen, 35<sup>mm</sup>; bill from nostrils, 18<sup>mm</sup>; tarsus, 53<sup>mm</sup>.

Iris cream color, with dark gray shadings. Bill, olive yellow, tip purer yellow; angle of mouth, orange red. Naked eye-ring, dusky red. Feet, grayish olive yellow; joints darker, somewhat bluish; webs purer yellow.

The gullet was crammed with fish spawn, several *Orchestia* and other *Gammaridæ*, plenty of a small, blackish-brown chrysalis of a dipterous insect common on sandy beaches, and a small fish.

#### 20. *Larus ridibundus* LIN.

1766.—*Larus ridibundus* LIN., Syst. Nat., 12 ed., I, p. 225.—NORDM., in Erman's Verz. Thier. Pflanz. Reis. Erde, p. 18 (1835).—MIDDEND., Sibir. Reis., II, 2 (p. 244) (1853).—KITTL., Denkw., II, p. 200 (1858).—SCHRENCK, Reis. Amurl., I, p. 510 (1860).—RADDE, Reis. Süd. Ost-Sibir., II, (p. 387) (1863).—SAUNDERS, P. Z. S., 1878, p. 200.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 190.—*Id. ibid.*, X, 1882, p. 105.—BLAKIST., Amend. List B. Jap., p. 10 (1884).—*Chroicocephalus r.* SWINH., Ibis, 1863, p. 428.—*Id. ibid.* 1874, p. 165.—*Id.*, P. Z. S., 1871, p. 421.—BLAKIST. & PRYER, Ibis, 1878, p. 217.—SEEB., Ibis, 1879, p. 24.



- 1776.—*Larus atricilla* PALL., Spicil. Zool., V, p. 28 (*nec* LIN.).—*Id.*, Zoogr. Ross. As., II, p. 324 (1826).—FALCK, Reise, III (p. 354) (1786).
- 1820.—*Larus capistratus* TEMM., Man. d'Orn., 2 ed., II, p. 785.—*Chroicocephalus c. SWINII*, P. Z. S., 1863, p. 326.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—TACZAN., J. f. Orn., 1873, p. 111.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, *ibid.*, 1875, p. 257.—*Id.*, *ibid.*, 1876, p. 202.—*Id.*, Bull. Soc. Zool. France, 1876, p. 264.—*Id.*, *ibid.*, 1882, p. 397.—*Id.*, Orn. Faun. Vost. Sibir., p. 65 (1877).
- 1857.—*Larus brunneicephalus?* CASSIN, Exp. Jap. Perry, II, p. 233.

Having no true *L. ridibundus* from Europe at hand I shall make no attempt, at present, at separating the eastern bird from the western. I will only point to the fact that even the smallest dimensions of my birds and of a series of specimens from Japan (together with numerous measurements in Blakiston's manuscript notes from the latter country) are considerably larger than the maximum of a series of some thirty specimens as given by Schlegel (*Mus. P. B. Lari*, p. 38). It was this large size which induced Cassin to regard the specimen from Japan (and I have re-examined and re-measured it and find it agree perfectly with others from the same locality and from Kamtschatka) as belonging to *brunneicephalus* JERDON. Middendorff's *L. ridibundus* var. *major* is probably the same thing. The pattern of the first three primaries is essentially the same as that given by Saunders (*P. Z. S.*, 1878, p. 201, fig. 12), only that on the third primary at least the outer half of the light portion is a distinct and rather well-defined bluish gray of the same color as the back.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond tail.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92892	2595	Petropaulski . . . . .	Sept. 18, 1883	♀ ad.	415	40	317	130	37	47	42
92893	2719	...do.....	Sept. 28, 1883	♀ ad.	.....	.....	*284	116	34	45	.....
92891	2741	...do.....	Oct. 1, 1883	♀ ad.	.....	.....	†308	128	34	44	.....

\*Moulting. †To tip of second primary; the first one still growing and shorter than the second.

No. 92892.—Iris dark brown. Bill pale salmon red; tip in front of nostrils dark brownish. Feet and webs similarly colored; tarsus in front brownish gray, and toes a little more livid than the webs; nails, blackish.

No. 92893.—Bill and feet vermilion, the former somewhat dusky towards the tip.

This species occurs abundantly in the vicinity of Petropaulski, where it breeds. It was not seen on the islands during my stay there, but I was informed that a few have been observed occasionally at Lake Saranna.

21. *Rissa tridactyla pollicaris* STEJNEGER.

- 1769.—*Larus ryssa* PALL., Spicil. Zool., V, p. 28.  
 1826.—*Larus rissa* PALL., Zoogr. Ross. As., II, p. 321 (nec BRÜNN 1764).  
 1832.—*Larus tridactylus* KITTL., Isis, 1832, p. 1104.—*Id.*, Denkw., I, pp. 248, 287; II, p. 225 (1858).—COINDE, Rev. Mag. Zool., 1860, p. 401.—BLAKIST. & PRYER, Ibis, 1878, p. 217.—SEEB., Ibis, 1879, p. 24.—*Id.*, *ibid.*, 1884, p. 32.—BLAKIST., Amend. List B. Jap., p. 34 (1884).—*Rissa t.* DALL & BANNIST., Tr. Chicag. Acad. I, 1869, p. 305.—FINSCH, Abh. Brem. Ver. III, 1872, p. 84.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 8 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 9 (1874).—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 190.—*Id.*, *ibid.*, X, 1882, p. 105.—TACZAN., Bull. Soc. Zool. France, 1883, p. 398.  
 1853.—*Larus (Rissa) brachyrhynchus* BRUCH, Journ. f. Orn., 1853, p. 103, sp. 31, (nec GOULD, 1843, nec RICHARDS., 1831).—*Rissa brachyrhyncha* TACZAN., Bull. Soc. Zool. France, 1876, p. 264.—*Id.*, Orn., Fann. Vost. Sibir., p. 65 (1877).  
 1854.—*Rissa nivea* BONAP., Naumannia, 1854, p. 212 (nec PALLAS, 1826, nec Gray, 1845).—*Larus (Rissa) niveus* BRUCH, Journ. f. Orn., 1855, p. 285, sp. 36.  
 1856.—*Rissa kotzebui* BONAP., Consp., Av., II, p. 226 (nec 1854 quæ *brevirostris* BRANDT).—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 60.  
 1872.—*Larus tridactylus* var *kotzebui* COUES, Key, p. 314.—*Id.*, in Elliott's Aff. Alaska, p. 199 (1875).  
 1880.—*Rissa tridactyla kotzebui* RIDGW., Pr. U. S. Nat. Mus., 1880, p. 206.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 167.—NELSON, Cruise Corwin, p. 105 (1883).  
 1884.—*Rissa tridactyla pollicaris* STEJNEGER, in B. Br. Ridgw., Water B., II, p. 202.—TURNER, Auk, 1885, p. 158.

In the Journal für Ornithologie for 1853 (p. 103) Mr. Bruch enumerated monographically the species of the subgenus *Rissa* as follows:

30. *tridactylus* Lin. Northern coasts of the whole earth.  
 31. *brachyrhynchus* Gould. North America. The hind toe, however, is somewhat better developed than in the foregoing species.  
 32. *brevirostris* Brandt. Northwestern coast of America. The feet are bright coral-red, and the bill is yellow.

In the "Naumannia" for the following year (1854) Bonaparte reviewed Bruch's paper, and in offering his list, with the "erreurs et omissions que j'ai pu y reconnaître," he treats the *Rissa* (p. 212) as follows:

40. *tridactyla* L., ex Hemisph. bor.  
 41. *nivea* Pall., ex borealib. As. or. Am. occ.  
 42. *Kotzebuii* Bp., ex Am. s. occ. Californ.

It will be seen that the differences from Bruch's enumeration are:

- (1) The change of the name "*brachyrhynchus* Gould" into "*nivea* Pall."  
 (2) The change of the name "*brevirostris* Brandt" into "*kotzebuii* Bp." This is the first occurrence of the latter name!  
 (3) The habitat of the second and third species is given with more detail than in Bruch's list. When Bruch, in 1855, (Journ. f. Ornith., p. 285), presented his "Revision der Gattung *Larus* Lin.," he evidently

only revised his former list, availing himself of additional material and critical notes of his friends, especially of Bonaparte's.

This is also evident from an inspection of the subgenus *Rissa*, which in the "Revision" has the following aspect:

35. *tridactylus* Lin. The high North.

36. *niveus* Pall., *brachyrhynchus* Gould. Northwest coast of America. The hind toe better developed.

37. *brevirostris* Brandt. Northwest coast of America. Also with better developed hind toe; bill, yellow; feet, coral-red.

The only changes are evidently caused by Bonaparte's criticism, and amount to—

(1) The adoption of Bonaparte's "*niveus* Pall.," and the reduction of "*brachyrhynchus* Gould" Bruch (No. 31 of the first list) to a synonym of the latter; and

(2) The designation of Northwest America as the habitat of this species.

But he does not deem it necessary to provide "*brevirostris* Brandt," with the new name *kotzebuii*.

We are now justified in concluding (*a*) that No. 30, Bruch, 1853; No. 40, Bonaparte, 1854, and No. 35, Bruch, 1855, are unquestionable synonyms; (*b*) that the same is the case with No. 31, Bruch, 1853; No. 41, Bonaparte, 1854, and No. 36, Bruch, 1855; and with (*c*) No. 32, Bruch, 1853; No. 42, Bonaparte, 1854, and No. 37, Bruch, 1855.

We are, in my opinion, further justified in concluding (*d*) that Bruch's "*brachyrhynchus* Gould," and Bonaparte's "*niveus* Pall." is the Pacific representative of the Atlantic *tridactyla* with a somewhat better developed hind toe.

It will be seen that "*brevirostris* Brandt" Bruch, with yellow bill and coral-red feet is the one upon which Bonaparte originally bestowed the name *kotzebuii*. That this view is absolutely correct is proved by Bonaparte's own words on p. 217 of the same article (Naum. 1854\*), where he says: " \* \* \* ne vaudrait-il pas mieux appeler *Kotzebui* \* \* \* la bonne espèce des côtes Nord-ouest de l'Amérique à laquelle on applique le nom plus que douteux de *brevirostris*, Brandt;" that is: "Would it not be better to give the name *kotzebui* to that good species from the northwest coast of America, to which has been applied the more than doubtful name *brevirostris* Brandt." That Bonaparte by "on" means Bruch cannot be doubted.

\* Reprinted in his paper entitled "Notes sur les Larides," in Rev. et Mag. de Zool., 1854, p. 10.

It was only two years after that Bonaparte (Consp. Avium, II, p. 226) transferred the name *kotzebui* to the black-legged representative of *tridactyla* in the Pacific.

The above conclusions were made under the supposition that "No. 31, *brachyrhynchus* Gould," of Bruch, 1853, is not the true *brachyrhynchus* of Gould (which is the red-legged *brevirostris* Brandt, with the red color of the legs faded into yellow), but the black-legged Pacific representation of *R. tridactyla*.

Somebody might, however, advocate that Bruch's *brachyrhynchus* ought to be considered the same as Gould's species, as nothing in the short diagnosis really contradicts such an opinion. It might be said, with all probability of being correct, that Bruch was under the same impression as was Dr. Otto Finsch still in 1872,\* viz., that *R. tridactyla* proper is an inhabitant of the whole northern hemisphere, and that in the Northern Pacific two other *Rissæ* occur, besides, one with yellow legs (*brachyrhynchus* GOULD), another with red legs (*brevirostris* BRANDT). This being the case, Bonaparte's "41 nivea Pall." would also become a synonym of the true *brachyrhynchus* Gould. In defense of this opinion might be quoted Bonaparte's *Conspectus Avium*, in which he indeed gives his No. 41 as a synonym of *brachyrhynchus* = *brevirostris*, then for the first time properly located and understood.

This theory, if correct, would make no change in the results, above arrived at, as it would only prove that both Bruch and Bonaparte were wholly unacquainted with the North Pacific Kittiwake up to 1856, that their numbers, 31, 32, and 41, 42, were identical, and, consequently, *kotzebuii*, 1854, the synonym of *brevirostris* BRANDT.

As *Rissa kotzebui* Bp., 1856, is proved to be preoccupied, this subspecies is left without a name. I, therefore, have proposed to call it *Rissa tridactyla pollicaris*. Were it not for the inconstancy of the character derived from the greater or lesser development of the hind toe, the two forms would have to stand as distinct species. As the case is now, they can only be recognized as subspecies. It may, however, be mentioned that the Pacific form does not differ only in the development of the hind toe, as the black tips of the first primaries are longer, and the bill, on the average, longer and differently shaped than in the Atlantic bird. Besides, I have been unable to find in any specimen of a large series of *pollicaris* the black of the tips of the second and third primaries running down along the edge of the outer web.

\*Abhandl. Brem. Ver., III, 1872, pp. 84, 85, sps. 107, 108, 109.



## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Measurements.				
					Total length.	Wing.	Tail-feathers.	Culmen.	Tarsus.
					mm.	mm.	mm.	mm.	mm.
92895	2090	Bering Island .....	May 25, 1883	(♂) ad.	(445)	325	134	29	36
89124	1200	..... do.....	June 13, 1882	♀ ad.	450	298	139	39	36
92896	2638	Staritskoff Island, Kamtschatka	Sept. 23, 1883	juv.	.....	318	128	32	33
92897	2637	..... do.....	Sept. 23, 1883	juv.	.....	.....	.....	.....	.....

No. 89124.—Iris dark brown. Bill clear yellow, in front of nostrils tinged with apple-green; tip whitish; angle of mouth and the interior of the gape deep orange-red; eye-ring vermilion. Feet blackish brown, on the outside darker, brownish black: naked part of tibia on the inner side bright orange-yellow, as are also one or two irregular spots on the inner corner of the web between middle and inner toe.

The Pacific Kittiwake, called by the natives "*Gavaruschka*," on account of its loquacity, is a common breeding bird, both on the islands and along the Kamtschatkan coast, but as all places do not suit these noisy birds or supply all their requirements the rookeries are comparatively few, a compensation for which is found in the astonishing number of individuals inhabiting each rookery. For such are chosen steep walls, rising perpendicularly out of the deep sea, and especially high pinnacles standing lonely amidst the foaming breakers, provided they are fitted out with shelves and projections upon which to place the nests.

As Copper Island offers such localities all around its shore, the Kittiwake is pretty well distributed all over that island. On Bering Island, on the other hand, only the southern part has suitable rookeries, but here the red-legged *Gavaruschka* excludes it from Cape Manatee to Peregrobnij. The first rookery of any importance on the western shore is among the cliffs of Dikij Mys.

The only rookery I had the opportunity of visiting on the coast of Kamtschatka is situated on a pinnacle-shaped rock, called the sentinel (*Tschasovoj*), close to the island *south* of the entrance to Avatscha Bay, called Staritskoff Island. It is the same visited by v. Kittlitz, more than half a century ago, and as I have nothing to add to his interesting account (*Denkw.*, II, p. 214, seqv.), I shall only remark that I found the Kittiwake as numerous at the present time as it was on the day when he lost his gun on the "*Tschasovoj*."

To Bering Island they arrived in 1883, about the 1st of April, when flocks were observed at Tolstoj Mys. I found the first young ones hatched on Copper Island, August 2, 1883.

## 22. *Rissa brevirostris* (BRUCH).

1843.—*Larus brachyrhynchus* GOULD, P. Z. S., 1843, p. 106 (*nec* RICHARDS., 1831); *Id.*, Zool. Voy. Sulphur, p. 50, pl. 34 (1844).—FINSCH, Abh. Brem. Ver., III, 1872, p. 84.

1845.—*Rissa nirca* GRAY, Gen. Birds, III, p. 655 (*nec* Pall.).

1853.—*L[arus] brevirostris*\* BRUCH, Journ. f. Ornith., 1853, p. 103, sp. 32.—COUES, in Elliott's *Aff. Alaska*, p. 199 (1875).—ELLIOTT, *Monogr. Seal Isl.*, p. 133 (1882).—*Rissa brevirostris* LAWRENCE, in Baird's *Birds of N. Amer.*, p. 855.—DALL & BANNIST., *Tr. Chicag. Acad.*, I, 1869, p. 305.—FINSCH, *Abh. Brem. Ver.*, III, 1872, p. 85.—DALL, *Avif. Alent. Isl. Unal. east*, p. 8 (1873).—NELSON, *Cruise Corwin*, p. 105 (1883).—STEJNEGER, *Pr. U. S. Nat. Mus.*, 1883, p. 60.—*Id.*, *Ank.*, 1884, p. 358.—TURNER, *Ank.*, 1885, p. 158.

1854.—*Rissa kotzebuii* Bonap., *Naumannia*, 1854, p. 212, (*nec* 1856).

1860.—*Larus warneki* COINDE, *Rev. Mag. Zool.*, 1860, p. 401.

My specimen is absolutely identical with those from the Prybiloff group.

The Red-legged Kittiwake—Krasno-nogaja Gavaruschka—is in every respect, both structurally and in its habits, a true *Rissa*. Like its black-legged cousin, it only selects steep and inaccessible rocks, and in none of its habits at the breeding-place could I detect any marked difference. They also arrive at the islands about the same time, hatching their young simultaneously with the other species. Those birds which are not engaged in breeding do not seem to straggle about to such an extent, however, as do the black-legged ones, and in fact I never saw a red-legged Kittiwake at any season on the northern part of Bering Island.

The two species usually keep apart from each other. In the great rookery at Dikij Mys only one solitary red-legged bird was seen among the thousands and thousands of black-feet, while a still greater colony at Gavaruschkaja Buchta consisted of red-legs exclusively. "*R. kotzebui* [= *R. pollicaris*] was observed in countless numbers along the western shore; but as soon as we had doubled Cape Manatee we met as large

\* One will almost invariably find quoted "*Rissa brevirostris* BRUCH." He, however, regarded the names "*Rissa*," "*Gabianus*," "*Dominicanus*," "*Glaucus*," &c., as subgeneric terms (he calls the groups "Familie," not genus), not to be included in the name. In his two monographs nowhere will be found the specific name connected with the subgeneric, but invariably by an "*L.*" as an abbreviation for *Larus*. See *L. leucopterus*, *L. glacialis*, *L. consul*, *L. glaucopterus*, under *Glaucus*; *L. Hartlaubii* under *Gavia*; *L. tridactylus* under *Rissa*, &c. His own direct remarks (*J. f. Orn.*, 1855, p. 274) are to the same effect and are absolutely conclusive.

or still larger flocks of *R. brevirostris*, among which not a single black-legged individual could be detected. \* \* \* And thus the red-legged form completely excluded the other along the eastern shore." (Pr. U. S. Nat. Mus., 1883, p. 60.)

On Copper Island, however, I found the two species breeding together on the same rocky wall—the black-feet always higher up than the present species. The two kinds were easily distinguished when sitting on the nests, *brevirostris* having the gray of the mantle of a perceptibly darker shade than *pollicaris*.

Only one specimen was brought home. Quite a series, however, was procured at Tolstoj Mys, Bering Island, on the 27th of August, but the terrible storm of wind and rain which we encountered in the afternoon, and which lasted for three days, spoiled the specimens and made preparation impossible. We had enough to do in taking care of the boat, the tent, guns, and collections already prepared.

The measurements of this specimen are as follows:

*Ad.*, U. S. Nat. Mus. No. 89125; *L. Stejneger* No. 1488. *Dikij Mys, Bering Island, August 23, 1882.*

Total length, 402mm; wing, 324mm; tail-feathers, 132mm; culmen, 29mm; tarsus, 33mm.

Iris dark brown. Bill lemon yellow, greenish towards tip; angle of mouth and interior of gape orange-red. Naked eye-ring and feet vermilion red.

It may be well to state here that the color of the feet in the fresh bird during the summer is pure vermilion, and not orange-red, as often given (as by Mr. H. Saunders, P. Z. S., 1878, p. 165). In the dried skin the red color soon changes to orange-red, and later to a yellowish-drab, as in the figure of Gould's *brachyrhynchus* (*l. c.*). There are not two species, one with yellow legs and another with red ones, as supposed by Dr. Finsch (*l. c.*).

### 23. *Sterna camtschatica* PALL.

1826.—*Sterna camtschatica* PALL., Zoogr. Rosso-Asiat., II, p. 335 (*nec* FINSCH, Abh. Naturw. Ver. Bremen, III, p. 85 (1872) quæ *S. aleutica* BAIRD).—KITTL., Denkw., I, p. 322, and II, p. 200 (1858).—TACZANOWSKI, Bull. Soc. Zool. France, 1876, p. 362.—*Id.*, Orn. Faun. Vost. Sibir., p. 63 (1877).—STEJNEGER, Naturen, 1884, p. 8.

1835.—*Sterna longipennis* NORDM. in ERMANN'S, Verz. Thier. Pflanz., p. 17 (*nec* FINSCH, J. f. Orn., 1867, p. 339, quæ *S. frontalis* GRAY; *nec* COUES, Key, p. 321 (1872), quæ *S. paradisica* BRÜNN.).—MIDDEND., Sibir. Reise, II, 2 (p. 246, tab. 25, fig. 4), (1853).—SCHRENCK, Reise Amur-Lande, I, p. 512 (1860).—RADDE, Reis. Süden Ost-Sibir., II (p. 389), (1863).—SWINHOE, P. Z. S., 1863, p. 329.—SCHLEGEL, Mus. Pays-Bas, Sternae, p. 23 (1864).—BLASIUS, J. f. Orn., 1866, p. 80.—E. V. HOMEY., J. f. Orn., 1870, p. 439.—PRZEWAŁSKI, Putesch. Ussur. Supp. (n. 223), (1870).—HARTLAUB & FINSCH, J. f. Orn., 1872, p. 112.—TACZAN., J. f. Orn., 1873, p. 111.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, *ibid.*,

1875, p. 257.—*Id.*, *ibid.*, 1876, p. 202.—*Id.*, Bull. Soc. Zool. France, 1876, p. 261.—*Id.*, *ibid.*, 1882, p. 397.—*Id.*, Orn. Faun. Vost. Sibir., p. 62 (1877).—SAUNDERS, P. Z. S., 1876, p. 650.—SEEBOHM, Ibis, 1879, p. 23.—*Id.*, *ibid.*, 1880, p. 194.—FINSCH, P. Z. S., 1879, p. 15.—*Id.*, Ibis, 1881, p. 540.—BLAKIST. & PRYER, Tr. Asiat. Soc. Japan, VIII, 1880, p. 183.—*Id.*, *ibid.*, X, 1882, p. 103.—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 70 (*part*), Ibis, 1883, p. 582.—*Id.*, Naturen, 1884, p. 8.—BLAKIST., Amend. List B. Jap., p. 10 (1884), 1858.—*Sterna glacialis* KITTLITZ, Denkw. Reise, I, p. 322.

Dr. Otto Finsch has most erroneously identified Baird's *aleutica* with Pallas's *camtschatica*, thus extending the range of the former species so as to embrace both the American and the Asiatic shores of the North Pacific, while it really is of a very limited distribution on the American side only. Finsch's identification was evidently made from the descriptions only, he having never seen a specimen of the true *aleutica*; but an actual comparison of my Kamtschatkan birds with a large number of *Sterna aleutica* proves, beyond doubt, that the two species are perfectly distinct, not only in color but also in proportions. In fact, Hartlaub and Finsch were perfectly correct (Orn. Centr. Polynes., p. 220) when referring Pallas's *camtschatica* to *longipennis*.

The difference in coloration between the latter and *S. aleutica* is chiefly the uniform black forehead, crown, and nape, while *aleutica* in full breeding summer plumage has the forehead and a superciliary stripe pure white. The size is about the same, but the proportions of bill and feet are rather different. In *aleutica* the bill on the average is shorter, the tarsus also shorter, but the middle toe very considerably longer. This character is very conspicuous, and will serve to distinguish the two species in all plumages.

That Nordmann's *longipennis* is the same as Pallas's *camtschatica* can hardly be doubted. When considering the description given by the latter we must remember that he had not seen the bird himself, Steller's manuscript notes being his only source, and that the measurements are evidently wrong, probably belonging to some other bird. The dimensions "*cauda* 3''" and "*digiti medii* 1'' 7'''" are, of course, not more correct than "5''" are correct for the tail of *Sterna caspia*, as given on a previous page. "*Rostrum nigrum.*" "*Color fere St. Hirundinis*" and "*Pedes fusco-rubri*" fit the Kamtschatkan "*Martischka*," as it is still called by the natives (cfr. "*Larus Martyschka*, Steller MS."), so well as to allow no doubt as to what bird is meant.



## List of specimens obtained.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond tail.	Wings.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92898	2055	Avatscha, Kam.....	May 24, 1883	♀ ad.	350	22	274	149	33	23	23
92900	2073	Bering Island.....	May 27, 1883	(♀) ad.	(370)	.....	254	161	31	21	23
92899	2192	do.....	June 21, 1883	♀ ad.	348	20	279	146	36	23	23
101670	.....	Petropaulski, Kam .	1884	jun.	.....	.....	260	113	30	21	22
101671	.....	do.....	1884	jun.	.....	.....	255	115	28	20	.....

No. 92898.—Iris very dark brown. Bill black. Feet blackish red. Diameter of largest egg in ovary 5<sup>mm</sup>. Very fat.

No. 92899.—Iris dark brown. Bill black, with a reddish tinge shining through in front of the nostrils, on the gonyx at base of upper mandible, and at the angle of the mouth; the extreme tip whitish. Feet dark reddish brown. Eggs in the ovary, swollen, but small. Lean.

As already stated in my preliminary report, the Kamtschatkan Tern occurs on Bering Island, but I was wrong in giving it as breeding there. The four pairs of terns stated to have bred there I found out the next year to belong to the following species (*S. paradisæa* BRÜNN).

In Kamtschatka I met this species in the middle of May, 1883, at the mouths of the rivers falling into the Bay of Avatscha, but they were not very numerous. During my visit in the autumn I saw but once a large flock, about the first of October, in the Rakovaja Guba, Avatscha Bay.

Since the above was written Capt. E. I. Hunter had the kindness to send me two birds of the year, collected at Petropaulski. The structural differences pointed out above will serve equally well for distinguishing the young. The measurements are embodied in the table above.

24. *Sterna paradisæa* BRÜNN.

1764.—*Sterna paradisæa* BRÜNN., Orn. Bor., p. 46 (nec KEYS. & BLAS., 1840 quæ dougalli).—TURNER, Auk, 1885, p. 158.

1819.—*Sterna macrura* NAUMANN, Isis 1819 (p. 1847).—DALL & BANNIST., Tr. Chic. Acad. I. 1869, p. 306.—DALL, Avif. Aleut. Isl. Unalash. eastw., p. 10 (1873).—*Id.*, Avif. Aleut. Isl. west Unalash., p. 9 (1874).—NELSON, Cruise Corwin, p. 109 (1883).

1820.—*Sterna arctica* TEMM., Man. d' Orn., 2 ed., I., p. 742.—PALMÉN, Spec. Cat. Swed. Lond. Fish. Exhib., 1883, p. 202.

1883.—*Sterna longipennis* STEJNEGER, Pt. U. S. Nat. Mus., 1883, p. 70 (*part. nec* NORDM.).

The Arctic Tern occurs and breeds in small number on Bering Island. In 1882 only four pairs were observed. They breed at the great lake a few miles to the east of the village.

There are but few authentic records of the occurrence of this species in the eastern parts of Asia. Middendorff quotes it from Taimyr and Radde from the delta of the Upper Angara, but later travelers have not found it there. Swinhoe did not obtain it in China, nor has it been found in Japan, the Amur-province, the Kuriles, the shores of the Okotsk Sea, or Kamtschatka. Mr. Nelson, however, (Cruise Corwin, p. 109) noted it on the northeastern Siberian coast of the Arctic Ocean and Nordenskjöld collected a specimen there, at Pitlekaj, July 5, 1879. The species has been found on several of the Aleutian Islands belonging to America.

The specimen collected by me measures :

♂ ad., U. S. Nat. Mus. No. 92901; L. Stejneger No. 2129. Bering Island, June 5, 1883.—Total length 371<sup>mm</sup>. Tail beyond wings, 8<sup>mm</sup>. Wing, 280<sup>mm</sup>. Tail-feathers, 185<sup>mm</sup>. Culmen, 32<sup>mm</sup>. Tarsus, 17<sup>mm</sup>. Middle toe with claw, 22<sup>mm</sup>. Iris dark brown. Bill carmine, tip slightly dusky. Feet vermilion, tinged with carmine.

### Family STERCORARIIDÆ.

#### 25. *Stercorarius parasiticus* (LIN.)

- 1758.—*Larus parasiticus* LIN., Syst. Nat., 10 ed., I, p. 136 (*nee* LESS. qui *longicaudus*).—*Stercorarius p.* DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 303.—COUES, in Elliott's Affairs Alaska, p. 196 (1875).—ELLIOTT, Monogr. Seal Isl., p. 132 (1882).—TURNER, Auk, 1885, p. 158.—*Lestris p.* DALL., Avif. Aleut. Isl. west Unal., p. 9 (1874).—TACZAN., Bull. Soc. Zool. France, 1876, p. 262.—*Id.*, *ibid.*, 1883, p. 341.—*Id.*, Orn. Faun. Vost. Sibir., p. 64 (1877).
- 1773.—*Larus crepidatus* BANKS in Hawkesw., Voy. II (p. 15).—*Stercorarius c.* (?) BLAKIST. & PRYER, Tr. As. Soc. Jap. X, 1882, p. 105.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 169.—NELSON, Cruise Corwin, p. 110 (1883).—BLAKIST., Amend. List B. Jap., p. 35, (1884).—SEEB., Ibis, 1884, p. 32.
- 1826.—*Catarractes parasita* PALL., Zoogr. Ross. As. II, p. 310.—*Lestris p.* MIDDEND., Sibir. Reis., II, 2 (p. 241) (1853).—SWINH., P. Z. S., 1863, p. 328.

On the Commander Islands the dark form is the most common. A few only with white lower surface were seen, and one secured. This species is found mostly on Bering Island where it breeds on the great tundra, or rather swamp, near the village. In 1883 the first ones made their appearance on the 4th of May. In the autumn they seem to feed to a great extent on the berries of *Empetrum nigrum*, and their excreta at that time are colored dark blue. The natives call them by the Russian name "*Rasbojnik*."

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond next longest tail feather.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw	Remarks.
89083	1122	Bering Island.	1882. May 30	♂ ad.	mm. 356+80	mm. .....	mm. 305	mm. 212	mm. 29	mm. 43	mm. 43	Dark phase.
89084	1123	....do ...	May 30	♀ ad.	420+55	.....	318	200	30	44	.....	Do.
89085	1411	....do ...	Aug. 7	♀ ad.	410+65	.....	326	191	31	44	43	Do.
89086	1412	....do ...	Aug. 7	♀ ad.	420+70	.....	322	202	29	43	43	Do.
92902	2162	....do ...	1885. June 11	♂ ad.	389+65	40	320	182	30	44	41	Light phase.

No. 89084.—Iris dark brown. Bill brownish black; more greenish gray at base of upper mandible. Feet pure black.

No. 89085.—Iris, dark hazel. Bill, horny gray; blackish at tip. Feet, black.

No. 92902.—Iris, dark brown. Bill, blackish brown, lighter brownish gray at base of lower mandible; nasal shield and culmen, still lighter. Feet, black, the left tarsus with a whitish spot in front. Testes, small.

One egg was collected on May 29, 1882 (No. 1115, U. S. Nat. Mus. No. 21799), and measures 57 by 41.25<sup>mm</sup>.

26. *Stercorarius longicaudus* VIEILL.

1819.—*Stercorarius longicaudus* VIEILL., Nouv. Dict. d'Hist. Nat. XXXII, p. 157.—TURNER, Auk, 1885, p. 158.

1822.—*Lestris buffonii* BOIE, Isis, 1822, p. 562.—MIDDEND., Sibir. Reise, II, 2 (p. 241) (1853).—SWINH., P. Z. S., 1863, p. 328.—TACZAN., Bull. Soc. Zool. France, 1876, p. 262.—*Id.*, *ibid.*, 1883, p. 341.—*Id.*, Orn. Faun. Vost. Sibir., p. 64 (1877).—*Stercorarius b.* DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 304.—COUES, in Elliott's Affairs Alaska, p. 197 (1875).—ELLIOTT, Monogr. Seal Isl., p. 132 (1882).—BLAKIST., Amend List B. Jap., p. 35 (1884).—SEEB., Ibis, 1884, p. 176.

1826.—*Stercorarius cephus* STEPH., Gen. Zool. XII, i, p. 211.—*Lestris c.* PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 201 (1883).

1828.—*Lestris parasitica* LESSON, Man. d'Orn., II, p. 288 (*neo* LIN.).—*Stercorarius p.* (?) BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 105.—NELSON, Cruise Corwin, p. 111 (1883).

The Long-tailed Jæger in the adult plumage resembles very closely the light phase of the foregoing species, but even young birds of the two species may be easily distinguished.

Some stages may at once be recognized by the coloration alone. It has been given as an unfailing mark that in Richardson's Jæger the shafts of all or most of the primaries are white, while in *longicaudus* only the two first ones are so colored. Such is certainly the rule, but the

examination of a very large series of both species has convinced me that all transitional stages occur, as birds are found having the two, three, four, five, or six first primaries with white shafts, and that these characters, consequently, are of little value. The coloration may be depended upon as a safe guide for the identification in the following cases:

If the bird has wholly black legs, tarsi included, then it belongs to *parasiticus* (*crepidatus*), even if light colored underneath. This character, however, is only safe when applied to rather fresh specimens, as the light tarsi often darkens so much in museum specimens that it is difficult to decide upon the original color.

If the bird is sooty all over, it is *parasiticus*.

If it has the tarsi light blue (Saunders, P. Z. S., 1876, p. 331, gives the color as yellowish olive; that is only the case in dried specimens, not in the fresh bird), simultaneously with uniformly soot-colored under wing coverts, then it certainly belongs to *longicaudus*.

In all other cases the proportions of the different parts of the bill are the only reliable characters. *S. parasiticus* is recognizable by having the gonys shorter and the nasal shield longer, while in *longicaudus* these proportions are reversed. The length of the gonys, as compared with the breadth of the bill across the points of the loreal antiæ is a good character of the bird when still in the flesh, and so is the position of the angle of the gonys in its relative position to the nostrils, the former being placed much in front of the anterior border of the nostrils in *parasiticus*, while in *longicaudus* it is placed right below that same point. But museum specimens may be identified by measuring the distance from the anterior border of the nostrils to the tip of the bill and compare it with the length of the nasal shield along the culmen. In *longicaudus* the two distances are of equal length, while in *parasiticus* the nasal shield is much longer.

These characters hold good at least in birds one year old just before the second moult, and in the adults. Whether young ones in the first plumage are distinguishable in the same manner I cannot say with certainty, as I have no access to a specimen of *longicaudus* of that age, but I have little doubt that they are, as the essential characters of *parasiticus* are very well borne out in several young specimens before me.



## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing beyond next longest tail-feather.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
			1883.		mm.	mm.	mm.	mm.	mm.	mm.	mm.
92905	2127	Bering Island.....	June 5	♂ ad.	385+175	42	310	302	27	41	37
92903	2193	do.....	June 21	♂ ad.	400+120	30	310	265	27	43	38
92904	2226	Copper Island.....	July 3	♀ horn.	381+117	28	311	238	26	44	39

No. 92905.—Iris dark brown. Bill black. Tarsus light grayish blue; naked part of tibiae, toes, and webs black. Stomach empty. Extremely fat.

No. 92903.—Iris dark brown. Bill blackish brown, lighter at base, and nasal shield tinged with olive. Tarsus and hind toe light grayish blue; tibiae, toes, and webs black. Testes small. Stomach contained an *Arvicola rutila*. Rather fat.

No. 92904.—Iris dark brown. Bill blackish brown, nasal shield olive gray. Naked part of tibiae, tarsus, and portion of toes nearest to the tarsus, light grayish blue, remainder, including hind toe, black. Eggs in ovary very small and undeveloped. In stomach only a few fish-bones.

The Long-tailed Jaeger does not breed on the islands. Those which I met were only adult males or birds of the first year. I should not be surprised, however, if this species in a near future might be induced to settle on Bering Island on account of the enormous increase of *Arvicola rutila*, which has been introduced into the island within the last ten years.

## Superfamily PROCELLAROIDEÆ.

## Family DIOMEDEIDÆ.

27. *Diomedea albatrus* PALL.

1769.—*Diomedea albatrus* PALL., Spicil. Zool., V, p. 28.—*Id.*, Zoogr. Ross. As., II, p. 308 (1826).—SWINH., Ibis, 1864, p. 423.—SEEB., Ibis 1884, p. 176.—TURNER, Ank, 1885, p. 158.

1820.—*Diomedea chinensis* TEMM., Man. d'Orn., 2d ed., I, p. cx.

1835.—*Diomedea brachiura* TEMM., Pl. Color., V, livr. 94, pl. 554.—*Id.* & SCHLEG., Faun. Japon. Aves (pl. 66) (1849).—KITTL., Denkw., I, pp. 234, 248.—SWINH., Ibis 1860, p. 67.—*Id.*, *ibid.*, 1863, p. 431.—*Id.*, *ibid.*, 1864, p. 423.—*Id.*, *ibid.*, 1867, p. 226.—*Id.*, *ibid.*, 1870, p. 366.—*Id.*, P. Z. S. 1863, p. 329.—*Id.*, *ibid.*, 1871, p. 422.—CASSIN, Pr. Acad. Philada., 1862, p. 326.—FINSCH, Abh. Brem. Ver. III, 1872, p. 83.—DALL, Avif. Aleut. Isl. west Unal., p. 8 (1874).—COUFS, in Elliott's Aff. Alaska, p. 194 (1875).—TACZAN., J. f. Orn., 1876, p. 202.—*Id.*, Orn. Faun. Vost. Sibir, p. 65, (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 40.—BLAKIST. & PRYER, Ibis, 1878, p. 218.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 190.—*Id.*, *ibid.*, X, 1882, p. 106.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 170.—ELLIOTT, Monogr. Seal Isl., p. 131 (1882).—NELSON, Cruise Corwin, p. 111 (1883).—BLAKIST., Amend. List B. Jap., p. 35 (1834).

Pallas's description of *Diomedea albatrus* is based upon a specimen sent from Kamtschatka to the Academy of St. Petersburg by Steller,

and the description leaves no doubt whatever that it is the bird subsequently called *Diomedea brachiura*; the measurements alone are quite conclusive.

There cannot be the slightest doubt that plate 963 of "Planches Enluminures" represents the young of the present species, and as Temminck bestowed the name *chinensis* on that figure, the latter name, as given in 1820, would take the precedence over the same author's *brachiura*, which is fifteen years later, had it not been for Pallas's name.

Not having seen a specimen purporting to be Swinhoe's *derogata* I am unable to form an opinion as to its validity.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Stretch of wings.	Wing.	Tail-feathers.	Chord of culmen.	Tarsus.	Middle toe with claw.
			1882.		<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
92906	1660	Bering Island.....	Sept. 21	♂ ad.	925	2370	575	147	131	98	136
92907	1225	Copper Island.....	June 22	jun.	870	.....	560	144	132	105	.....

No. 92906.—Bill reddish violet; nail whitish. Feet grayish blue with dusky on the joints and webs.  
 No. 92907.—Iris dark brown. Bill violet flesh color; nail more bluish white. Feet as the bill, only somewhat tinged with brownish gray. Sexual organs undeveloped.

The Albatros—by which name it is known to the natives also—by no means is a rare visitor to the Commander Islands, where I never saw *D. nigripes* AUD., a species which, on our northward voyage from San Francisco, left us before we reached the Aleutian Chain. They do not remain near the islands during the winter—at least I saw none—but the first ones were observed as early as the middle of March. These were old birds in the white plumage, and on April 14th not less than eight were seen at one time near the village. During the summer, however, the black young birds of the foregoing year are more numerous than the adults, of which a few remain all summer, though without breeding, of course. In the middle of the immense flocks of *Lunda*, *Fratereula*, and *Fulmarus*, which in quiet weather rest on the surface of the sea, covering many acres, can always be seen one or two of these comparatively gigantic dark birds, which, however, are the first ones to take the wing at the approach of a boat or a bajdarka. This species is remarkably shyer than *D. nigripes*.

I also saw it in Kamtschatka, on the Bay of Avatscha, and suspect that it is a young bird of this species which has been reported by Mr. Taczanowski under the name of *nigripes* AUD. as having been taken in Kamtschatka.

### Family PROCELLARIDÆ.

#### 28. *Fulmarus glacialis glupischa* STEJNEGER.

- 1769.—*Procellaria glacialis* PALL., Spicil. Zool., V. p. 28.—*Id.*, Zoogr. Ross. As., II, p. 312 (*nee* LIN.) (1826).—SCHRENCK, Reis. Amurl., I, p. 517 (1860).—TACZAN., Bull. Soc. Zool. France, 1877, p. 40.—*Id.*, Orn. Faun. Vost. Sibir., p. 65 (1877).—*Fulmarus g.* BLAKIST. & PRYER, Ibis, 1878, p. 218.—SEEB., Ibis, 1879, p. 25.
- 1838.—*Procellaria pacifica* AUDUB., Orn. Biogr. V (p. 331) (*nee* GMEL., 1788).—TACZAN., Bull. Soc. Zool. France, 1882, p. 398.—*Fulmarus p.* CASSIN, Pr. Philada. Acad., 1862, p. 327.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 190.—*Id.*, *ibid.*, X, 1882, p. 106.—BLAKIST., Amend. List B. Jap., p. 21 (1884).
- 1883.—*Priocella tenuirostris* NELSON, Cruise Corwin, p. 112 (*part. nee* AUD. ; *cfr.* STEJNEGER, Auk, 1884, p. 233).
- 1884.—*Fulmarus glacialis glupischa* STEJNEGER, Auk, 1884, p. 234.—TURNER, Auk, 1885, p. 158.

An examination of thirty-six specimens of arctogæan Fulmars has given the following results :

(1.) Both in the Atlantic and in the Pacific two very easily distinguishable forms occur, one almost uniform *dark* ashy or nearly sooty, the other white with pearl-blue mantle. The former is not to be confounded with the young bird of the latter, as enormous breeding colonies of the sooty form exclusively are met with. The young birds of the white forms have the head and the greater part of the lower surface suffused with light gray, yet they can never be mistaken for the dark ones, and I doubt very much if any intergradation *between the fully matured adults* of the two forms or phases can be proven. I have observed thousands and tens of thousands of the dark form breeding, not finding a single one perceptibly lighter, although a small colony of the white form was breeding in the neighborhood, but separate from the dark ones; nor were any of the light phase perceptibly darker than usual; and in no case were white and dark birds paired together.

(2.) The Atlantic and Pacific birds show hardly any—even an average—difference in the shape of the bill, the form of the nasal tubes, &c., upon which to base a separation of them, but there seems to be a decided difference in the coloration of that member. In all the birds, dark and light ones, from the Pacific the bill is light-colored, only with a little dusky on the borders of the different lamellæ and on the culmen between

the nasal tubes and the nail, and the nasal tubes themselves are always light-colored, never dark, much less any other part of the bill. The reverse is the case in the different forms of the Atlantic birds, in which the nasal tubes seem to be dark-colored, and in a great many, if not all, dark-colored individuals, the whole bill has a brown color. There seems also to be a constant difference in the color of the iris of the two races, as it is given as yellow for the old Atlantic bird, while in the Pacific variety it is invariably dark brown, although it should be stated that Faber describes the Icelandic birds as having the irides "*nigro fusci.*"

The accounts of the exact colors of the light parts of the bill in the Atlantic birds are very uncertain and unsatisfactory. In the Pacific race I found two very different styles of color of the bill. All those which I examined at the breeding places, whether dark or white, had a whitish bill with faint bluish, greenish, and pinkish shades, consequently a kind of mother-of-pearl color. A faithful picture was prepared by me from a fresh specimen and is reproduced as fig. 2, on pl. vi, giving an exact representation of the color as it was invariably found in the adult breeding birds from early spring until August, at least, when I observed the last ones. The other style is represented in fig. 1, pl. vi, also colored from the fresh specimen, an old white bird from Bering Island, obtained in February. The bill is absolutely yellow with tinges of greenish and orange brownish. As this was the only winter bird I got, I cannot say whether this difference in the colors of the bill is due to season, but I really suspect it is, as I saw none among the thousands and thousands of summer birds with yellow bill, although I had excellent opportunity for observation, and I paid a special and careful attention to the subject, as will be seen. Most of the Atlantic observers record the color of the bill as yellow; is that not due to the fact that they had winter specimens before them? Faber, one of the most conscientious observers, describes the color of the bill of the Icelandic bird (in summer plumage, as he only got a few winter specimens) as being "*grisescens, dextro adunco flavescenti. \* \* \* nares \* \* \* nigrae.*" (Beytr. Aret. Zool., II, Isis, 1824, p. 786), which seems to confirm my opinion of a seasonal change in the color of the bill, as Naumann, a not less careful observer, describes the bill of the old bird as beautiful and rich yellow with the nasal tubes slaty black, he having probably had only winter birds taken off the coast of Germany (Naturg. Vög. Deutschl., X, p. 594: "Der Schnabel \* \* \* an seinem grossen Haken und dem Spitzentheile des Unterschnabels sehr schön hoch-



gelb, ins Orangefarbene spielend, der übrige Theil, welchen die dunkle Längenreihe an der Seite in zwei gleiche Hälften zu theilen scheint, blaszgelb, der hintere Theil des Oberschnabels nur der Schneide entlang hochgelb, nach oben blasser, hier vom Schieferschwartz der Nasenröhre \* \* \* begrenzt. \* \* \*” Cfr. also Kumlien’s description of the bill of the white phase “during the latter part of August, September, and fore part of October”: “bright yellow bill,” Bull. U. S. Nat. Mus., No. 15, p. 101.)

(3.) While the white phases of the Atlantic and the Pacific races are indistinguishable as far as the coloration of the feathering is concerned, the dark phases are very readily distinguished, the Pacific one being much darker all over. Its color is a saturated, plumbeous ash, more or less tinged with sooty brown (in Museum specimen the color soon turns brownish all over on account of the oxydation of the fatty matter, I suppose). The dark phase of the Atlantic bird is somewhat lighter and of a more ashy hue. Both forms have, when alive, or freshly killed, a tender, silky, olive-greenish gloss on the mantle as described by Mr. Kumlien (Bull. U. S. Nat. Mus., No. 15, p. 101) in the Atlantic race, and also observed by me in the birds of the Commander Islands.

(4.) There seems to be a decided difference in the geographical range of the two phases in both oceans; it appears that the dark phase in both instances is a particularly western bird, while the light colored ones seem to have a more eastern distribution.

If the dark form had occurred breeding in Iceland, where Faber found the white one exceedingly numerous, he could scarcely have escaped mentioning it. Nor does it seem to have been found in Saint Kilda\* by John Maegillivray, and the form, at present, breeding on the Fær Islands seems also to be the unmixed light phase; in fact, I do not think the dark form has been found breeding in any number before in Davis’s Straits and adjacent waters, where it occurs in great abundance. In the Pacific a similar distribution obtains, the dark form being comparatively scarce on the American side, while it is by far the predominating form on the Asiatic shore, at least as far south as Kamtschatka. The dark phase was found by me on the Commander Islands in countless

\*From Mr. Dixon’s interesting account of “The Ornithology of Saint Kilda,” published in the *Ibis* for 1885, pp. 69, *seqv.*, received since the above was written, it is learned that the “natives assert that there are two kinds, a light and a dark one, but the latter is rare.” This substantiates my view as to the scarcity of the dark form in the east. On p. 94 Mr. Dixon has published a condensed account of the conclusions I have arrived at, and which I communicated to Mr. Seeborn during his visit in Washington last autumn.

numbers. In the colonies breeding on Bering Island not a single light bird was to be seen, and the same was the case at the rookeries on the northern part of Copper Island, for example, that close to the village. At Glinka, near the southern extremity of the latter island, were found a few small white colonies, but the percentage of the light-colored birds was quite trifling, as I estimated it to be between 1 and 5 per cent. The accounts of the birds taken in Kamtschatka and the Kurile Islands are exceedingly meager, but indicate the dark phase as far as they go.

(5.) In the Atlantic occurs a smaller race, *F. glacialis minor* KJÆRB., besides the typical *F. glacialis*, which also has two phases. In the Pacific another race occurs, which is fairly distinguishable from *F. glacialis glupischa*, viz, *F. g. rodgersii*, characterized by its pale color and the great amount of white. The latter seems to be a northern form, apparently without any dark phase.

The question now arises as to the real nature of the two phases. A name is easily found and we may take our refuge under the shelter of "dichromatism." This does not solve the question, however, which is a most interesting one. What is dichromatism, its causes, its nature? We have one kind in raptorial birds, especially the owls, another among the herons; a third kind is that of *Stercorarius parasiticus*, and we may in this connection also quote the Arctic Fox (*Vulpes lagopus*), besides many other cases, but only future studies of the living birds will enable us to obtain satisfactory results.

List of specimens collected.

WHITE PHASE.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond tail.	Wing.	Tail-feathers.	Chord of culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92908	1900	Bering Island .....	Feb. 7, 1883	♂ ad.	471	122	320	117	36	52	.....
92909	2267	Copper Island .....	July 14, 1883	♀ ad.	458	27	328	122	36	51	.....

DARK PHASE.

89138	212	Copper Island .....	June 8, 1882	♀ ad.	425	312	312	120	35	.....	62
92910	2008	Bering Island .....	May 4, 1883	.....	.....	.....	330	132	36	50	65
92911	2233	Copper Island .....	July 5, 1883	♂ ad.	480	15	333	131	37	51	67

No. 92908.—Iris dark brown. Bill light greenish lemon-yellow, the middle of each piece or lamella orange brownish, and the edges blackish; along tomtia of lower mandible and chin-angle flesh-color. Eye-ring dark brownish gray. Feet whitish with a faint greenish tinge; joints, tarsus behind and toes below, outer web and anterior border of inner web blackish brown; nails horny white. Stomach filled with feathers. Exceedingly lean.

No. 92909.—Iris dark brown. Bill whitish, tinged with flesh-color and without dusky on the sutures; nail tinged faintly with yellowish. Feet very light and pure whitish flesh-color, without any trace of dusky above or below, and without trace of any bluish or greenish tinge; joints more reddish; nails light horny brownish.

No. 89138.—Iris dark brown. Bill greenish white, with the sutures and the space between the nostril and the nail, as also the tip of the latter, blackish. Feet dirty white with a faint greenish blue tinge; the joints and the outside of the tarsus, as also the webs, except the base, blackish; tarsus behind and toes below black.

No. 92910.—Bill whitish with a faint tinge of greenish blue and yellowish, here and there with a light rosy shade; sutures and terminal part of nail blackish. Feet whitish with a faint greenish tinge; webs of the same color, their outer edge being narrowly bordered by black; along hind side of tarsus and under side of toes only trace of blackish.

No. 92911.—Iris dark brown. Bill exactly as the colored drawing of No. 2008 (the foregoing, pl. vi, fig. 12), only that the dusky on the lower mandible forms a continuous line between the nail and the malar apex. Feet whitish with a wash of bluish flesh-color, with brownish on the joints, and the fore border of the webs blackish; tarsus behind and toes below dark brownish gray. Very fat.

The "Glupisch" is one of the commonest summer visitors to the islands, and breeds in enormous numbers in suitable places, that is to say, in high and steep rocky bluffs and promontories boldly rising out of the sea 300 to 800 feet high, and I have spent hours under their rookeries listening to their whinnying voice and watching their high and elegant flight in sailing out and in and around the cracked rocks like bees at an immense bee-hive. I have mentioned above that nearly all the birds belonged to the dark phase, and that only a very small percentage of white birds breed, apart from the dark ones, on Copper Island.

The Fulmar is the first one of the non-resident water-birds to arrive at the rookeries in early spring, usually in March, the order of arrival being *Fulmarus*, *Uria arra*, *Lunda cirrhata*, *Fratercula corniculata*. One specimen of the white form was obtained on Bering Island, February 7, which would indicate that the advance guard had already reached the islands by that time, or else, what I am rather inclined to believe, that many of the birds pass the winter on the open ocean not so very far from the shores they inhabit in summer.

The eggs are dull white without spots, measuring as follows:

U. S. Nat. Mus. No.	Collector's No.	Locality.	Date.	Long diameter.	Short diameter.
				mm.	mm.
21806	2243	Copper Island .....	July 12, 1883	75	49
21807	2244	.....do .....	July 12, 1883	71.5	48.5
21808	2247	.....do .....	July 13, 1883	71.5	51
21809	2257	.....do .....	July 13, 1883	68	50
21810	2258	.....do .....	July 13, 1883	71.5	48.5

These eggs all belonged to birds of the dark phase.

29. *Puffinus tenuirostris* (TEMN.)

- 1769.—? *Procellaria nigra* PALL., Spicil. Zool., V., p. 28.  
 1826.—*Procellaria acquinoctialis* PALL., Zoogr. Ross. As., II, p. 314 (*nee* Linn.).  
 1836.—*Procellaria tenuirostris* TEMM., Pl. Color., V, Liv., 99, text only (*nee* Audub., 1839).—TEMM. & SCHLEG., Faun. Jap. Av. (p. 131, pl. 86), (1849).—SCHLEG., Mus. P. B. Procell., p. 27 (1863).—*Nectris. t.* CASSIN, Pr. Acad. Philada., 1862, p. 327.—DALL & BANNIST., Tr. Chicag. Acad., 1, 1869, p. 303.—BAIRD, Tr. Chic. Ac., 1, 1869, (p. 322), pl. xxxiv, fig. 2.—*Puffinus t.* FINSCH, Verh. Brem. Ver., III, 1872, p. 83.—BLAKIST. & PRYER, Ibis, 1878 p. 218.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 191.—*Id.*, *ibid.*, X, 1882, p. 107.—BLAKIST., Amend. List B. Jap., p. 23 (1884).—*Priocella t. (!)* NELSON, Cruise Corwin, p. 112 (1883) (*nee* AUDUBON!! cf. STEJNEGER, Ank, 1884, p. 233).—COUES, Ank, 1884, p. 80.  
 1854.—*Puffinus curilicus* LICHT., Nomencl. Mus. Berol., p. 100 (*part.*).—*Procellaria c.* KITTL., Denkw., I, p. 296 (1858).

The "*Tschornij Glupisch*" is rather scarce on the islands, although I feel convinced that a few breed there. I saw a small flock on the 22d of August, 1882, at the entrance of Lissonkovaja Buchta, southern part of Bering Island, leaving the whale carcass upon which they were sitting at our approach. A specimen was obtained on Copper Island in June, 1883. It had been captured by one of the natives on the 17th of June, skinned and dried flesh side out, awaiting my arrival. I made afterwards a tolerably satisfactory (considering the circumstances) skin out of it. Its dimensions are:

*U. S. Nat. Mus. No. 92912; L. Stejneger, No. 2209. Karabelnij, Copper Island, June 17, 1883. Wing 285<sup>mm</sup>. Tail-feathers 91<sup>mm</sup>. Chord of culmen 33<sup>mm</sup>. Tarsus 54<sup>mm</sup>. Middle toe with claw, 60<sup>mm</sup>.*

Another specimen of the Slender-billed Shearwater was secured on Bering Island by one of the natives and prepared by him for Dr. Dybowski, in 1882, before my arrival to the islands. Remarkably enough, neither Taczanowski nor Dybowski have mentioned the species in their recent catalogues of birds from that region. I had the opportunity of examining the specimen and made the following notes:

Chord of culmen 34<sup>mm</sup>. Commissure 49<sup>mm</sup>. From anterior border of nostrils to tip of maxilla 24<sup>mm</sup>. From malar apex to tip of mandible 32<sup>mm</sup>. Height of bill in front of nostrils 7.5<sup>mm</sup>. Tarsus 54<sup>mm</sup>. Middle toe with claw 63<sup>mm</sup>. Wing 290<sup>mm</sup>. Tail-feathers 92<sup>mm</sup>. Graduation of tail 21<sup>mm</sup>. Upper surface dark sooty brown, almost black on wing and tail feathers, lighter and more grayish below. Chin and upper throat almost whitish gray. Feet (in the dried specimen) on the outer side dark brownish, pale on the inner side, almost black below.

The specimen obtained by me is similarly colored but the chin and throat are not so light.



30. *Oceanodroma leucorhoa* (VIEILL.).

- 1817.—*Procellaria leucorhoa* VIEILL., N. Dict. d'Hist. Nat., XXV, p. 422.—BLAKIST. & PRYER, Ibis, 1878, p. 218. —*Id.*, Tr. As. Soc. Jap. VIII, 1880, p. 191.—*Id.*, *ibid.*, X, 1882, p. 106.—BLAKIST., Amend. List B. Jap., p. 35 (1884).—SEEB., Ibis, 1884, p. 33.—*Cymochorea l.* NELSON, Cruise Corwin, p. 113 (1883).—TURNER, Auk, 1885, p. 158.
- 1820.—*Procellaria leachi* TEMM., Man. d'Orn., 2 ed., II, p. 812.—SCHRENCK, Reis. Amurl., I, p. 515 (1860).—*Thalassidroma l.* DALL & BANNIST., Tr. Chic. Ac., 1869, p. 1, 303.—DALL., Avif. Aleut. Isl. west Unal., p. 8 (1874).—TACZAN. Orn. Faun. Vost. Sibir., p. 66 (1877).—*Id.* Bull. Soc. Zool. France, 1877, p. 40.
- 1826.—*Procellaria pelagica* PALL., Zoogr. Ross. As., I, p. 316 ( *nec* LINN.).
- 1858.—*Thalassidroma scapulata* KITTL., Denkw., II, p. 191 (Brandt, Icon. ined. pl. iv, fig. 5).

I can find no structural character that will satisfactorily separate the species which usually have been kept apart in the two genera *Oceanodroma* and *Cymochorea*. Even the type of the latter, *leucorhoa* Vieill., comes very close to *Oceanodroma*, but still more so does *C. melania* Br., which has the graduation of the tail fully as great as in *O. furcata*, and the outer rectrices tapering toward the tip which is just perceptibly more truncate than in the latter. This also has the notch of the truncated end of the other rectrices a trifle deeper than in typical *Cymochorea*. *O. furcata* and *C. melania* also agree in the stoutness of the bill. The tail of *furcata* is a little longer than in *leucorhoa* and *melania* as compared with the wing, the formula of which is somewhat variable, but, on the whole, identical in the three species. Even the coloration is not so radically different as might appear at first sight, for the species of *Cymochorea* are more or less washed with ashy gray, a color especially noticeable in fresh birds, while in old museum specimens the color turns brown, as I suppose, from oxydation of the fat contained in the feathers. This is a fact which should always be borne in mind when comparing old skins of water birds. The white feathers turn yellow, and the gray ones become brownish, as I have invariably found it to be the case in *Larida*, *Tubinares*, and *Aleidae*.

*Oceanodroma*, as the older name (1852), will therefore take precedence over the younger, *Cymochorea* (1864), which can only be retained as a subgeneric term designating the group, the dominating color of which is fuliginous in contradistinction to the light ashy tint of the typical species of *Oceanodroma*.

The "*Malinka tschornaja Sturmofka*," or "small black Petrel," is on the Commander Islands only known from Copper Island, where it breeds at

Tschornij Mys, together with *O. furcata*. I was not so fortunate, however, as to obtain any specimen during my stay there, but the occurrence of the species is beyond doubt.

### 31. *Oceanodroma furcata* (Gmel.).

1788.—*Procellaria furcata* Gmel., Syst. Nat., I, p. 561.—KITTL., Denkw., II, p. 319 (1858).—SCHLEG., Mus. P. B. Procell., p. 3 (1863).—BLAKIST. & PRYER, Ibis, 1878, p. 218.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 191.—*Id.*, *ibid.*, X, 1882, p. 106.—BLAKIST., Amend. List B. Jap., p. 35 (1884).—SEEB., Ibis, 1884, p. 33.—*Thalassidroma f.* GOULD, Zool. Sulphur., p. 50, pl. xxxiii (1844).—FINSCH, Abh. Brem. Ver., III, 1872, p. 83.—DALL, Avif. Aleut. Isl., Unal. eastw., p. 7 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 9 (1874).—*Oceanodroma f.* NELSON, Cruise Corwin, p. 113 (1883).—STEJNEGER, Naturen, 1884, p. 55.—TURNER, Auk, 1885, p. 158.

1826.—*Procellaria orientalis* PALL., Zoogr. Ross. As., II, p. 315.

#### List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond tail.	Wings.	Tail-feathers.	Chord of culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89136	1196	Copper Island .....	— —, 1882	.....	.....	.....	161	97	15	26	28
92914	2132	Bering Island .....	June 7, 1883	♂ ad.	220	0	156	97	16	27	29
92915	2240	Copper Island .....	July 12, 1883	♂ ad.	232	0	159	98	15	27	29
92913	2271	.....do .....	July 18, 1883	♀ ad.	235	0	164	107	16	26	28

No. 92914.—Found dead on the beach. Bill and feet black. Extremely emaciated. Testes very small, undeveloped.

No. 92915.—Iris dark hazel. Bill and feet black.

No. 92913.—Iris dark hazel. Bill and feet black.

The Fork-tailed Petrel breeds on Copper Island, where it is known by the natives as the "Sturmofka." I do not know of its breeding at any place on Bering Island. On July 12, 1883, I visited the precipitous rocks of Tschornij Mys, between Karabelnij and Glinka, on the eastern side of Copper Island, where a small colony of these graceful petrels were breeding. The eggs, a single one in each nest, were deposited in deep holes in the steep basaltic rocks, 3 feet or more deep, and it was only with great difficulty that a few could be secured. The birds were taken on the nests, and in some the females, in others, the males were sitting.

The eggs, which were in different stages of incubation, are white without gloss; No. 21786 has plenty of the minutest dark specks evenly dusted over the blunt end; in No. 21785 these specks are a little larger,

purplish black, and form a circlet around the blunt end, while some few lilac spots shine through from the deeper layers.

The eggs measure :

U. S. Nat. Mus. No.	Stejneger No.	Locality.	Date.	Long diameter.	Short diameter.
21785	2237	Copper Island.....	July 12, 1883	<i>mm.</i> 34	<i>mm.</i> 26
21786	2238	.....do.....	July 12, 1883	32.5	25
21787	2239	.....do.....	July 12, 1883	34	26.5

## ORDER GRALLÆ.

### Superfamily SCOLOPACOIDEÆ.

#### Family CHARADRIIDÆ.

##### 32. *Hæmatopus osculans* SWINH.

- 1826.—*Hæmatopus hypoleuca* PALL., Zool. Ross. As., II, p. 129 (*part*).  
1853.—*Hæmatopus ostralegus* MIDDEND., Sibir. Reise, II, 2 (p. 213), (*nec* LIN.).—SCHRENCK, Reise Amurl., I, p. 413 (1860).—SWINH., Ibis, 1860, p. 63.—*Id.*, *ibid.*, 1861, pp. 261 and 342.—PRZEW. Putesch. Ussur. (n. 157) (1870).  
1863.—*Hæmatopus longirostris* SWINH., Ibis, 1863, p. 406 (*nec* VIEILL.).—*Id.*, P. Z. S., 1863, p. 310.  
1871.—*Hæmatopus osculans* SWINH., P. Z. S., 1871, p. 405.—*Id.*, Ibis, 1875, p. 129.—*Id.*, *ibid.*, 1875, p. 453.—PELZ., Ver. Zool. Bot. Ver. Wien, 1873, Extr., p. 6.—TACZAN., Bull. Soc. Zool. France, 1876, p. 249.—*Id.*, *ibid.*, 1883, p. 339.—*Id.*, Orn. Faun. East Sib., p. 53 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 219.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 193.—*Id.*, *ibid.*, X, 1882, p. 109.—SEEB., Ibis, 1879, p. 26.—BLAKIST., Amend. List B. Jap., p. 11 (1884).

The eastern Oyster-catcher is nearly related to the European species *H. ostralegus* L., and more nearly so, perhaps, to the form occurring in New Zealand and Australia, *H. longirostris* VIEILL. It has the black edgings of the upper tail coverts in common with the latter, but as to the length of the bill and the amount of white on the wing-feathers it is intermediate between both. As I have seen no intergradation, however, I shall keep these three forms apart as distinct species, although the probability is that it at last will be found necessary to apply a trinomial to the eastern bird, *H. ostralegus osculans* (SWINH.). One of my birds, No. 92884, has, in fact, the shaft of all the primaries as in *ostralegus*, but as the bird is a young one nothing can be concluded from it. On the other hand, the black on the upper tail-coverts forms two to three broad terminal cross-bars on each feather, the white interspace being strongly tinged with rusty buff. In adult birds from China I find only more or less broad black edging on these feathers, and in one specimen these are nearly obsolete, too, and so are they in an example of *longirostris* from New Zealand; but as the edges are very



worn and abraded, the black may have been much more conspicuous in the fresh plumage. Further abrasion might perhaps have obliterated the black edgings altogether, a possibility to be taken into account by persons comparing these closely allied forms. I find that Naumann describes the bill of the young of the year of *H. ostralegus* as having the tip of the bill yellow. In my birds, when fresh, this part was decidedly dark, and the dusky color is still very pronounced in the dried specimens. It may also be worth stating that my examples have no whitish patch on the fore part of the neck, as is common in the European bird when young.

a<sup>1</sup>. Rump white..

b<sup>1</sup>. Upper tail-coverts pure white, without black edgings; bill shorter.

*H. ostralegus* LIN.

b<sup>2</sup>. Tips of upper tail-coverts edged with black; bill considerably longer.

c<sup>1</sup>. Shafts of primaries from the third white before the tip; second primary with a broad white stripe along the border of the inner web.

*H. osculans* SWINH.

c<sup>2</sup>. Shafts of all the primaries wholly black; second primary without white stripe on the inner margin.....

*H. longirostris* VIEILL.

a<sup>2</sup>. Rump dark, of the same color as the back.....

*H. palliatus* TEMM.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Expos. culmen.
					mm.	mm.	mm.	mm.	mm.
92884	2607	Velutschka, East Kamtschatka ..	Sept. 21, 1883	♀ jun.	460	2	267	103	77
92989	2608	Saranna, East Kamtschatka .....	Sept. 22, 1883	♂ jun.	440	0	245	105	72

No. 92884.—Iris “raw umber.” Bill orange-red; tips dusky. Naked eye-ring orange. Feet pale bluish flesh-color.

The Oyster-catcher occurs only regularly along the coast of the peninsula, where I saw specimens shot in the latter part of May, 1883. During a short trip to Velutschka and Saranna, September, 1883, we met a few families, out of which I only got two young birds on account of their extreme shyness. The Russians of Kamtschatka apply to this bird especially the name “*Petuschók*” (pl. “*Petuschkì*”), a chicken, a term used for *Simorhynchus pygmaeus* by the natives of Bering Island, for *Leucosticte grisonucha* by those living on the Prybiloff Islands (accord-

ing to H. W. Elliott), and to other birds in different parts of the vast empire where the Russian tongue is spoken.

This bird comes only as a rare visitor to the islands during the migration seasons. This is rather strange, as it inhabits the nearest coast of the mainland, and as the Komandorski group offers every favorable condition to these bright, noisy, and shy fellows. Besides, an allied species (*H. bachmani* AUD.) frequents the American islands of the Aleutian chain.

On the 19th of June, 1883, about noon, I observed two Oyster-catchers on the low sandy beach opposite the village of Bering Island. Crossing the river I followed them for more than 3 miles, but their shyness prevented me from securing a specimen. The pursuit had then to be given up, as I was compelled to return in order to attend to the meteorological observation at 3 p. m. A native hunter, whom I immediately sent out, promising him a good reward, likewise failed. They were not seen afterwards.

### 33. *Arenaria interpres* (LIN.).

- 1758.—*Tringa interpres* LIN., Syst. Nat., 10 ed., I, p. 148.—*Strepsilas i.* MIDD., Sibir. Reise, II, 2 (p. 213) (1853).—DYB. & PARVEX, J. f. Orn., 1868, p. 337.—DALL & BANN., Tr. Chic. Acad., 1869, I (p. 290).—FINSCH, Abh. Brem. Ver., III, 1872, p. 62.—COUES, in Elliott's *Aff. Alaska*, p. 180 (1873).—TACZAN., J. f. Orn., 1873, p. 101.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1876, p. 247.—*Id.*, *ibid.*, 1883, p. 339.—*Id.*, Orn. Faun. Vost. Sibir., p. 51 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 219.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 193.—*Id.*, *ibid.*, X, 1882, p. 108.—SEEB., Ibis, 1879, p. 26.—ELLIOTT, Monogr. Seal Isl., p. 129 (1880).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 163.—NELSON, *Cruise Corwin*, p. 82 (1883).—BLAKIST., *Amend. List B. Jap.*, p. 11 (1884).—*Arenaria i.* TURNER, Auk, 1885, p. 157.
- 1810.—*Morinella collaris* MEY. & WOLF, *Taschb. Deutsch. Vög.*, I, p. 383.—*Strepsilas c.* KITT., *Denkw.*, I, p. 287; II, p. 401.—COINDE, *Rev. Mag., Zool*, 1860, p. 400.
- 1826.—*Tringa oahuensis* BLOXH., *Voy. Blonde*, App. (p. 251).
- 1826.—*Charadrius cinclus* PALL., *Zoogr. Ross. As.*, II, p. 148.

I have carefully compared my specimens with others from the Pacific and find them to agree in all essential points with birds from the Atlantic. Those from the latter in the collection of the National Museum are a trifle brighter colored, a circumstance due to the less worn state of their plumage. No foundation for even a subspecific division could be detected. *Arenaria melanocephala* is a good species.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.
					mm.	mm.	mm.
89047	1081	Bering Island .....	May 25, 1882.	♂ ad.	234	152	62
92767	1420	..... do .....	Aug. 12, 1882.	♂ ad.	223	149	60
92768	2084	..... do .....	May 29, 1883.	(♂) ad.	(221)	152	63

No. 89047.—Iris brown. Bill brownish black. Feet intense vermilion, without the slightest trace of orange; joints and naked part of tibia dark brown; nails black; under side of toes orange.

No. 92767.—Iris dark brown. Bill blackish olive-gray, a narrow space at base of lower mandible reddish flesh-color. Feet orange red, joints dusky.

The natives call the Turnstone "*Krasnonogoj Kulik*," i. e., red legged Sand-snipe, and their Aleutian name of it is "*Kidmalgikh*." It makes its appearance early in May (in 1883 the first ones were observed on the 7th), and the beach, especially on the north shore of Bering Island, fairly swarms with them. In June they disappear, and only a few remain during the summer. These, I suppose, to breed, although I did not succeed in finding any of their nests. However, as early as the latter part of July, even larger flocks than those seen in spring, return from the north. From this time and until late in autumn enormous masses of them may be seen on the killing grounds, near the seal rookeries, where thousands of putrified carcasses of the slain fur-seals swarm with myriads of the white larvæ of the flesh-fly, upon which the pretty turn stones feed and grow exceedingly fat. At sunset they retire to the beach, where they pass the night, not, however, without having performed a soldier-like drill by flying up and down the endless tundra, now in full body, now again in detached divisions, and with admirable precision turning and maneuvering as if obeying the command of a leading officer.

34. *Charadrius squatarola* (LIN.).

1758.—*Tringa squatarola* LIN., Syst. Nat., 10 ed., I, p. 149.—*Charadrius sq.* MIDD., Sibir. Reise, II, 2 (p. 290) (1853).

1766.—*Tringa helvetica* LIN., Syst. Nat., 12 ed., I, p. 250.—*Squatarola h.* KITTL., Denkw., II, p. 401 (1858).—CASSIN, Pr. Ac. Phil., 1858, p. 195.—SCHRENCK, Reis. Amurl., I, p. 409 (1860).—SWINH., Ibis, 1860, p. 63.—*Id.*, *ibid.*, 1861, pp. 51, 342.—*Id.*, *ibid.*, 1863, p. 404.—*Id.*, *ibid.*, 1870, p. 360.—*Id.*, *ibid.*, 1875, p. 452.—*Id.*, P. Z. S. 1863, p. 309.—*Id.*, *ibid.*, 1871, p. 403.—RADDE, Reis. Süd. Ost-Sibir., II (p. 322) (1863).—DYB. & PARVEX, J. f. Orn. 1868, p. 337.—PRZEW., Putesch. Ussur. (n. 151) (1870).—TACZAN., J. f. Orn., 1873,

p. 101.—*Id.*, Bull. Soc. Zool. France, 1876, p. 249.—*Id.*, Orn. Faun. Vost. Sibir., p. 53 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 219.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 192.—*Id.*, *ibid.*, X, 1882, p. 108.—BEAN, Pr. U. S. Nat. Mus. 1882, p. 163.—NELSON, Cruise Corwin, p. 84 (1883).—BLAKIST., Amend. List B. Jap., p. 11 (1884).

1826.—*Charadrius hypomelanus* PALL., Zoogr. Ross. As., II, p. 138.

1826.—*Charadrius pardela* PALL., Zoogr. Ross. As., II, p. 142.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.			Tail-feathers.
					mm.	mm.	mm.	
92770	1638	Bering Island.....	Sept. 14, 1882	jun.	292	184	72	
89069	1645	.....do.....	Sept. 18, 1882	♀	296	195	72	
92769	1634	.....do.....	Sept. 21, 1882	♂	303	190	75	
92771	2789	.....do.....	Sept. —, 1883	.....	.....	197	81	

No. 92770.—Iris blackish brown. Bill olive black. Feet dark gray.

The Gray Plover was only observed on Bering Island during the fall migration, at which time they seem to arrive regularly. Several flocks were met after the middle of September. I saw a single bird still on the 28th of October in a flock of *Charadrius fulvus*.

35. *Charadrius dominicus fulvus* (GM.).

1788.—*Charadrius fulvus* GM., Syst. Nat., I, ii, p. 687.—PRZEW., Putesch. Ussur. (p. 152) (1870).—SWINHL., P. Z. S., 1871, p. 403.—*Id.*, Ibis, 1874, p. 162.—*Id.*, *ibid.*, 1875, p. 452.—TACZAN., J. f. Orn., 1873, p. 101.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1876, p. 246.—*Id.*, *ibid.*, 1883, p. 339.—*Id.*, Orn. Faun. Vost. Sibir., p. 51 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 218.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 191.—*Id.*, *ibid.*, X, 1882, p. 107.—COUES, in Elliott's *Aff. Alaska*, p. 179 (1873).—ELLIOTT, *Monog. Seal Isl.*, p. 129 (1882).—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.—BLAKIST., Amend. List B. Jap., p. 10 (1884).

1822.—*Charadrius pluvialis* HORSE., Tr. Linn. Soc., XIII, p. 187 (*nee* LIN.).—PALL., Zoogr. Ross. As., II, p. 141 (*part*) (1826).—MIDDEND., Sibir. Reise, II, 2 (p. 210) (1853).—CASS. in Perry's *Explor. Exped. Jap.*, II p. 247 (1857).—SCHRENCK, Reis. Amurl., I, p. 410 (1860).—COINDE, Rev. Mag. Zool., 1860, p. 40.—SWINHL., Ibis, 1862, p. 307.—RADDE, Reis. Süd. Ost-Si., II (p. 322) (1863).

1830.—*Charadrius virginianus* JARD. & SELB., Ill. Orn., II (pl. LXXXV).

1849.—*Charadrius auratus orientalis* TEMM. & SCHLEG., Faun. Jap. Aves (p. 104, pl. lxii).—*Ch. orientalis* WHITELEY, Ibis, 1867, p. 204.

1849.—*Charadrius virginianus* BLYTH, Cat. B. Mus. As. Soc. Beng. (p. 262) (*nee* BORKH.).—SWINHL., Ibis, 1860, p. 358.—*Id.*, *ibid.*, pp. 51, 342.—*Id.*, *ibid.*, 1862, pp. 254, 307.—*Id.*, *ibid.*, 1875, p. 452.

1856.—*Pluvialis longipes* BP., Compt. Rend., 1856 (p. 417).—*Charadrius l.* SWINHL., P. Z. S., 1862, p. 319.—*Id.*, *ibid.*, 1863, p. 309.—*Id.*, Ibis, 1863, p. 404.—*Id.*, *ibid.*, 1870, p. 360.

1862.—*Charadrius mongolicus* BLAKIST., Ibis, 1862, p. 330 (*nee* PALL.).



1880.—*Charadrius dominicus fulvus* RIDGW., Pr. U. S. Nat. Mus., 1880, p. 198.—NELSON, Cruise Corwin, p. 84 (1883).—TURNER, Auk, 1885, p. 157.

?—*Charadrius affinis* BOIE, Oken's Isis (fide Giebel; cfr. Bp. & Gray; ubi?).

The present form is distinguished from its near American relative, *Ch. dominicus* MÜLL., which also has the axillaries smoky gray, by the greater brightness of the yellow color. The Asiatic Golden Plover is, however, the form which occurs most commonly in Alaska, occupying the whole shore line of Bering Sea, while the true *dominicus* only breeds in the interior and along the coast of the Arctic Ocean. The individuals of *fulvus* breeding in America migrate in winter along the Asiatic coasts, thus giving evidence of the way in which the species once immigrated into Alaska.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond tail.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
92777	2077	Bering Island .....	May 15, 1883	(♂) ad.	(233)	.....	149	62
92776	2117	.....do.....	June 3 1883	♂ ad.	258	12	167	59
89070	1650	.....do.....	Sept. 21, 1882	♂	237	.....	156	58
92773	1674	.....do.....	Oct. 8, 1882	♂	.....	.....	161	63
92775	1673	.....do.....	Oct. 8, 1882	♂	.....	.....	160	61
92774	1675	.....do.....	Oct. 8, 1882	♀	.....	.....	158	58
92772	2790	.....do.....	Sept. —, 1883	.....	.....	.....	160	59

No. 92776.—Iris dark hazel. Bill black. Legs dark olive gray; feet more blackish. Extremely fat. New feathers on the shoulders still in their sheaths. Claw of middle toe of backwards stretched legs reached 15 mm beyond the tips of closed wings.

No. 89070.—Iris dark brown. Bill black, olive at the angle of mouth. Feet dark bluish gray; toes more dusky.

The Asiatic Golden Plover visits Bering Island both on going northward in spring and southward again in autumn, but is not known to breed there, although suitable localities might easily be found; nor are they numerous during the migration either, but the small flocks remain in fall for a considerable time. They arrive about the middle of May, coming again after the 15th of September. In 1882 the last ones were observed on the 28th of October.

16. *Ægialitis mongola* (PALL.).

1776.—*Charadrius mongolus*\* PALL., Reise Russ. Reichs, III (p. 700).—*Ægialites m.* SWINH., P. Z. S., 1870, p. 140.

\* *Mongolus*, a, um adj., pertaining or belonging to the Mongols (*Mongoli*, the inhabitants of *Mongolia*), formed in accordance with the classic *Hispanus*, a, um, from *Hispani*, the Spaniards, and *Hispania*, Spain.

- 1826.—*Charadrius mongolicus* PALL., Zoogr. Ross. Ass., II, p. 136.—MIDD., Sibir. Reise, II, 2 (p. 211, taf. nix, figs. 2, 3).—SCHRENCK, Reis. Amurl., p. 411 (1860).—RADDE, Reis. Süd. Ost-Sibir., II (p. 324) (1863).—PRZEW., Putesch. Ussnr. (n. 153), (1870)—FINSCH, Verh. Zool. Bot. Ges. Wien, 1873, extr., p. 18.—*Egialites m.* SWINII, P. Z. S., 1863, p. 310.—*Id., ibid.*, 1870, p. 140.—*Id., ibid.*, 1871, p. 404.—*Id.*, Ibis, 1870, p. 360.—HARTING, Ibis, 1870, p. 384.—*Id.*, P. Z. S., 1871, p. 110.—PFLZ., Verh. Zool. Bot. Ver. Wien, 1873, extr., p. 6.—SEEB., Ibis, 1879, p. 25.—BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 192.—*Id., ibid.*, X, 1882, p. 108.—NELSON, Cruise Corwin, p. 85 (1883).—BLAKIST., Amend. List B. Jap., p. 10 (1884).—*Eudromias m.* TACZAN., Bull. Soc. Zool. France, 1876, p. 248.—*Id., ibid.*, 1882, p. 397.—*Id., ibid.*, 1882, p. 397.—*Id.*, Orn. Fann. Vost. Sibir., p. 52 (1877).—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.—*Id.*, Naturen, 1884, p. 51.—BOGDAN., Cousp. Av. Ross., I, p. 73 (1884).
- 1878.—*Egialitis ruficapilla?* BLAKIST. & PRYER, Ibis, 1878, p. 219 (*nec* TEMM.).—SEEB., Ibis, 1879, p. 25.

DESCRIPTION.—♂ ad. *Breeding plumage* (U. S. N. M., No. 89051; L. Stejneger, No. 1041. Bering Island, May 11, 1882).

Forehead white, divided by a black line which, commencing from the culmen, borders the white frontlet above, then descends in front of the eye, uniting with the broad black loreal stripe, which extends backwards under the eye, and occupies the ear-coverts; from the hind part of these a very narrow blackish line descends on the lower neck, uniting with the corresponding line from the other side, encircling the white chin and throat which, thus, on all sides are bordered with blackish; fore part of crown and a stripe over the eyes, behind communicating with the neck-ring, pale rufous; hind part of crown and nape brownish gray separated from the same color of the back by a rather narrow ring of a bright cinnamon rufous, which widens anteriorly so as to embrace the whole jugulum and fore breast; shoulders and back brownish gray, with a just perceptible silky gloss of olive, fading into a lighter shade on the rump; wing-coverts and tertials of the same color; flanks brownish gray, with broad white edgings, remaining under plumage white, except tibiae which are strongly tinged with rufous. Primaries blackish brown, fading into brownish gray on the inner ones, from the seventh with a mesial white spot in the outer web; shaft of the first primary white, those of the others only mesially so; large coverts, with white tips, forming a cross-bar. Tail-feathers dark brownish gray, this color fading gradually on the lateral ones; the outermost on each side white, with a wedge-shaped gray spot in the inner web near the tip; tips of all the rectrices, except the middle pair, edged with white.

For colors of naked parts and for dimensions, see "list of specimens collected."

A few of the white feathers of the forehead are slightly tipped with black. It seems as if the whole forehead had been black, the black edgings of the feathers having been worn away. This would account for the great variation of the extent of the white and black of the forehead in these birds, and such an assumption is supported by the fact that a specimen from Japan killed in April has almost the whole forehead black, while this color is still more reduced in specimens killed later than that described above. It is at least quite certain that the black forehead does not indicate the full summer plumage. The two other males of my collection differ from the above only in being a little less brightly

colored, the eye-stripe decidedly paler, and the rufous breast-band narrower, showing, besides, only a faint trace of the black line separating the band from the white of the throat.

♀ ad. *Breeding plumage* (U. S. N. M., No. 89052; L. Stejneger, No. 1042. Bering Island, May 11, 1882).

Differs from the male in having the rufous parts much paler. The black markings on the forehead are almost absent, and under the eyes and on the ear-coverts replaced by blackish.

Other females of the collection show the markings on the head quite distinct, but of a dark brownish gray, and not black color. The collar is also much narrower.

*The young bird in first plumage,*

(No. 89050), resembles somewhat the adults. The brownish gray of the back is paler, and each feather narrowly edged with isabella color, with which also the lower parts are suffused; on the pectoral region a buffish tinge replaces the rufous collar, and the black markings are absent from the head, the cheeks and ear-coverts being slightly dusky; forehead between bill and eyes whitish, suffused with isabella color.

No. 92781 has only partly assumed the feathers. These are essentially as in the specimen just described, but the isabella-colored edgings are broad and the isabella suffusion stronger. Head and neck still downy, whitish, on forehead and cheeks suffused with isabella color; the latter parts with some blackish markings; crown of the head dark brownish gray, mottled finely with isabella color.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.		Wing beyond tail.		Tail-feathers.
					mm.	mm.	mm.	mm.	
89051	1041	Bering Island.....	May 11, 1882	♂ ad.	190	.....	130	.....	53
89053	1052	.....do.....	May 15, 1882	♂ ad.	201	.....	131	.....	56
92778	2078	.....do.....	May 14, 1882	(♂) ad.	(187)	.....	127	.....	52
89052	1042	.....do.....	May 11, 1882	♀ ad.	190	.....	132	.....	53
89054	1053	.....do.....	May 15, 1882	♀ ad.	192	.....	.....	.....	.....
89055	1061	.....do.....	May 19, 1882	♂ ad.	206	.....	133	.....	57
89137	1214	Copper Island.....	June 19, 1882	♀ ad.	182	.....	130	.....	53
92780	2123	Bering Island.....	June 4, 1883	♀ ad.	201	5	128	50	50
92779	2218	Copper Island.....	July 2, 1883	♀ ad.	191	6	128	50	50
89050	1656	Bering Island.....	Sept. 22, 1882	♂ juv.	224	.....	121	.....	51
89049	1651	.....do.....	Sept. 22, 1882	♀ juv.	183	.....	.....	.....	.....
92781	2242	Copper Island.....	July 13, 1883	pull.	125	.....	67	.....	.....

No. 89053.—Iris dark brown. Bill black. Feet somewhat bluish gray, toes darker.

No. 89054.—Feet faint yellowish gray, toes darker.

No. 89137.—Feet gray with a tinge of brownish, toes more blackish.

No. 92780.—Iris dark hazel. Bill black. Feet dark gray with an olive tinge; toes darker, blackish. Shot on the nest. Very fat. A large naked "brood-patch" on each side of the abdomen communicating behind.

No. 92779.—Feet gray, with a purplish-olive tinge; toes, especially the joints, darker, nearly blackish. Molting; new feathers protruding on crown and nape.

No. 89049.—Iris dark brown. Bill, angle of mouth, and ring round the eyes black. Legs clear gray; tarsus tinged with yellowish, toes with blackish, and soles with reddish.

No. 92781.—Iris dark hazel. Bill olive-black. Feet gray, with a tinge of yellowish olive; toes darker.

The Mongolian Plover is a very common summer resident on the Commander Islands, in fact, one of the most characteristic birds of their fauna.

It is one of the brightest and handsomest shore birds, and is always gladly welcomed when making its appearance during the first half of May. I used then to watch with delight these elegant runners, wondering at the almost incredible rapidity with which they move their legs when chasing each other over the pebbly beach, or trying to escape the approaching hunter. Very soon, however, the pairs retire to the place chosen for the summer home, and, as soon as the eggs are laid, the birds become more shy, and do not expose themselves as much as they did before. They do not fly directly from the nest either, but run away a distance from it before taking wing. It is therefore exceedingly difficult to find the nest, and I do not wonder that none of the Russian travelers have procured the nest and eggs. I myself only succeeded in finding a few nests with eggs, to be described further on. The eggs were found during the first days of June and young ones about the middle of July. About this time the families retire from the beach and are now met with in the interior, where they ascend the mountains in search of tender insects. I frequently met them at an altitude of 1,000 feet or more above sea level. About the middle of September the families return to the lowlands and to the beach, soon afterwards leaving the islands.

The call-note is a clear, penetrating "drrrriit!"

While at Glinka, on Copper Island, in July, 1883, a young bird of this species, not yet fully feathered (the same one described above), was brought to me alive. Allowed to run free on the floor it immediately commenced a very animated pursuit of the rather numerous flies, which were caught with remarkable precision and rapidity and devoured with an insatiable appetite. The little fellow did not pay any attention to the presence of several persons in the small room, but when the dog



rose from his nap in the corner, the swift-footed fly-killer suddenly dropped flat on the floor, with withdrawn neck, making himself as small and flat as possible, and remained thus perfectly immovable until the dog turned his head the other way, when he ran off to the darkest corner of the room, where he remained until the former laid down in his old place. Then he started the fly-hunting again; the dog rose once more, and the same performance was repeated. Within half an hour, however, he had learned that the dog did not take any notice of him whatever, and consequently he afterwards paid as little attention to the dog as to man.

The nest, spoken of above, was found on the islet Toporkof, on the 4th of June, 1883, and contained three eggs. They were lying, with their pointed end inwards and downwards, in a slight hollow in the ground between the stems of four *Angelica archangelica*. Dry particles of the leaves and stems of this plant, and numerous seeds of the same, formed the nest, being evidently brought together by the bird itself. The situation of the nest was about 40 feet from the line of high water, and about 14 feet above the level of the sea.

One of the eggs was quite clear; the second contained a small embryo in which only the large eyes were distinguishable; the third had a larger fœtus, with well-developed wings, legs, &c.

In general appearance the eggs recall those of *Ægialitis semipalmata*, being larger, however, and of a somewhat deeper ground color, in two eggs of set No. 21772 more olive, in the others more buff. The spots are, on the whole, smaller than, in average, specimens of the former, being in that respect more like *Æ. hiaticula*. They, consequently, are more unlike eggs of *Eudromias morinellus* than those of typical *Ægialites*.

*Dimensions of the eggs.*

U. S. Nat. Mus. No.	L. Stejneger No.	Locality.	Date.	Diameters.
21771	1377	Severnoje, Bering Island.....	July —, 1882	<i>Millimeters.</i> 36.5 by 27
21770	1156	Village, Bering Island.....	June 4, 1882	36 by 26.5 37 by 27 36 by 27.25
21772	2124	Toporkoff, Bering Island.....	June 4, 1882	37.25 by 27 36 by 27 37 by 27

## Family SCOLOPACIDÆ.

37. *Gallinago gallinago* (LIN.).

- 1758.—*Scolopax gallinago* LIN., Syst. Nat., 10 ed., I, p. 147.—PALL., Zoogr. Ross. As., II, p. 174 (1826).—TEMM. & SCHLEG., Faun. Jap. Aves (p. 112) (1849).—MIDDEND., Sibir., Reise, II, 2 (p. 224) (1853).—SCHRENCK, Reis. Amurl., I, p. 426 (1860).—RADDE, Reis. Süd. Ost-Sibir., II, (p. 337) (1863).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—PRZEW., Putesch., Ussur. (n. 174) (1870).—*Gallinago g.* LICHT., Nomencl. Mus. Ber., p. 93 (1854).
- 1801.—*Scolopax coelestis* FRENZEL, Besch. Vög. Wittenb. (p. 58).
- 1816.—*Gallinago media* LEACH, Syst. Cat. M. B. Br., Mus. p. 31 (*ucc* BOCK, 1779).—SWINH., Ibis, 1866, p. 294.—WHITELY, Ibis, 1867, p. 206.
- 1837.—*Gallinago uniclavus* HOGS., J. As. Soc. Beng., VI (p. 492).—SWINH., Ibis, 1860, p. 66.—*Id.*, *ibid.*, 1861, pp. 56, 343.—*Id.*, *ibid.*, 1862, p. 259.—TACZAN., J. f. Orn., 1874, p. 325.—*Id.*, *ibid.*, 1875, p. 255.—*Id.*, Bull. Soc. Zool. France, 1876, p. 257.—*Id.*, *ibid.*, 1883, p. 340.—*Id.*, Orn., Faun. Vost. Sibir., p. 59 (1877).
- 1838.—*Gallinago scolopacinus* BONAP., Comp. List., p. 52.—SWINH., Ibis, 1863, p. 415.—*Id.*, *ibid.*, 1865, p. 347.—*Id.*, *ibid.*, 1867, p. 234.—*Id.*, *ibid.*, 1870, p. 362.—*Id.*, *ibid.*, 1874, p. 163.—*Id.*, P. Z. S., 1863, p. 314.—FINSCI, Verh. Zool. Botan. Ver. Wien, 1872, p. 266.—TACZAN., J. f. Orn., 1873, p. 106.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1876, p. 257.—*Id.*, Orn. Fauna East. Sibir., p. 59 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 222.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 197.—*Id.*, *ibid.*, X, 1882, p. 114.—SEEB., Ibis, 1879, p. 27.—BLAKIST., Amend. List B. Jap., p. 12 (1884.)
- 1856.—*Gallinago japonica* BONAP., Compt. Rend., XLIII (p. 579).
- 1856.—*Gallinago burka* BONAP., Compt. Rend., XLIII (p. 579).—SWINH., P. Z. S., 1863, p. 314.—*Id.*, Ibis, 1865, p. 231.
- ? 1857.—*Gallinago stenura* CASSIN in Perry's Exped. Jap. II, p. 227 (*ucc* TEMM.).
- 1883.—*Gallinago grallinaria?* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 69.

The specimens collected by me have been carefully compared with a good series of typical *G. gallinago* from Europe, several skins from Japan and India, and a large series of *G. wilsonii* from North America, including Alaskan specimens. The result has been that the Bering Island birds, as also the Japanese, most decidedly belong to the European species, both in regard to number of tail-feathers, white lining of the wing, less heavy black cross-bars on the axillaries, less pronounced cross-bars on the outermost tail-feathers, and the greater breadth of the latter. In the birds from the Old World the outermost rectrices are almost twice as broad as those of *G. wilsonii*, a character which seems to me to be the most reliable one for distinguishing the two forms. The average length of the bill is greater in *gallinago*, but I have before me specimens of *G. wilsonii* in which the bill is considerably longer than in some from the Old World. Nevertheless the two forms are entitled to full specific rank.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92782	2153	Bering Island.....	June 9, 1883	♂ ad.	269	12	124	58	67	33	35
89072	1467	...do.....	Aug. 15, 1882	♂ ad.	270	.....	130	57	70	32	36
89073	1522	...do.....	Sept. 6, 1882	♂ jun.	268	.....	127	58	63	32	35
89071	1407	...do.....	Aug. 6, 1882	♀ ad.	255	.....	123	57	66	30	35
89074	1631	...do.....	Sept 10, 1882	♀	268	.....	122	56	64	31	34
89075	1653	...do.....	Sept. 21, 1882	♀ jun.	264	.....	121	59	65	33	36

No. 92782.—Bill brownish gray, blackish at tip. Feet gray, strongly tinged with yellowish olive. Not fat.

No. 89072.—Iris dark brown. Bill blackish brown at tip, olive gray at base, lower mandible more yellowish. Feet light olive gray, more bluish on the joints, more yellowish in front of tarsus and toes.

No. 89071.—In the crop remains of a *Lumbricus*, and in the stomach stones and remains of a *Helix* shell.

The common Snipe is tolerably common on Bering Island, and breeds in all suitable places, low swampy tundras, both on the extensive northern low lands and in the broader valleys of the southern part. In 1883 they were not observed before the 10th of May, but were at that time exceptionally numerous, being evidently migrating and prevented from landing in Kamtschatka on account of the enormous amount of snow covering the whole country down to the water's edge at that time.

The "bleating" sound of the Bering Island Snipe is identical with that of the European bird, being surprisingly like the bleating of a goat. On clear sunny days, between 10 and 12 o'clock in the forenoon, in the early part of the summer, this bleating could be heard almost anywhere in the swamps surrounding the village, so I had splendid opportunities for observing the birds during their singular performances. Very often the Snipe would rise so high in the air as to become almost invisible to the unaided eye, but still the strange sound rang vigorously down to the observer. Not only this power of the sound, but even more so the nature of the tune itself convinced me that it originates from the throat and not in any way either from the tail or the wing-feathers, as suggested by many European writers. It is true that the wings are in a state of very rapid vibration during the oblique descent when the note is uttered, but this circumstance does not testify only in favor of the theory of the sound being produced by the wing, as the vibration most conclusively accounts for the quivering throat-sound. Anybody stretch-

ing his arms out as if flying, and moving them rapidly up and down and simultaneously uttering any sound is bound to "bleat." Having heard, however, from my early days, of the wing or tail theories as the only orthodox ones, I did not feel convinced of the correctness of my own opinion until one evening I heard another bird of the same family produce a very similar note *while sitting on the ground*. Referring to the observation recorded under *Arquatella couesi*, I here only remark that the sound was so similar as to leave no doubt whatever in my mind that it had a similar origin in both cases.\* It may be that a Snipe has never been observed bleating on the ground, but the fact that a so nearly allied bird is capable of producing essentially the same sound while in that position is an argument in favor of the more natural explanation of the sound originating from the organ which in almost all other instances is adapted to that purpose.

### 38. *Arquatella couesi* RIDGW.

- 1826.—*Trynqa arquatella* var. PALL., Zoogr. Ross. As., II, p. 190.  
 1869.—*Tringa maritima* DALL & BANN., Tr. Chic. Acad., I, 1869 (p. 291) (*nee* BRÜNN).—BAIRD, *ibid.* (p. 717).—HARTING, P. Z. S., 1871, p. 116.—FINSCH, Abh. Brem. Ver., III, p. 65 (1872).—DALL, Avif. Aleut. Isl. Unal. eastw., p. 4 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 6 (1874).—PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 203 (1883).  
 1880.—*Arquatella couesi* RIDGW., Bull. Nutt. Orn. Cl., 1880, p. 160.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 164.—NELSON, Crnise Corwin, p. 85, cfr. p. 56 e (1883).  
 1883.—*Arquatella* sp. STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 69.  
 1884.—*Tringa crassirostris* BOGDAN., Consp. Av. Ross., I, p. 88 (*nee* TEMM. & SCHLEG.)

The Aleutian Sandpiper is a perfectly good and distinct species, readily distinguished in all plumages from *Arquatella maritima*, with which it until a late date usually has been confounded. Having nothing to add to the excellent exposition given by Robert Ridgway in the Nuttall Bulletin for 1880 (p. 160), of the characters of this and allied species I only refer to that very important paper. It may, however, be well to emphasize that this species takes the place of *Arquatella maritima* BRÜNN. in the Pacific, and that *A. maritima* is not found on this side at all. All earlier references to that species as occurring in Bering Sea or adjacent waters properly belong either to *couesi* or *ptiloenemis*.

*Arquatella ptiloenemis* COUES, from the Prybilof Islands, does not winter on the Commander Islands, as conjectured by Mr. W. H. Elliott (Monogr. Seal Islands, p. 129), nor does it visit them during the migra-

\* I would not be surprised if the "drumming" sound of *Bonasa umbellus* is capable of a similar explanation, but having had no opportunities of observing the bird myself I offer this remark only as a hint for ornithologists with better facilities.



tion. Dr. G. Hartlaub, in a very important contribution to the Alaskan Avifauna (Beitrag zur Ornithologie von Alaska, Journ. f. Ornith., 1883, p. 279), shows that *A. ptilocnemis* winters along the northwestern coast of North America. He reports one specimen having been procured by Messrs. Krause at Portage Bay on the 27th of December, and two females on January 27. The travelers remark that the species was not seen in large flocks before the end of April, and that it was absent during the summer.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Tail beyond wings.		Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.					
89033	1031	Bering Island .....	May 10, 1882	♂ ad.	198	.....	.....	.....	.....	.....	.....
89035	1039	.....do.....	May 11, 1882	♂ ad.	196	.....	118	57	27	24	27
92703	1085	.....do.....	May 24, 1882	♂ ad.	.....	.....	.....	.....	.....	.....	.....
89181	1107	.....do.....	May 29, 1882	♂ ad.	191	.....	117	57	26	23	26
89043	1468	.....do.....	Aug. 15, 1882	♂ ad.	215	.....	120	58	29	25	28
89044	1657	.....do.....	Sept. 22, 1882	♂ ad.	204	.....	.....	.....	.....	.....	.....
89045	1658	.....do.....	Sept. 22, 1882	♂ ad.	208	.....	121	58	26	24	28
92785	1695	.....do.....	Oct. 24, 1882	♂ ad.	204	.....	118	58	25	23	27
92787	2001	.....do.....	Apr. 4, 1883	♂ ad.	203	.....	118	56	25	23	27
92786	2004	.....do.....	Apr. 23, 1883	♂ ad.	209	9	123	57	26	23	26
89038	1048	.....do.....	May 14, 1882	♀ ad.	212	.....	121	58	29	23	27
89182	1108	.....do.....	May 29, 1882	♀ ad.	207	.....	123	58	30	24	27
89034	1137	.....do.....	May 29, 1882	♀ ad.	211	.....	123	58	28	24	28
89037	1345	.....do.....	Aug. 1, 1882	♀ ad.	209	.....	118	55	27	25	28
92788	1656	.....do.....	Sept. 22, 1882	♀ ad.	214	.....	123	59	29	23	29
92784	1694	.....do.....	Oct. 24, 1882	♀	218	.....	.....	.....	.....	.....	.....
89036	1044	.....do.....	May. 13, 1882	♀ ad.	206	.....	118	57	29	23	28
89042	1410	.....do.....	Aug. 6, 1882	.....	205	.....	121	60	27	25	28
89039	1263	.....do.....	July 17, 1882	jun.	.....	.....	110	44	24	24	28
89040	1344	.....do.....	Aug. 1, 1882	pull.	117	.....	.....	.....	15	22	25
92790	2178	.....do.....	June 17, 1882	pull.	97	.....	.....	.....	11	21	26
92789	2241	Copper Island.....	July 13, 1883	pull.	132	.....	62	.....	17	23	26

No. 89035.—Bill blackish gray with an olive tinge, yellowish olive gray towards the base. Feet, yellowish olive gray; toes darker.

No. 89181.—Iris dark brown.

No. 92785.—Bill olive blackish towards tip, yellowish towards base. Feet olive yellow, joints darker olive.

No. 92786.—Bill olive blackish at tip, yellowish at base. Feet dull olive yellow, joints darker olive gray. Tip of tail reached middle of basal phalange of middle toe, legs being stretched backwards, while tip of wings reached the tarsal joint. New feathers protruding all over the body. Testes large, swollen. Very fat. In the stomach, remains of a *Lumbricus* and a larva of a beetle.

No. 89037 is the mother of the chick No. 89040.

No. 89040.—Iris dark brown. Bill olive gray, blackish at tip. Feet brownish gray.

No. 92790.—Bill olive black. Feet violet gray.

No. 92789.—Bill blackish brown, lighter and more olive at the base. Feet, gray with a light olive tinge.

The "Lajdinij Kulik," or Beach-Snipe, as it is called by the natives, is one of the few residents of the Commander Islands, which is found there during both summer and winter, and is the only member of the order *Grallæ* wintering on the rough shores of these storm beaten regions. During the whole winter small flocks, consisting of ten to thirty individuals, are to be seen at low water eagerly picking up Gammarids among the stones close to the breakers. In March their ranks are re-enforced by new comers which have wintered on more hospitable shores, and in the latter part of the month enormous flocks of five hundred or more swarm along the beach, especially on the north shore. About one month later the great flocks dissolve into small companies, which, following the water courses, disperse over the whole island, settling in pairs on suitable places at the beaches, on the tundras, or on the mountain plateaus, this bird being in fact one of the most numerous and the most equally distributed species of land birds on the islands. About this time, that is to say, about the middle of April, the brightly-colored summer plumage is assumed, and now commences that poetic time which makes even the dull shore bird sing as spiritedly as any of the true singing birds, *Oscines*, and sweeter than many of them. It was in the late afternoon of the 28th of April, 1883, that I first witnessed this singing performance of the Sandpiper. The bird rose from the *Rhododendron* tundra on the northern slope of Kamennij Valley, and while flying about on quivering wings, sometimes remaining quite still in the air, it uttered a loud, agreeable, and melodious twitter, which really must be called a "song," whereupon, with outstretched wings, it descended obliquely, seating itself upon the top of a tussock. Sitting there, with puffed plumage and pendant wings, it produced a loud "bleating," so much like that of *Gallinago gallinago* as to completely convince me that the analogous note of the latter is produced by the throat in exactly the same manner. During the "bleating" the whole bird was quivering with a tremulous motion as if in a high state of excitement. The voice was slightly more melodious than that of the snipe, but I was not fully convinced of the identity of the bird until it was lying bleeding among the Rhododendrons before me. It was a male, No. 2004 of my collection.

The first eggs are laid about the middle of May. On the 17th of June I got a newly-hatched chick. Like so many other members of the same order, the mother shows great love for her offspring, trying all sorts of devices to divert the attention of the approaching hunter from the young ones to herself, risking her own life in order to save theirs. Once

I caught one of the downy chicks alive. Holding it in my hand I watched the behavior of the distressed mother. At first she feigned lameness, crying piteously, running about with hanging wings, stumbling and rolling over at every second step. As I did not follow her she came nearer and nearer, at last so close that a stroke of a stick saved me a discharge of the gun.

### 39. *Actodromas acuminatus* (HORSF.).

- 1821.—*Totanus acuminatus* HORSFIELD, Tr. Linn. Soc., XIII (p. 192).—*Tringa a.* SWINH., P. Z. S., 1863, p. 316.—*Id.*, *ibid.*, 1871, p. 409.—*Id.*, Ibis, 1863, p. 412.—*Id.*, *ibid.*, 1875, p. 455.—TACZAN., J. f. Orn., 1874, pp. 332, 336.—*Id.*, *ibid.*, 1876, p. 201.—*Id.*, Bull. Soc. Zool. France, 1876, p. 252.—*Id.*, *ibid.*, 1882, p. 397.—*Id.*, Orn. Faun. Vost. Sibir., p. 55 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 221.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 195.—*Id.*, *ibid.*, X, 1882, p. 112.—BLAKIST., Amend. List B. Jap., p. 3 (1884).—BOGDAN., Consp. Av. Ross., I, p. 91 (1884).—*Actodromas a.* RIDGW., Pr. U. S. Nat. Mus., 1880, p. 222.—*Id.*, Nomencl. N. A. B., p. 63 (1881).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 164.—NELSON, Cruise Corwin, p. 86 (1884).
- 1839.—*Tringa australis* JARD. & SELBY, Illustr. Orn., II (pl. 91)
- 1853.—*Tringa rufescens* MIDDEND., Sibir. Reise, II, 2 (p. 221) (*see* VIELL.).
- 1863.—*Tringa pectoralis* SWINH., Ibis, 1863, p. 97 (*see* SAY).
- 1873.—*Tringa crassirostris* TACZAN., J. f. Orn., 1873, p. 103 (*see* T. & S.).

#### List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Expos. culmen.	Middle toe with claw.	Tarsus.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89029	1646	Bering Island....	Sept. 19, 1882	♀ jun.	211	.....	127	59	24	26	28
89031	1652	.....do.....	Sept. 21, 1882	♀ jun.	201	.....	127	54	24	28	30
89032	1659	.....do.....	Sept. 23, 1882	♀ jun.	200	.....	123	55	23	27	28
92794	1676	.....do.....	Oct. 7, 1882	♀ jun.	.....	.....	135	59	25	29	31
89028	1637	.....do.....	Sept. 13, 1882	jun.	226	.....	136	59	25	30	32
89030	1641	.....do.....	Sept. 15, 1882	jun.	210	0	126	56	22	28	30

No. 89029.—Iris dark brown. Bill blackish brown, more brownish, or rather dark reddish gray, at the mouth angle, and somewhat lighter gray at base of lower mandible. Feet ochre-yellow, tinged with olive, and with darker joints.

No. 89028.—Bill blackish brown, lighter towards base, which, especially on the lower mandible, is olive gray. Feet gray, strongly tinged with yellowish olive; joints purer and darker gray. Stomach contained *Gammaridæ*.

No. 89030.—Outstretched legs, with the tip of toes, reached 30<sup>mm</sup> beyond the tip of tail.

Of this species I only obtained young specimens on Bering Island during the autumnal migration of 1882. From the middle of September and during the following three weeks they were observed both on the tundra near the great lake and on the rocky beach of the ocean searching for *Gammarids*. They were very shy and mostly single or in small families. Larger flocks were never seen.

40. *Actodromas damacensis* (HORSF.).

- 1821.—*Totanus damacensis* HORSF., Tr. Linn. Soc., XIII (p. 192), (*ucc* TACZANOWSKI) — *Tringa d.* SWINH., P. Z. S., 1863, p. 316.—*Id.*, *ibid.*, 1871, p. 409.—*Id.*, Ibis, 1863, p. 413.—*Id.*, *ibid.*, 1875, p. 455.—BLAKIST. & PRYER, Ibis, 1878, p. 221.
- 1853.—*Tringa subminuta* MIDDEND., Sibir-Reise, II (p. 222, tab. xix, fig. 6).—SCHRENCK, Reis. Amurl., I, p. 424, (1860).—SWINH., Ibis, 1862, p. 255.—*Id.*, *ibid.*, 1863, p. 97.—RADDE, Reis. Süd. Ost-Sib., II (p. 333), (1863).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—TACZAN., J. f. Orn., 1873, p. 103.—*Id.*, Bull. Soc. Zool. France, 1876, p. 253.—*Id.*, *ibid.*, 1883, p. 339.—*Id.*, Orn. Fauna Vost. Sibir., p. 56 (1877).—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 112.—BLAKIST., Amend. List B. Jap., p. 37 (1884).—SEEB., Ibis, 1884, p. 34.—BOGDAN., Consp. Av. Ross., I, p. 92 (1884).—*Actodromas s.* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.
- 1871.—*Tringa salina* DRESSER, B. of Eur., pt. vii, T. min., p. 4 (*ucc* PALL.).
- 1879.—*Tringa ruficollis* SEEBOHM, Ibis, 1879, p. 26 (*ucc* PALL.).—BLAKIST. & PR., Tr. As. Soc. Jap., VIII, 1880, p. 195.

Having heard of no doubt concerning the identification of Horsefield's *damacensis* with Middendorff's *subminuta*, I adopt it without further comment.

Dresser is certainly wrong when, in his admirable "History of the Birds of Europe," he identifies Pallas's *salina* with the present species. Not only does the description of the color, "collum a gula ad pectus totum ferrugineum," prohibit such an identification, but also the measurements, as the middle toe is only given as  $9\frac{1}{2}'''$ , that is 0.76 inch. In Dresser's *salina* the middle toe is 0.9 inch.

It is difficult to say what Taczanowski's *damacensis* is (Bull. Soc. Zool. France, 1876, p. 253). So much is certain, that it is not the same as Horsefield's bird, provided the latter be identical with *subminuta* MIDD. He gives four distinct species from Eastern Asia, viz, *Tringa subminuta*, *salina*, *temminckii*, and *damacensis*. Having had specimens of all four, the latter is not likely to be a synonym of any of the foregoing, the more so as it seems that he has had all of them both in spring and autumnal plumage (cfr. J. f. Orn., 1873, p. 103). The probability is, therefore, that his *damacensis* rests upon a specimen of the true western *minuta*, which also seems to occur in the interior of Asia, without reaching the borders of the Pacific Ocean, however.\* The only difficulty arises from his identification of Pallas's *T. cinclus* with *damacensis* TACZAN. He says: "Il n'y a aucun doute que la description de Pallas s'applique à cette espèce," while, in my opinion, there cannot be the slightest doubt that Pallas's *cinclus* belongs to *A. temminckii*. Pallas describes it as having the wings blackish, "remige prima rachi alba," and the tail elongated, "rectricibus lateralibus albis." These are the

\* Cfr. SWINHOE'S statement (P. Z. S., 1871, p. 409), under the head of *salina*, "I have seen the true *T. minuta* in summer plnmage, from Lake Baikal." Cfr. also the list of specimens of *minuta* in SAUNDERS'S collection, among which one from Baical by Dr. Dybowski (Dresser l. c.).



essential character of *temminckii*, and if Taczanowski's bird agrees with Pallas's description in these points, then certainly it belongs to *temminckii*, and neither to *minuta* nor any of the other three species.

A glance at the dimensions given in the "list of specimens collected" shows at once that the birds from Bering Island are correctly identified as the Long-toed Stint.

Much confusion concerning these small waders has arisen from the fact that most writers have ignored the structural differences by which they are easily and surely kept apart, while they have relied more upon characters of the plumage, so variable in these birds, and so extremely difficult to describe with the necessary precision. A synoptical table of the species occurring on the Asiatic shores of the Pacific Ocean may not be out of place, the more as all belong to the fauna of the Commander Islands.

- a<sup>1</sup>. Middle toe with claw longer than exposed culmen; tip of outstretched toes reaching far beyond the tip of tail.
- b<sup>1</sup>. Tail reaching to the end of folded wings, simply graduated; middle toe with claw shorter than tarsus; shafts of all primaries white medially.
  - A. acuminatus.*
- b<sup>2</sup>. Tail reaching beyond the tips of folded wings, the four outer pairs of tail-feathers being equal in length, or the outermost even longer than the next ones; middle toe with claw longer than tarsus; shaft of first primary only, white.
  - A. damacensis.*
- a<sup>2</sup>. Middle toe with claw equal to exposed culmen; tip of outstretched toes reaches the tip of tail.
- b<sup>1</sup>. Tail doubly emarginated, the outermost feathers being longer than the next ones; shafts of all primaries white; outer tail-feathers light brownish gray; legs blackish ..... *A. ruficollis.*
- b<sup>2</sup>. Tail simply graduated, or the outermost tail-feathers at least not longer than the next ones; shaft of first primary only, white; two or three outer tail-feathers on each side white; legs yellowish gray ..... *A. temminckii.*

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Expos. culmen.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
92797	2102	Bering Island .....	May 23, 1883	(♂) ad.	(153)	.....	85	39	17	23
92798	2104	..... do .....	May 23, 1883	(♂) ad.	(143)	.....	85	39	17	25
89021	1103	..... do .....	May 29, 1882	♀ ad.	153	.....	92	40	18	25
89022	1104	..... do .....	May 29, 1882	ad.	152	.....	87	39	18	25
89024	1415	..... do .....	Aug. 7, 1882	ad.	158	11	88	40	19	24

No. 89021.—Iris dark brown. Bill blackish; olive-brown at base of lower jaw. Feet grayish yellow with joints darker olive.

No. 89024.—Colors as in foregoing specimen. Tip of tail reaches scarcely beyond the tarsal joint of the outstretched legs.

The Long-toed Stint arrives at Bering Island in large flocks during the latter part of May, and are then met with on sandy beaches, where the surf has thrown up large masses of sea-weed, busily engaged in picking up the numerous small crustaceans, &c., with which the weeds abound. Most of the birds stay only a few days, going further north, while a small number remain over summer, breeding sparingly on the large swamp behind the village. My efforts to find the nests were unsuccessful, but I shot birds near Zapornaja Reschka on the 17th and 22d of June, and on the 7th of August.

#### 41. *Actodromas ruficollis* (PALL.).

- 1776.—*Tringa ruficollis* PALL., Reis. Russ. Reichs, III (p. 700).—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 112.—BLAKIST., Amend. List B. Jap., p. 37 (1884).—SEEB., Ibis, 1884, p. 34 (*nee* 1879, *que damacensis*).—BOGDAN., Consp. Av. Ross., I, p. 93 (1884).
- 1823.—*Tringa albesceus* TEMM., Pl. Color., V, livr. vii, pl. 41, fig. 2.—SWINH., P. Z. S., 1863, p. 316.—*Id.*, Ibis, 1863, p. 413.—*Id.*, *ibid.*, 1870, p. 363.—*Id.*, *ibid.*, 1875, p. 455.—BLAKIST. & PRYER, Ibis, 1878, p. 221.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 195.
- 1826.—*Trynga salina* PALL., Zoogr. Ross. As., II, p. 199 (*nee* DRESSER, 1871, *que damacensis*).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—TACZAN., J. f. Orn., 1873, p. 103.—*Id.*, Bull. Soc. Zool. France, 1876, p. 253.—*Id.*, *ibid.*, 1883, p. 340.—*Id.*, Orn. Faun. Vost. Sibir., p. 56 (1877).
- 1853.—*Tringa minuta* MIDD., Sibir. Reise, II, 2 (p. 221, *part*).—SCHRENCK, Reise Amarl., I, p. 423 (1860).—SWINH., Ibis, 1860, pp. 342, 358 (*nee* LEISL.).—*Id.*, *ibid.*, 1862, p. 255.—WHITELY, Ibis, 1867, p. 206.
- 1862.—*Tringa temminckii* BLAKIST., Ibis, 1862, p. 330 (*nee* LEISL.).
- 1883.—*Actodromas damacensis* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71 (*nee* HORSEF.).

Specimens from Japan, China, and Senjavin Straits have been at hand for comparison.

#### List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Middle toe with claw.	Expos. culmen.
					mm.	mm.	mm.	mm.	mm.	mm.
92795	2115	Bering Island.....	June 3, 1883	♂ ad.	158	0	97	44	18	18
89025	1099	.....do.....	May 29, 1882	♀ ad.	151	.....	99	45	19	19
89170	1100	.....do.....	May 29, 1882	♀ ad.	151	.....	100	45	19	19
89171	1101	.....do.....	May 29, 1882	♀ ad.	152	.....	102	45	19	18
89172	1102	.....do.....	May 29, 1882	♀ ad.	165	.....	105	47	18.5	18
92796	2569	.....do.....	Sept. 9, 1883	jun.	.....	.....	96	43	18	18

No. 92795.—Iris dark brown. Bill olive-black, as are also the feet. Very fat. Testes large, swollen.  
 No. 89025.—Bill black. Legs grayish black.  
 No. 92796.—Iris dark brown. Feet blackish gray.

This species arrives at Bering Island late in May in rather large flocks, but does not stay long. None were met with during the whole summer, until, in the first half of September, they took a short rest on the shores of our island before continuing their long travel to the southward.

#### 42. *Actodromas temminckii* (LEISL.).

1787.—*Tringa pusilla* LATHAM, Suppl. Syn. B., I, p. 292 (*nec* LIN.).

1812.—*Tringa temminckii* LEISLER, Nachtr. Bechst. Naturg. Deutschl., II (p. 63).—MIDDEND., Sibir. Reise, II, 2 (p. 221).—(*T. temminckii*) KITTL., Denkw., II, p. 196? (1858).—SCHIRENCK, Reis. Amurl., I, p. 442 (1860).—RADDE, Reis. Süd. Ost-Sibir., II (p. 332) (1863).—SWINH., P. Z. S., 1863, p. 317.—*Id.*, *ibid.*, 1871, p. 409.—*Id.*, Ibis, 1860, p. 66.—*Id.*, *ibid.*, 1861, p. 342.—*Id.*, *ibid.*, 1862, p. 255.—*Id.*, *ibid.*, 1863, p. 412.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—TACZAN., J. f. Orn., 1873, p. 103.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1876, p. 254.—*Id.*, Orn. Fauna Vost. Sibir., p. 57 (1877).—*Actodromus t.* BONAP., Cat. Parzud., p. 15 (1856).—*Actodromas t.* STEJNEGER, Proc. U. S. Nat. Mus., 1883, p. 71.

1826.—*Tringa cinclus* PALL., Zoogr. Ross. As., II, p. 201 (*nec* LIN.).

1882.—? *Tringa damacensis* TACZAN, Bull. Soc. Zool. France, 1882, p. 396 (*nec* HORSEF.).

My specimens agree perfectly with examples from Scandinavia and India.

#### List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Middle toe with claw.	Expos. culmen.
					mm.	mm.	mm.	mm.	mm.	mm.
92798	2094	Bering Island.....	May 28, 1883	(♂) ad.	(142)	.....	91	46	18	18
92800	2116	.....do.....	June 3, 1883	♂ ad.	155	5	93	47	17	17
92801	1686	.....do.....	Oct. 15, 1882	♂ ad.	152	.....	93	46	17	18
89023	1414	.....do.....	Aug. 9, 1882	jun.	144	.....	94	43	18	17.5

No. 92800.—Iris dark brown. Bill olive black, lighter olive brownish at base, especially on lower mandible. Feet olive yellow, joints more dusky. Fat. Testes very large, 10<sup>mm</sup> long; swollen.

No. 92801.—Iris dark brown. Bill olive black, lighter below at base. Feet yellowish gray. Tip of outstretched toes reaching the end of the tail; tips of closed wings only the end of the under tail-coverts.

No. 89023.—Iris blackish brown. Bill olive gray at base, blackish at tip. Feet light gray, with a faint tinge of yellow; joints darker gray; nails black. Tip of outstretched toes scarcely reaching the end of tail; tips of closed wings reach the end of tail.

Like the foregoing species, only met with on Bering Island during the migration seasons; mostly only single individuals either alone or among the flocks of the foregoing two species. A young bird was shot on the tundra August 9, 1882, and it may possibly have been hatched on the island. At all events, Temminck's Stint is a rare bird compared with the two others.

43. *Pelidna alpina pacifica* (COUES).

- 1813.—*Tringa alpina* WILSON, Am. Orn., VII (p. 25, pl. 56, f. 2).—BLAKIST., Ibis, 1862, p. 330.—SWINH., Ibis, 1866, p. 136, *Id.*, *ibid.*, 1870, p. 363.—WHITELY, Ibis, 1867, p. 205.—HARTING., P. Z. S., 1871, p. 115.—*Scelopax a.* PALLAS, Zoogr. Ross. As., II, p. 176, (*part.*).—*Pelidna a.* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 69.
- 1849.—*Tringa variabilis* TEMM. & SCHLEG., Faun. Jap. Aves (p. 108).
- 1858.—*Tringa alpina* var. *americana* CASSIN, Baird's B. N. Amer., p. 719.—*Pelidna a. a.* DALL & BANNIST., Tr. Chicago Ac., I, 1869, p. 291.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 165.—NELSON, Cruise Corwin, p. 88 (1883).—HARTLAUB, J. f. Orn., 1883, p. 250.
- 1860.—*Tringa cinclus* SCHRENCK, Reis. Amurl., I, p. 121.—SWINH., Ibis, 1860, p. 66.—*Id.*, *ibid.*, 1861, p. 412.—*Id.*, *ibid.*, 1863, pp. 97, 411.—*Id.*, *ibid.*, 1875, p. 455.—*Id.*, P. Z. S., 1863, p. 316.—TACZAN., Bull. Soc. Zool. France, 1876, p. 253.—BLAKIST. & PRYER, Ibis, 1878, p. 221.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 195.—*Id.*, *ibid.*, X, 1882, p. 111.—BLAKIST., Amend. List B. Jap., p. 37 (1884).
- 1861.—*Tringa subarquata* SWINH., Ibis, 1861, p. 342, (*nee* GÜLD.).
- 1861.—*Pelidna pacifica* COUES, Pr. Acad. Philada., 1861 (p. 189).
- 1862.—*Tringa chinensis* SWINH., Ibis, 1862, p. 255 (*nee* GRAY?).
- 1871.—*Tringa cinclus* var. *chinensis* SWINH., P. Z. S., 1871, p. 408 (*nee* TACZAN. 1873).
- 1876.—*Tringa damacensis* BLAKIST., Ibis, 1876, p. 334 (*nee* HORSF.).

As I have already remarked in my "Contributions, &c., No. 1" (Pr. U. S. Nat. Mus., 1883, p. 69), the specimens of the Dunlin collected by me on Bering Island are distinguishable from the typical *Pelidna alpina* by its purer colors. Upon a close examination I now find that my birds agree in every particular with the American form, not only in size, but also in coloration, the bright rusty of the upper parts predominating more and the black of the lower parts being more restricted and of a deeper shade. From all data accessible to me I regard it as certain that all references to a larger form of *Pelidna alpina* or *cinclus* as occurring in the coast regions of Eastern and Northeastern Asia\* belong to this form, also including Swinhoe's *chinensis*, with which Taczanowski's variety of the same name is not identical, being referable to a smaller race, afterwards by him given as *Tringa schinzii*. I have been able to compare large series, and am inclined to think that *Pelidna pacifica* is entitled to full specific rank.

In explanation of the change of name in this form a few remarks may not be out of place:

In 1822 C. L. Brehm described as *Tringa schinzii* a small race of *Pelidna alpina* L., from Central Europe. Bonaparte, on the other hand, in 1826, in his "Observations on the Nomenclature of Wilson's

\* Birds from Amoy, China, have already been referred to *americana* by Mr. Harting (*l. c.*), and Dr. BEAN has determined specimens from Plover Bay, Tschutski Peninsula, to belong to the same form.



Ornithology," wrongly applied the name given by Brehm to a North American species, the bird called *Actodromas fuscicollis* (VIEILL.) in current lists. He perpetuated his error in his Amer. Ornith. (1833), Compar. List (1838), and Catal. Method. (1842). This bird, which Schlegel in memory of the mistake called *Tringa bonapartei*, is therefore known in synonymies as *Tringa* or *Pelidna schinzii* BONAP. (*nec* BREHM), in contradistinction to the true *P. schinzii* of Europe. Probably being unaware of Schlegel's name, Brehm in 1855 (Naumannia, p. 292) bestowed a new name on the form misnamed by Bonaparte as *schinzii*, calling it *Pelidna americana*, and significantly adding in brackets "*Tringa Schinzii* Bp." Brehm's *P. americana*, consequently, is only a synonym of *Tringa fuscicollis* VIEILL.

Three years afterwards J. Cassin, in "The Birds of North America," separated the American representative of the European Dunlin as *Tringa alpina* var. *americana* which Coues, in his Monograph of the Tringæ (Proc. Acad. Philada., 1861), raised to specific rank as *Pelidna americana* (CASSIN). From the explanation above it is evident, however, that this appellation is preoccupied, and another name is necessary. Fortunately there is no need of a new one, for Dr. Coues (*l. c.*) indicated *P. pacifica* as a separable form which has not later been recognized. I have myself examined his type (U. S. Nat. Mus., No. 9540), and finding it in every essential a true *P. americana* CASS. (*nec* BREHM), I propose to revive *pacifica* as the name for the Red-backed Sandpiper. *Pelidna alpina pacifica* is also a more fitting name, since it has been shown to inhabit both the Asiatic and the American shores of the Pacific Ocean.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
89046	1087	Bering Island.....	May 26, 1882	♂ ad.	208	122	55	36	27	23
89180	1106	.....do .....	May 29, 1882	♂ ad.	192	110	50	32	25	22
92791	2100	.....do .....	May 28, 1883	(♂) ad.	(193)	114	52	37	27	23
92792	2103	.....do .....	May 28, 1883	(♂) ad.	(191)	113	53	36	27	24
89179	1105	.....do .....	May 29, 1882	♀ ad.	210	118	53	36	26	23
92793	1690	.....do .....	Oct. 22, 1882	♀	201	120	54	36	27	24

No. 89046.—Iris dark brown. Bill and feet olive black.

No. 92793.—Tip of middle claw reached 7<sup>mm</sup> beyond the tip of tail, legs being stretched backwards, and the latter reached beyond the tips of folded wings for a similar distance.

The Red-backed Sandpiper visits Bering Island only while passing through during the spring and autumnal migrations. It arrives, together with other Sandpipers, in the latter part of May, but does not stay long.

#### 44. *Calidris arenaria* (LIN.).

1766.—*Tringa arenaria* LIN., Syst. Nat., 12 ed., I, 251.—MIDDEND., Sibir. Reis., II 2 (p. 219) (1853).—*Calidris a.* LEACH, Syst. Cat. M. B. Br. Mus., p. 28 (1816).—KITTL., Denkw., I, p. 254.—SWINH., Ibis, 1860, p. 359.—*Id.*, *ibid.*, 1861, p. 342.—*Id.*, *ibid.*, 1863, p. 414.—*Id.*, *ibid.*, 1870, p. 363.—*Id.*, *ibid.*, 1875, p. 454.—*Id.*, P. Z. S., 1863, p. 315.—*Id.*, *ibid.*, 1871, p. 408.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—DALL. & BANNIST., Tr. Chicag., Ac., I, 1869, p. 292.—PRZEW., Pntesch., Ussuri (n. 168) (1870).—TACZAN., Bull. Soc. Zool. France, 1876, p. 249.—*Id.*, Orn., Fauna Vost. Sibir., p. 52 (1877).—FINSCH, Abh. Brem. Ver., III, 1872, p. 65.—BLAKIST. & PRYER, Ibis, 1878, p. 221.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 196.—*Id.*, *ibid.*, X, 1882, p. 113.—NELSON, Cruise Corwin, p. 88 (1882).—BLAKIST., Amend. List B. Jap., p. 11, (1884).

1766.—*Charadrius calidris* LIN., Syst. Nat., 12 ed., I p. 255.—*Trynga c.* PALL., Zoogr. Ross. As., II, p. 202 (1826).

1826.—*Trynga tridactyla* PALL., Zoogr. Ross. As., II, p. 198.

Rare during the migrating season. A single male was shot out of a small flock on Bering Island September 19, 1882. Iris dark brown. Bill and feet olive black. Total length, 186<sup>mm</sup>; wing, 111<sup>mm</sup>; tail-feathers, 49<sup>mm</sup>; expos. culmen, 24<sup>mm</sup>; tarsus, 24<sup>mm</sup>; middle toe with claw, 17<sup>mm</sup>.

#### 45. *Limosa lapponica baueri* (NAUM.).

1826.—*Limosa barge* PALL., Zoogr. Ross. As., II, p. 180 (*part*).

1834.—*Limosa bauri* NAUM., Vög. Deutschl., VIII, p. 429.—PELZ., Wiener Sitzungsber., 1860, XLI, p. 326.

1844.—*Limosa lapponica* var. *novæ zelandiæ* GRAY, Voy. Ereb. and Terr., B. (p. 13).—NELSON, Cruise Corwin, p. 89.

1844.—*Limosa australasiana* GRAY, Grallæ Brit. Mus. (p. 95).

1847.—*Limosa novæ-zelandiæ* GRAY, Gen. B., III, p. 570.

1848.—*Limosa forii* PEALE, U. S. Expl. Exp. B. (p. 231).

1848.—*Limosa uropygialis* GOULD, P. Z. S., 1848, p. 38.—SWINH., Ibis, 1863, p. 409.—*Id.*, *ibid.*, 1870, p. 362.—*Id.*, *ibid.*, 1875, p. 453.—*Id.*, P. Z. S., 1863, p. 312.—*Id.*, *ibid.*, 1871, p. 406.—BAIRD, Tr. Chicag. Acad., I, 1869 (p. 320), pl. 32.—DALL & BANN., *ibid.*, p. 293.—FINSCH, Abh. Brem. Ver., III, 1872, p. 63.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 4 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 6 (1874).—TACZAN., Bull. Soc. Zool. France, 1876, p. 255.—*Id.*, *ibid.*, 1883, p. 340.—*Id.*, Orn. Faun. Vost. Sibir., p. 1 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 220.—*L. uropygialis* *Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 194.—HARTL., J. f. Orn., 1883, p. 279.—PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 203 (1883).—BOGDAN., Consp. Av. Ross., I, p. 87 (1884).

1849.—*Limosa rufa* TEMM. & SCHL., Faun. Jap. Av. (p. 114).—BOGDAN., Consp. Av. Ross., I, p. 86 (1884).

1858.—*Limosa lapponica* CASSIN, Pr. Acad. Philada., 1858, p. 196.—SWINH., Ibis, 1861, p. 409.—*Id.*, *ibid.*, 1863, p. 97.—*Id.*, *ibid.*, 1867, p. 388.—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 110.—BLAKIST., Amend. List B. Jap., p. 11 (1884).

1861.—*Gallinago punctata* ELLMAN, Zoologist, 1861 (p. 7470).

I see no reason for lumping the eastern and western forms of this species together, as they are fairly separable by the darker rump and heavier-barred flanks and axillaries of the former. As a rule *baueri* is paler than the typical *lapponica*, but a specimen from Bering Island, No. 92818, is fully as deeply colored as average European specimens, being, however, the darkest of an extensive series.

The name given by Naumann is undoubtedly older than those given by Gray or Gould. It is not a museum name only, as Naumann, when publishing it, indicated a character by which he thought it separable. That this character afterwards failed, does not invalidate the name; hence there is no good reason for rejecting it.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wings beyond tail.	Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89064	1158	Bering Island .....	June 4, 1882	♂ ad.	388	.....	214	79	80	55	33
89065	1179	.. do.....	June 8, 1882	♂ ad.	388	.....	222	81	81	55	37
89066	1180	.. do.....	June 8, 1882	♂ ad.	390	.....	222	76	89	54	35
92818	2095	.. do.....	May 21, 1883	(♂) ad.	(376)	.....	222	78	78	53	34
92817	2167	.. do.....	June 12, 1883	♂ ad.	372	17	213	79	78	55	34
92816	2796	.. do.....	Sept. —, 1883	.....	.....	.....	213	74	86	56	36

No. 89064.—Iris dark brown. Bill blackish brown at tip, light reddish gray at base, especially light on both rami of the lower mandible. Feet uniform brownish black.

No. 89065.—Basal half of bill flesh-color, terminal half blackish brown.

No. 92817.—Bill blackish brown, brownish flesh-color at base below.

The Pacific Bar-tailed Godwit is a regular visitor to the Commander Islands during the migratory seasons. In 1883 I observed the first ones on the 10th of May on the sandy beach at Fedoskija, Bering Island, and specimens were obtained again during the latter part of September. While on Copper Island, in 1883, I saw one solitary bird at Glinka, about the middle of July, and another at Pestschanij on the 20th of the same month, so that it may be that a few remain to breed. It is, however, not uncommon among Arctic waters that individuals, not disposed to breed, stay at some more southerly locality during the whole summer.

Genus PSEUDOTOTANUS HUMÉ.

Syn. :=1878.—*Pseudototanus* HUMÉ. Stray Feath., VI (p. 488).

=1884.—*Pseudoglottis* STEJNEGER, Zeitschr. Ges. Orn., I, 1884, p. 223.

*Bill* rather stout, long, longer than tarsus, culmen slightly recurved ;

groove on the upper mandible only reaching the middle of the bill; lower mandible with a well-pronounced gonydeal angle. Malar apex reaching forward beyond the loreal apex; mental apex reaching beyond the middle of the nostrils.

*Feet* not very long, moderately strong; tarsus longer than middle toe with claw, scutellate in front and behind; naked part of tibiæ about the length of the two basal articles of the middle toe, scutellate at the upper end, reticulate nearer to the titio-tarsal joint; outer and middle toes united by a large basal web, middle and inner ones by a smaller membrane, as large, however, as the usual web in Totanine birds between the outer and middle toes; border of the toes distinctly serrated.

*Wings* pointed, normally totanine; first primary longest.

*Tail* of normal length, square.

This genus, which originally was established by Hume, afterwards receiving by me the name *Pseudoglottis*, on account of the superficial resemblance of the type species to the type of Nilson's subgenus *Glottis*, belongs to a group of the Totanine waders characterized by the semi-palmated toes, and takes a position somewhat intermediate between the genera *Terekia* and *Symphemia*. The basal webs are fully as well developed as in any of these recognized genera.

Though distinct from both these genera it seems perhaps somewhat nearer related to *Symphemia* than to *Terekia*, notwithstanding the fact that up to the present date the type species has been given as a synonym of the type of the latter genus.

The three genera may be easily recognized by the following

#### SYNOPSIS.

- a<sup>1</sup>. Bill extremely long, longer than tarsus plus the two basal articles of the middle toe; naked portion of tibiæ reticulate in front; feathering on the mental angle not reaching as far forward as the feathering of the forehead or the hind border of the nostrils; groove on the upper mandible long, reaching almost to the tip ..... *Terekia*.
- a<sup>2</sup>. Bill never longer than tarsus plus the first basal article of the middle toe; naked portion of tibiæ scutellate in front above; feathering on the mental angle reaching far in front of the feathering of the forehead and beyond the middle of the nostrils; groove on upper mandible does not reach beyond the middle the bill.
- b<sup>1</sup>. Culmen recurved, longer than tarsus..... *Pseudototanus*.
- b<sup>2</sup>. Culmen straight, shorter than tarsus ..... *Symphemia*.

#### 46. *Pseudototanus guttifer* (NORDM.).

1835.—*Totanus guttifer* NORDMANN in Erman's Verzeichn. Thier. Pflanz, Reis. Erde, p. 17.

1854.—*Xenus guttifer* LICHTENSTEIN, Nomencl. Mus. Berol., p. 91.



- 1856.—*Terekia guttifer* BONAPARTE, Compt. Rend., XLIII, p. 597.  
 1876.—*Totanus haughtoni* ARMSTRONG, Stray Feath., IV (p. 344).—HARTING, Ibis, 1883,  
 p. 133, pl. iv.  
 1878.—*Pseudototanus haughtoni* HUME, Stray Feath., VI (p. 488).—*Id.*, Game B., India,  
 III (p. 403), (1880).  
 1884.—*Pseudototanus guttifer* STEJNEGER, Zeitschr. Ges. Orn., I, 1884, p. 223, pl. x.

A new specific name was prepared for this bird besides the new generic term, as I had not been able to find any description which would fit. Nor could I in any list detect any recognized species which it could possibly be. Swinhoe's lists of Chinese birds, Blakiston's of those from Japan, and Taczanowski's papers on the avifauna of Eastern Siberia did not contain any name with which it could be identified. Even Gray's "Hand list" and Schlegel's "Scolopaces, Mns. P. B." failed. Thinking it rather improbable, however, that so conspicuous a form should have escaped detection, as it, by no means, could be regarded as a form of restricted local occurrence, I, as a last refuge, went through all the synonyms of Totanine birds given in the "Hand list." In going through the synonymy of *Terekia cinerea* I was struck by the suggestive name *guttifer* NORDM.

A specimen of *Terekia cinerea* was then lying on the table before me, but a glance at its dark uropygium, the gray neck slightly streaked with dusky, its whole coloration and small size as compared with the white rump and lower back, rounded black spots on the breast, the blackish mottled coloration of the upper parts and the much superior size of my bird, which is nearly as large as *Totanus nebularius* (= *glottis* BEHST.), made the idea of a confusion of these two species appear so absurd that I proceeded further on through the list. As I did not succeed in finding what I looked for, I once more returned to *Terekia cinerea* and its synonym *guttifer*. The latter name seemed to me so inappropriate to the Terek Sandpiper that I sent to the library for Erman's "Naturhistorischer Atlas," although I did it more in order to convince myself than with the hope of finding the original description of my bird.

Nevertheless, v. Nordmann's description proved to belong to it. It was my good luck to revive this very distinct form (so distinct that it constitutes the type of a new genus) after having been forgotten almost completely for forty nine years.

As already indicated, its resemblance to *Terekia* is so slight that no further comparison is needed. In general style it somewhat resembles *Totanus nebularius* (*glottis* BECHST.), and if specimens have been col-

lected since Erman's time they have, in all probability, been confounded with the latter species. A closer comparison will soon show how different they are.

(1) In *T. nebularius* only the outer toe is united with the middle one by a membrane; in *Ps. guttifera* both the outer and the inner toes are united with the middle one by large webs.

(2) In *T. nebularius* the tarsus is longer than the exposed culmen, while in *guttifera* the tarsus is much shorter than the culmen.

(3) In *T. nebularius* the naked part of the tibia is equal to the middle toe without claw; in *Ps. guttifera* it is much shorter, scarcely exceeding the two basal joints of the middle toe.

It will thus be seen that *T. nebularius* stands much higher on its legs than *Ps. guttifera*.

(4) In *T. nebularius* the bill is much more slender; the gonys without any distinct angle; malar apex of the feathering on the lower mandible does not extend in front of the loreal apex of the feathering on the maxilla. *Ps. guttifera* has a much stouter bill, broader and higher at the base; at the beginning of the symphysis the gonys forms a distinct angle; the malar apex extends in front of the loreal apex.

(5) In *T. nebularius* the under wing-coverts are gray or white, barred or edged with dusky, while in *Ps. guttifera* all the under wing-coverts are pure white.

(6) In *T. nebularius* the tail-feathers are white, except the two middle ones, which are gray, and all more and less transversely banded or mottled with dusky, except the lateral ones, which are nearly uniform white. In *Ps. guttifera* all the tail-feathers are light gray, with a narrow sub-marginal border of a somewhat darker gray, but without any transverse spots or bars.

(7) In *T. nebularius* the fore neck and throat are finely streaked with small lanceolate blackish stripes, and the breast white, unspotted. In *Ps. guttifera* the fore neck and throat are similarly but less densely streaked, while the breast is dotted with large rounded black spots.

Besides these there are many other differences. *T. nebularius* is considerably larger, the white of the lower part of the back reaches much higher up on the back, the coloration of the dark parts of the upper surface is different, &c., but the differences pointed out above will be sufficient to convince the most skeptical that the two species are distinct, and will enable anybody to separate them with the greatest ease,

A comparison of the original description of v. Nordmann\* with that of my bird given below will prove the correctness of my identification.

*Description.* ♂ ad.—U. S. Nat. Mus. No. 92803, L. Stejneger No. 2088. Bering Island  
May 22, 1883.

Upper parts of the body, except the rump, blackish brown more and less edged with whitish, as the white edges are differently worn away; thus the crown is almost uniform brownish black with a few white streaks; the neck is more uniformly and finely streaked longitudinally, while on the back the light edges become broader backward; in many feathers on the latter part the whitish edges have the inner border waved or indented, the outline of the feathers by abrasion being correspondingly scalloped. Among the dark feathers, and mostly concealed by these, are left a number of uniform sandy gray feathers, the remainder of the winter plumage. The other parts of the body are white; the rump and the middle of abdomen unspotted; sides of the head and neck, forehead, and superciliaries heavily streaked with blackish, most densely on the lores; chin with a few faint roundish spots, throat and fore neck strongly marked with terminal, somewhat lanceolate, streaks; on the jugulum and the breast the spots become subterminal, broadening so as to form rather large rounded drops with a somewhat flattened basal border; on the anterior half of the flanks the spots are still broader, almost assuming the character of cross-bars. Primaries blackish brown, from the seventh lighter, brownish ash, as are also the secondaries, and with white edges, which gradually become broader on the interior web of the secondaries the nearer they are to the body; white edges on the tertials with indented borders and the feathers scalloped; primary coverts with only a very narrow white terminal edge, the other upper wing-coverts with rather broad white edges, shafts of the primaries brown, mesially lighter; that of the first one wholly white; all under wing-coverts uniform pure white. Tail light ashy gray, whitish at the base, and indistinctly mottled with darker gray along the edges which are whitish; the mottlings hardly visible on the middle pair; shafts of rectrices white, even those of the middle pair; upper tail-coverts white, submarginally marked with dusky; under tail-coverts white with two or three small and irregularly placed dark spots or streaks.

Total length, 287<sup>mm</sup>; wing, 173<sup>mm</sup>; tail-feathers, 67<sup>mm</sup>; exposed culmen, 53<sup>mm</sup>; tarsus, 43<sup>mm</sup>; middle toe with claw, 35<sup>mm</sup>.†

A single specimen was shot on Bering Island on the 22d of May, 1883, during my absence in Kamstelatka. It was prepared by my faithful Nicaour, one of the natives, whom we usually styled "the professor." At the same time, two days later, I myself shot another specimen on the

\* As this description may be difficult for many ornithologists to consult, a reproduction is herewith given:

124. *Totanus guttifer*. *Nov. spec. Supra fuscogriseus, sparsim albido-maculatus; collo pectoreque albis, nigro-guttatis; cauda alba, obsolete griseo-signata.*

Ausmessung: Länge 12", Länge des Schnabels vom Mundwinkel beinahe 2". Höhe des Schnabels an der Wurzel 3", Länge der Flügel 6" 3". Länge des Schwanzes 2" 3", Höhe der Ferse 1" 9", Länge der Mittelzehe 1", Länge der Hinterzehe beinahe 3".

Am nächsten mit *Tot. glottis* verwandt, doch ist unser Vogel kleiner, der Schnabel stärker, zur Spitze nach oben gebogen, die Schwimmhaut zwischen den Zehen und die Füße bedeutend kürzer. Oberkörper grau, mit sparsamen weisslichen Flecken. Auf dem Kopf und Nacken strichförmige, auf der weissen Kehle, dem Vorderhals und der Brust grosse schwarze, tropfenartige Flecken; Schnabel schwarz. Unterkörper beinahe einfarbig weiss, die spitzen über den Schwanz hinausreichenden Schwingen schwärzlich; mittlere Schwanzfedern mit grösseren schwärzlichen Abzeichen.

Das vorliegende Exemplar dieser sehr ausgezeichneten Art wurde in der Umgegend von Ochozk im Monat Juli von Erman erlegt. In der Sammlung der Akademie der Wissenschaften zu St Petersburg befinden sich zwei Individuen, welche wahrscheinlich aus derselben Gegend sind. (Nordmann, in Erman's Verz. Thier. Pflanz. Reise um die Erde, p. 17.)

† This measurement disagrees greatly with that given by Nordmann, 1 inch, this latter being probably only a misprint.

delta of the Avatscha River, Kamtschatka, but unfortunately it was so damaged as to be completely unfit for preparation. It is most likely, however, that the bird may hereafter be observed more frequently, attention having once been called to it, as very likely it has often been confounded with the Greenshank.

Besides the specimens from Okotsk, mentioned by v. Nordmann, no occurrence of this most interesting form has been reported from Northern and Northeastern Asia, as far as I am aware of. It will probably be found in all the coast districts of Eastern Asia during the migrations.

#### 47. *Totanus nebularius* (GUNN.).

- 1769.—*Scolopax nebularius* GUNNER., in Leem, Lapp. Beskr., p. 251.—*Totanus n.* STEJNEGER, Pr. U. S. Nat. Mus., 1882, p. 37.—*Id.*, *ibid.*, 1883, p. 71.—*Id.*, Naturen, 1884, p. 9.
- 1787.—*Scolopax glottis* LATH., Synops. Suppl., p. 292 (*see* LIN., *qua* *Limosa lapponica*).—*Totanus g.* MIDDEND., Sibir. Reise, II, 2 (p. 213) (1853).—CASSIN, Pr. Acad. Philada., 1858, p. 196.—SCHRENCK, Reis. Amurl., I, p. 414 (1860).—RADDE, Reis. Süd. Ost-Sibir., II (p. 427) (1863).—SWINH., Ibis, 1863, p. 406.—*Id.*, *ibid.*, 1870, p. 364.—*Id.*, *ibid.*, 1875, p. 453.—*Id.*, P. Z. S., 1863, p. 311.—*Id.*, *ibid.*, 1871, p. 405.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—TACZAN., J. f. Orn., 1873, p. 102.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1876, p. 250.—*Id.*, *ibid.*, 1882, p. 397.—*Id.*, Orn. Faun. Vost. Sibir., p. 1 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 220.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 193.—*Id.*, *ibid.*, X, 1882, p. 109.—BLAKIST., Amend. List B. Jap., p. 36, (1884).
- 1831.—*Totanus glottoides* VIGORS, P. Z. S., 1831, p. 173.—SWINH., Ibis, 1860, p. 66.—*Id.*, *ibid.*, 1861, p. 343.

I have had some doubts whether the Greenshank from Eastern Asia ought not to stand as *Totanus nebularius glottoides*, but not having sufficient material, I, at present, abstain from taking such a step. As far as I now can see, there is no difference in size, but it seems as if the eastern birds have the rump and the axillaries more heavily barred than the western ones, though I am bound to say that one of my birds from Bering Island has the axillaries pure white.

#### List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
89067	1075	Bering Island.....	May 23, 1882	♂ ad.	318	178	79	54	59	35
92809	2089	.....do.....	May 23, 1883	(♂) ad.	(321)	180	72	51	60	35
92807	2086	.....do.....	May 20, 1883	(♀) ad.	(341)	192	77	56	61	37
89063	1195	.....do.....	June 6, 1882	♀ ad.	344	192	81	52	57	36

No. 89067.—Iris dark brown. Bill blackish brown, lighter brownish gray towards the base, especially on the lower jaw. Feet yellowish gray, joints bluish.

No. 89063.—Bill blackish brown, basal half lighter, on upper mandible with a bluish, on lower one with a reddish, gray tinge. Feet dirty olive gray, joints darker, more bluish gray.



The Greenshank occurs regularly on Bering Island during the spring migration, but does not breed there as far as I know of.

I also found them rather numerous on the delta of Avatscha River, Kamtschatka, in the latter part of May, 1883.

48. *Totanus ater* (SANDER).

1766.—*Scolopax fusca* LIN., Syst. Nat., 12 ed., I, p. 243 (see 1758, quæ *Guara alba*).—*Limosa f.* PALL., Zoogr. Ross. As., II, p. 187.—*Totanus f.* MIDDEND., Sibir. Reis., II, 2 (p. 214) (1853).—SWINH., Ibis, 1862, p. 254.—*Id.*, *ibid.*, 1863, p. 97.—*Id.*, *ibid.*, 1875, p. 453.—*Id.*, P. Z. S., 1862, p. 319.—*Id.*, *ibid.*, 1863, p. 311.—*Id.*, *ibid.*, 1870, p. 427.—*Id.*, *ibid.*, 1871, p. 406.—RADDE, Reis. Süd. Ost-Sibir., II (p. 327) (1853).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—PRZEW., Putesch. Ussur. (n. 160) (1870).—TACZAN., J. f. Orn., 1873, p. 102.—*Id.*, *ibid.*, 1874, p. 333.—*Id.*, Bull. Soc. Zool. France, 1876, p. 250.—*Id.*, *ibid.*, 1883, p. 339.—*Id.*, Orn. Faun. Vost. Sibir., p. 54 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 220.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 193.—*Id.*, *ibid.*, X, 1882, p. 110.—BLAKIST., Amend. List B. Jap., p. 11 (1884).—BOGDAN., Consp. Av. Ross., I, p. 96 (1884).

1779.—*Scolopax atra* SANDER, Naturforsch., XIII (p. 193).

In the tenth edition Linnæus described the young of *Guara alba* as *Scolopax fusca*, basing it upon Catesby's "Nat. Hist. Carolin., plate 83." In the twelfth edition he applied the identical name, *Scolopax fusca*, to quite a different bird, the European Dusky Sandpiper, usually known as *Totanus fuscus*. It therefore has become necessary, according to the A. O. U. rules, to adopt the name next in date, which, fortunately, is a very appropriate one.

List of specimens obtained.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
92810	2065	Bering Island.....	May 20, 1883	(♂) ad.	(303)	156	49	54	53	35
92812	2069	.....do.....	May 20, 1883	(♀) ad.	(329)	162	68	61	58	49
92811	2097	.....do.....	May 20, 1883	(♀) ad.	(304)	159	69	56	55	37

During my absence from Bering Island in the spring of 1883 three specimens in summer plumage were shot and prepared. The species may be regarded as a rather rare visitor, as it was not known to any of the residents on the islands. Like so many other rare migrating visitors to Bering Island in the spring of 1883, its appearance probably was due to the abnormal amount of snow in Kamtschatka at that time.

49. *Totanus glareola* (LIN.).

- 1758.—*Tringa glareola* LIN., Syst. Nat., 10 ed., I, p. 149 (*nee* PALL., 1826).—*Totanus g.* TEMM., Man. d'Orn., 1 ed. (p. 421) (1815).—TEMME & SCHL., Faun. Jap. Av. (p. 110) (1849).—MIDDEND., Sibir. Reis., II, 2 (p. 215) (1853).—SCHRENCK, Reis. Amurl., I, p. 416.—SWINH., Ibis, 1860, p. 66.—*Id.*, *ibid.*, 1861, p. 343.—*Id.*, *ibid.*, 1863, p. 407 (1860).—*Id.*, *ibid.*, 1870, p. 363.—*Id.*, *ibid.*, 1874, p. 458.—*Id.*, P. Z. S., 1863, p. 311.—*Id.*, *ibid.*, 1871, p. 406.—RADDE., Reis. Süd. Ost-Sibir., II (p. 324) (1863).—WHITELY, Ibis, 1867, p. 205.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—PRZEW., Putesch. Ussur (n. 162).—TACZAN., J. f. Orn., 1873, p. 102.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool., France, 1876, p. 251.—*Id.*, *ibid.*, 1883, p. 339.—*Id.*, Orn. Faun. Vost. Sibir., p. 54 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 220.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 194.—*Id.*, *ibid.*, X, 1882, p. 110.—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.—BLAKIST., Amend. List B. Jap., p. 36 (1884).
- 1822.—*Totanus affinis* HORSF., Tr. Linn. Soc., XVIII (p. 191).—SWINH., P. Z. S., 1863, p. 311.—*Id.*, Ibis, 1866, p. 294.
- 1866.—*Trynga littorea* PALL., Zoogr. Ross. Asiat., II, p. 195.

The specimens collected by me have been compared with a fair series of birds from China, India, and Europe, and found to be identical.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing beyond tail.	Wing.	Thrift-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89082	1182	Bering Island.....	June 6, 1882	♂ ad.	214	.....	122	53	26	37	31
92802	2692	.....do.....	May 23, 1883	(♂) ad.	(215)	..	126	53	28	37	31
92803	2166	.....do.....	June 12, 1883	♂ ad.	217	0	123	52	29	38	30
89079	1064	.....do.....	May 21, 1882	♀ ad.	218	.....	121	51	30	39	32
89080	1092	.....do.....	May 29, 1883	♀ ad.	226	.....	120	52	30	40	35
89081	1148	.....do.....	June 3, 1882	♀ ad.	228	.....	123	54	27	37	31

No. 92803.—Iris dark brown. Bill blackish olive; below at base, lighter brownish olive. Feet, light grayish olive. Very lean.

No. 89079.—Feet greenish to yellowish olive; lower part of tarsus and toes with a tinge of bronzy brown.

No. 89080.—Feet greenish yellow.

This species is a rather common one on Bering Island, breeding on the great swamps of the northern part and in the broader and deeper valleys, for instance in Kamennij, Staraja Gavanskij Pad, &c. They arrive after the middle of May, and their musical performances or "playing" was often watched by me during the latter part of the month.

This sandpiper was not observed on Copper Island, where in fact few or no suitable places for it are found.

50. *Actitis hypoleucos* (LIN.).

- 1758.—*Tringa hypoleucos* LIN., Syst. Nat., 10 ed., I, p. 149.—*Actitis h.* BOIE, Isis, 1822, p. 560.—MIDDEND., Sibir. Reise, II, 2 (p. 215) (1853).—SCHIRENCK, Reis. Amurl., I, p. 417 (1860).—RADDE, Reis. Süd. Ost-Sibir., II (p. 320) (1863).—SCHLEG., Mus. P. B. Grallæ, p. 80 (1865).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—PRZEW., Putesch. Ussur. (n. 163).—TACZAN., J. f. Orn., 1873, p. 102.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1876, p. 250.—*Id.*, *ibid.*, 1883, p. 339.—*Id.*, Orn. Faun. Vost. Sibir., p. 53 (1877).—*Tringoides h.* SWINH., Ibis, 1860, p. 66.—*Id.*, *ibid.*, 1861, p. 343.—*Id.*, *ibid.*, 1862, p. 259.—*Id.*, *ibid.*, 1863, p. 408.—*Id.*, *ibid.*, 1870, p. 363.—*Id.*, *ibid.*, 1874, p. 163.—*Id.*, *ibid.*, 1875, p. 453.—*Id.*, P. Z. S., 1863, p. 312.—*Id.*, *ibid.*, 1871, p. 406.—BLAKIST. & PRYER, Ibis, 1878, p. 220.—*Id.*, Tr. As. Soc., Jap., VIII, 1880, p. 194.—*Id.*, *ibid.*, X, 1882, p. 110.—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.—BLAKIST., Amend. List B. Jap., p. 36 (1884).
- 1826.—*Trynga leucoptera* PALL., Zoogr. Ross. As., II, p. 196.

It is true that Illiger united in his genus *Actitis* both *Limosa*, *Totanus*, *Tringa*, *Pavoncella*, and the bird of the present genus, but there is no more reason for dropping his name altogether than for disregarding Linnæus's *Tringa*, and there are no more reasons for quoting "*Actitis* BOIE *nee* ILLIGER" than for "*Tringa* BAIRD *nee* LIN." Illiger (Prod. p. 262) enumerates as species of his genus *Actitis*: "*Scolopax Limosa*, *Totanus*, *Tringa pugnax*, *Hypoleucos Lin.*" Of these the two first had already, by earlier writers, been separated as types of *Limosa* and *Totanus*, leaving in 1811 *Tringa pugnax* and *hypoleucos* the occupants of the restricted genus *Actitis*. In 1816, LEACH established the genus *Pavoncella* for the former of these two species, so that *hypoleucos*, by elimination, has become the only type of *Actitis* ILLIG., to the exclusion of *Tringoides* BONAP., 1831,\* which is a pure synonym of *Actitis*.

List of specimens obtained.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89041	1553	Bering Island . . . . .	Sept. 9, 1882	♂	203	.....	104	53	25	25	23
92805	2091	.....do.....	May 22, 1883	(♂) ad.	(187)	.....	103	54	25	25	24
92804	2101	.....do.....	May 24, 1883	(♂) ad.	(188)	.....	104	57	24	24	23

No. 89041.—Iris dark brown. Bill dark brownish gray, blackish toward tip, reddish at base of lower mandible. Feet light gray with a faint tinge of yellowish green.

\* Saggio Distr. Meth. Anim. Vertebr., p. 58.

The common sandpiper occurs on Bering Island only during the migrations, in spring and autumn, but seems to be rather rare, and the three specimens collected were the only ones seen.

#### 51. *Terekia cinerea* (GÜLD.).

- 1774.—*Scolopax cinerea* GÜLDENST., N. Comm. Acad. Petrop. (XIX, p. 473, tab. xix.)—*Limosa c.* MIDDEND., Sibir. Reis., II, 2 (p. 216) (1853).—SCHRENCK, Reis. Amurl., I, p. 419, (1860).—RADDE, Reis. Süd. Ost Sibir., II (p. 330) (1863).—*Terekia c.* GRAY, List Gen., p. 88 (1841).—SWINIL, Ibis, 1863, p. 97.—*Id.*, P. Z. S., 1863, p. 312.—*Id.*, *ibid.*, 1871, p. 406.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—TACZAN., J. f. Orn., 1873, p. 102.—*Id.*, *ibid.*, 1874, p. 336.—*Id.* Bull. Soc. Zool. France, 1876, p. 250.—*Id.*, Orn. Fauna Vost. Sibir., p. 53 (1-77).—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 110.—BLAKIST., Amend. List B. Jap., p. 36 (1884).—SEEB., Ibis, 1884, p. 33.
- 1822.—*Totanus javanicus* HORSE., Tr. Linn. Soc., XIII, p. 327.—*Terekia j.* SWINIL, P. Z. S., 1862, p. 319.
- 1826.—*Limosa recurvirostra* PALL., Zoogr. Ross. As., II, p. 181.

The only specimen of the Terek Sandpiper or Godwit was secured on one of the last days before I left Bering Island.

It was a male, shot near Ladiginsk, Bering Island, on the 9th of September, 1883. Iris blackish brown. Bill blackish olive; yellowish olive at base of both mandibles. Feet, including webs, bright orange yellow. Total length, 231<sup>mm</sup>; wings beyond tail, 2<sup>mm</sup>; wing, 125<sup>mm</sup>; tail-feathers, 52<sup>mm</sup>; exposed culmen, 39<sup>mm</sup>; tarsus, 26<sup>mm</sup>; middle toe with claw, 21<sup>mm</sup>.

#### 52. *Heteractitis incanus* (GM.).

- 1788.—*Scolopax incana* GMEL., Syst. Nat., I, p. 658.—*Heteroscelus i.* COUES in Elliott's Affairs Alaska, p. 187 (1875).—ELLIOTT, Monogr. Seal Isl., p. 130 (1882).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 165.—NELSON, Cruise Corwin, p. 89 (1883).—*Actitis i.* FINSCH, Abh. Brem. Ver., III, 1872, p. 64.—*Heteractitis i.* STEJNEGER, Auk, 1884, p. 236.—TURNER, Auk, 1885, p. 157.
- 1826.—*Trynga glarcola* var. PALL., Zoogr. Ross. As., II, p. 194.—KITTL., Denkw., I, p. 287 (1858).
- 1831.—*Totanus pedestris* LESSON, Tr. d'Orn., p. 552 (*part*).
- 1841.—*Totanus fuliginosus* GOULD, Zool. Voy. Beagle, Birds, p. 130.
- 1844.—*Scolopax undulata* FORSTER, Deser. Anim. (p. 173).
- 1844.—*Scolopax pacifica* FORSTER, Deser. Anim. (p. 173).
- 1847.—*Totanus oceanicus* LESSON, Compl. Oeuv. Buff. (p. 244).
- 1848.—*Totanus polynesiæ* PEALE, U. S. Expl. Exp. (p. 237).
- 1858.—*Heteroscelus brevipes* BAIRD, B. North Amer., p. 734, pl. 88 (*nec* VIEILL.).—*Id.*, Tr. Chicag. Acad., I, 1869 (p. 734).—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 293.—*Tringa b.* KITTL., Denkw., I, p. 258.

It was most unfortunate that Cassin, in 1858, united *H. incanus* with *brevipes*, which he had previously so well distinguished, and it is still more unfortunate that he has been followed almost unanimously by later authors. I propose to prove that there exists two well-defined species, distinguishable both by structural characters and by differences



in color, distinguishable in all plumages, adults and young, summer and winter specimens.

The reason why Cassin failed to maintain the distinction between the two species was partly that he overlooked the structural differences, partly that he mistook the adult barred summer plumage for that of the young, while it is the young plumage which he regarded as the breeding dress.

If the ornithologists interested in this question will place before them their specimens, or series of specimens, I would propose to them to measure the length of the nasal groove from the loreal apex of the feathering to the foremost end of the furrow. Specimens in which the groove is as long as about two-thirds of the length of the exposed culmen from the feathering, belong to *Heteractitis incanus*; specimens in which this groove is only half as long as the exposed culmen are true *H. brevipes*. If the collection is large enough we will find, when dividing it into two series, according to the above character, that each of these contain specimens, some of which are distinctly barred underneath, partially or wholly, others being only more or less uniformly clouded with gray on fore neck, throat, and flanks. If now comparing the barred specimens of both series, we will find the following differences in color: In those with the long nasal groove, *incanus*, the whole under surface, including middle of abdomen and under tail-coverts, is distinctly and uniformly barred with blackish gray, and the back is purer gray; in the specimens with the short groove the middle of the abdomen and the under tail-coverts are pure white, the dark bars on the other part being lighter and finer, while the back is more tinged with brownish. Upon taking measurements we will find that the long-grooved, heavy-barred *incanus* average larger than the short-grooved, lighter *brevipes*.

If we now compare the two series of unbarred specimens we will find that the long-grooved ones are purer gray and average larger (*incanus*) than the short-grooved ones, which are appreciably browner and smaller.

Anybody taking the trouble of still closer examining his specimens will soon find additional characters, and will especially appreciate the distinct and regular white bars—two or more on each feather—on the upper tail-coverts of the unabraded plumage, in *brevipes*, in contradistinction to those in *incanus*, in which these feathers are either uniform gray or with a very narrow light edging.

These facts ought now to convince the most skeptical of the validity of the two species. To those who have got no material, or only an insufficient series, I would say that the above process was the one followed by me in handling my series, and that the characters are pertinent and without the slightest sign of intergradation throughout the whole lot of more than twenty specimens, while the table of dimensions below conclusively prove the points above alluded to.

It is a matter of regret to me that so many of the labels of the unbarred birds in my series have no definite data as to the exact time of their capture. Nevertheless I think it pretty clearly established by the facts, accessible to me, that the barred plumage is the full adult breeding plumage, while the clouded under side represents the young bird of the year, and possibly the adults during the four months from December to March. It is furthermore clear from an inspection of the specimens that there is no sexual difference either in color or dimensions. No. 87243, collected on the Fiji Islands in "winter," shows some new feathers with bars, and v. Pelzeln (Novara Exp., p. 130) mentions a specimen from Tahiti, shot on the 25th of February, which most probably is a true *incanus* in transition to the barred plumage.\*

Turning to the question of the geographical distribution of the two species we already, at the outset, feel the mischief done by the untimely "lumping," as in many cases where no description is given, it is impossible to tell which bird more recent authors have had before them.

It may, however, be stated at once that *H. brevipes*, the short-grooved species with the white under tail-coverts in the adult summer plumage, does not occur in America or in any of the outlying islands belonging to that continent. All the specimens from Alaska and the Aleutian Islands, down to California, belong to *H. incanus*, and so does the bird from the Galapagos Islands (Gould's *T. fuliginosus*).

This species, *incanus*, also occur in the greater part of the Polynesian Islands, especially the more eastern ones. As I have already said, it is very difficult to trace the habitat with certainty, as most authors have confounded the two species, and only a few have given short notes as to the coloration or size of their specimens. The following references seem, however, to belong to the present species, the heavy-barred bird: Paumotu Islands (Peale); Marquesas Islands (Lesson); Tahiti (v. Pelzeln, Forster); Tongatabu (Forster); Palmyra (Streets); Samoa, Upolu, and

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\* His specimen from Ualan is certainly *brevipes*, and so is probably that from Puyupet.

Savai (Hartlaub, Finsch); Fiji (Peale, Walden). This is probably also the species occurring on the Hawaiian Islands. It may also be remarked that a bird recorded by Finsch and Hartlaub from the Pelew Islands seems to belong here.

The true *brevipēs*, on the other hand, is a more Asiatic species, to which is referable all or most of the records from Kamtschatka, Japan, Okotsk, Baikal, Bonin Islands, Liu-Kiu Islands, Formosa, China, Philippine Islands, probably also the Marianne and the Caroline Islands,\* from Borneo, Timur, Ceram, and Australia.

Comparative table of dimensions.

I.—HETERACTITIS INCANUS.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex.	Wing.	Tail-feathers	Expos. culmen.	Length of nasal groove.	Tarsus.	Middle toe with claw.
						mm.	mm.	mm.	mm.	mm.	mm.
82430*	Belding.....		Cerros Island, Cal...	Apr. —, 1881	♀	170	73	37	27	33	31
	* Cooper ..	71	Shoal water Bay, W. T.	May 9, 1854	♀	166	74	39	26	34	31
73441	Nelson ..	3	Sannak Isl., Alaska.	May 15, 1877	♀	173	77	38	26	35	31
54602*	Dall .....	1649	Nulato, Alaska ....	May 27, 1868	♂	167	73	38	25	34	31
92813*	Stejneger	2066	Bering Island.....	May 29, 1883 (♂)		161	77	39	26	33	31
92814*	.. do .....	2067	.. do.....	May 29, 1883 (♂)		165	73	37	24	33	31
89077†	.. do .....	1140	.. do.....	June 1, 1882		164	74	35	22	34	32
89078*	.. do .....	1141	.. do.....	June 1, 1883	♂	172	78	39	25	34	31
64272†	Elliott .....		St. George I., Alaska.	July 29, 1873		172	77	38	25	33	31
87244*	Goward .....		Fiji Islands .....	Summer.....		177	77	39	24	35	31
15724	Peale † .....		.. do .....		♂	180	79	42	28	35	32
89646†	Bendire..	54	Fort Klamath, Oreg.	Aug. 25, 1882	♀	163	70	36	24	34	29
92815†	Stejneger	1647	Bering Island .....	Sept. 20, 1882	♂	161	68	37	24	32	30
67321†	Streets ..	12	Palmira Island.....	(Dec.) .....		161	72	38	26	34	31
87243†	Goward .....		Fiji Islands.....	Winter.....		165	80	32	24	34	31
	† Nelson .....	1292	Alaska .....			170	80	38	25	35	32
75831†	.. do .....	475	.. do.....		♂	168	78	36	23	34	31
21432†	Gruber ..	21432	Farallones, California.			166	80	38	24	34	30
Average measurements of eighteen specimens .....						168	76	38	25	34	31

\* Cf. Finsch's statement about the birds collected by him on the Eastern Carolines, the Marshall, and Gilbert Islands: "Die Verfärbungsverhältnisse sind sehr auffallend, da Exemplare Mitte Juni noch keine Spur eines Sommerkleides zeigen." (Vög. d. Südsee, p. 56 (1884)). Of course, the summer plumage which Finsch expected to see is that of *incanus*, while the specimens in question belong to *brevipēs*!

## Comparative table of dimensions—Continued.

## II.—HETERACTITIS BREVIPES.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex.	Wing.	Tail-feathers.	Expos. culmen.	Length of nasal groove.	Tarsus.	Middle toe with claw.
						mm.	mm.	mm.	mm.	mm.	mm.
15819§	Peine . . .	51	Hakodadi . . . . .	May —, 1854	..	160	69	34	16	35	.....
89076§	Stejneger	1089	Bering Island . . . . .	May 28, 1882	♂	160	69	37	18	33	30
67301§	Bernstein	10271	Halmabeira . . . . .	Nov. —, 1861	♂	165	67	39	19	33	30
91400‡	Jouy . . . .	783	Matsumoto, Japan . . . . .	Nov. 15, 1882	♀	154	63	35	17	34	30
21226‡	Rogers . . .	7177	Bonin Islands . . . . .	.....	.....	164	66	36	19	33	30
Average measurements of five specimens  .....						161	68	36	18	34	30

\*Specimens with the whole under surface, including under tail-coverts uniformly barred with dark gray.

† Type of *Totanus polynesiæ* PEALE.

‡ Specimens without bars underneath.

§ Specimens barred on fore neck, throat, and flanks.

|| For additional specimens received after the table was prepared, see under the following species.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
89077	1140	Bering Island . . . . .	June 1, 1882	.....	267	164	74	35	34	32
89078	1141	.....do . . . . .	June 1, 1882	♂ ad.	286	172	78	39	34	31
92813	2066	.....do . . . . .	May 27, 1883	(♂) ad.	(270)	161	77	39	33	31
92814	2067	.....do . . . . .	May 29, 1883	(♂) ad.	(268)	165	73	37	33	31
92815	1647	.....do . . . . .	Sept. 20, 1882	♂ jun.	256	161	68	37	32	30

No. 89077.—Iris dark brown. Bill brownish black, lighter brownish gray at base of lower mandible. Feet ochre yellow, with a faint greenish tinge on the joints.

No. 92815.—Iris dark brown. Bill olive gray, blackish at tip. Feet yellow, with a faint greenish tinge; nails black.

The Wandering Tattler, the "Tschornij Kulik" of the Russians, comes to the islands during the latter part of May, and may then be met with on the stony beaches close to the water's edge, in pairs or in very small troops. At the time of their arrival they are less shy than totanine birds generally, but their conduct changes after awhile, so that I only once, on Copper Island, in the middle of July, observed a single specimen during the summer, although I feel suspicious that they breed there.



This bird makes quite a different impression on the observer from the other totanine waders, and its habits seem to be rather peculiar, in many respects reminding one of the Oyster-catcher. It carries its body much in the same manner as *Actitis hypoleucos*, but very seldom flirts its tail up and down like the latter, nor has it as much of the peculiar movement of the head and neck as the common sandpiper. It is a much more quiet bird, very often standing immovable for a long while staring down into the water. Its flight is graceful and very rapid. Its voice loud and harsh, almost screaming. I only met it among rocks and stones, seldom, if ever, on the sandy or gravelly beaches.

### 53. *Heteractitis brevipes* (VIEILL.).

- 1817.—*Totanus brevipes* VIEILL., N. Dict. d'Hist. Nat., VI, p. 410.—CASSIN, Exp. Jap. Perry, II, p. 229 (1857).—*Id.*, U. S. Expl. Exp., p. 339 (1858).—*Id.*, Pr. Acad. Philada., 1858, p. 195.—*Id.*, *ibid.*, 1862, p. 321.—SWINH, Ibis, 1863, p. 407.—*Id.*, *ibid.*, 1867, p. 390.—*Id.*, P. Z. S., 1863, p. 312.
- 1826.—*Trynna glaucola* PALL., Zoogr. Ross. As., II, p. 194, pl. IX (*nee* LIN.).
- 1831.—*Totanus pedestris* LESSON, Tr. d'Orn., p. 552 (*part*).
- 1844.—*Totanus pulverulentus* MÜLL., Naturk. Verhandl. (p. 152).—TEMM. & SCHLEG., Faun. Jap. Av., p. 109, pl. 65 (1849).—MIDDEND., Sibir. Reis., II, 2 (p. 214) (1853).—SWINH, Ibis, 1860, pp. 132, 259.—*Id.*, *ibid.*, 1861, p. 343.—*Id.*, *ibid.*, 1862, p. 254.—RADDE, Reis. Süd. Ost-Sibir., II (p. 326) (1863).—WHITELY, Ibis, 1867, p. 205.—*Actitis p.* DYBOW. & PARVEX, J. f. Orn., 1868, p. 337.—TACZAN., J. f. Orn., 1873, p. 102.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1876, p. 250.—*Id.*, *ibid.*, 1882, p. 397.—*Id.*, Orn. Faun. Vost. Sibir., p. 54 (1877).
- 1848.—*Totanus griseopygius* GOULD, P. Z. S., 1848, p. 39.
- 1871.—*Totanus incanus* SWINH., P. Z. S., 1871, p. 405 (*nee* GMEL.).—*Id.*, Ibis, 1874, p. 163.—*Id.*, *ibid.*, 1875, p. 453.—BLAKIST. & PRYER, Ibis, 1878, p. 220.—*Id.*, *ibid.*, Tr. As. Soc. Jap., VIII, 1880, p. 192.—*Id.*, *ibid.*, X, 1882, p. 109.—BLAKIST., Amend. List B. Jap., p. 11 (1884).—*Heteroscelus incanus* BOGDAN., Consp. Av. Ross., I, p. 98 (1884).

The distinctive characters which separate this species from the foregoing have been pointed out under the head of the latter.

The specimen obtained by me on Bering Island agrees in every particular with specimens from Japan and Halmabeira, while those of *incanus* as closely agree with the examples from America and Polynesia.

The dimensions of the specimen collected are as follows:

♂ ad. *U. S. Nat. Mus.*, No. 89076, *L. Stejneger*, No. 1089; *Bering Island*, May 28, 1882.

Total length, 265<sup>mm</sup>; wing, 160<sup>mm</sup>; tail-feathers, 69<sup>mm</sup>; exposed culmen, 37<sup>mm</sup>; tarsus, 33<sup>mm</sup>; middle toe with claw, 30<sup>mm</sup>.

*Remarks.*—Iris dark brown. Bill blackish gray, light brownish gray at base of lower mandible. Feet light ochre yellow, joints with a faint greenish tinge.

Only one specimen of this bird was obtained, although I was fully aware of the difference between the two forms, and consequently on the lookout for both.

I afterwards received from Kamtschatka three young birds collected in the fall of 1884. The characters pointed out at once distinguishes them from *incanus*.

Measurements.

U. S. Nat. Mus. No.	Sex and age.	Locality.	Date.	Wing.	Tail.	Culmen.	Tarsus.	Middle toe.
				mm.	mm.	mm.	mm.	mm.
101661	jun.	Petropaulski, Kamtschatka .....	1884	161	67	38	34	30
101662	jun.	.....do .....	1884	164	66	38	32	27
101663	jun.	.....do .....	1884	155	64	37	33	28

54. *Numenius phæopus variegatus* (SCOP.).

- 1786.—*Tantalus variegatus* SCOPOLI, Delic. F. Fl. Insubr., II, p. 92 (ed. NEWT.).—*Numenius* v. SEEB., Ibis, 1884, p. 34.—BLAKIST., Amend. List B. Jap., p. 39 (1884).
- 1788.—*Scolopax luzoniensis* GMEL., Syst. Nat., I, p. 656.—*Numenius l.* SWINH., P. Z. S., 1871, p. 410.
- 1817.—*Numenius atricapillus* VIEILL., N. Diet. d'Hist. Nat., VIII, p. 303.
- 1826.—*Numenius phæopus* PALL., Zoogr. Ross. As., II, p. 169 (part).—SCHLEG., Mus. P. B. Grall., p. 93 (part).—SWINH., Ibis, 1877, p. 146.—BLAKIST. & PRYER, Ibis, 1878, p. 223.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 198.—*Id.*, *ibid.*, X, 1882, p. 116.
- 1840.—*Numenius uropygialis* GOULD, P. Z. S., 1840, p. 175.—SWINH., Ibis, 1863, p. 409.—*Id.*, *ibid.*, 1866, p. 137.—BOGDAN., Consp. Av. Ross., I, p. 84 (1884).
- 1856.—*Numenius tahitiensis* CASSIN, Exped. Jap. Perry, II, p. 228 (nec GMEL.).—SWINH., P. Z. S., 1863, p. 318.
- 1883.—*Numenius melanorhynchus* TACZAN., Bull. Soc. Zool. France, 1883, p. 340 (nec BP., 1856, qui ex Grœnlandia).

The two specimens which I secured at Bering Island I have carefully compared with specimens of typical *phæopus* from Europe, and with numerous specimens of the eastern representative from China and Japan, and also with a specimen in the National Museum, obtained from Mr. Harting, and determined by him as *N. luzoniensis*. The characters of the dark and strongly streaked rump and the barred under tail-coverts are well developed, and were it not that the occurrence of numerous intermediate specimens have been recorded, I should consider the two forms good and distinct species.

List of specimens obtained.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Chord of exposed culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92819	2183	Bering Island .....	June 20, 1883	♀ ad.	439	6	232	95	76	58	40
92820	2190	.....do.....	June 21, 1883	♀ ad.	.....	.....	238	99	84	65	41

No. 92819—Iris dark brown. Bill brownish black, below at base reddish gray. Feet clear bluish gray, joints darker gray. Eggs swollen.

No. 92820—Colors as foregoing. Eggs large, swollen.

The Eastern Whimbrel is a visitant to the islands during the migrations, in spring and autumn, but, being very wary and their stay short, they are only seldom seen. During the latter part of May, 1882, I observed a flock on the flat sandy borders of the river, behind the village, but the birds disappeared in the fog before I could secure a specimen. During the following spring two females were secured at Emilianovski Mys, on the northern shore, as late as the 20th and 21st of June. They were single, and their eggs large and swollen, so that there is a probability that a few pairs remain during the summer and breed.

In the fall, September 3, 1883, a large flock was observed on the mountain plateau, north of the village, feeding upon the berries of *Empetrum nigrum*. Two young birds were taken on the steamer in the beginning of August, when at sea between Kamtschatka and Bering Island.

55. *Phalaropus lobatus* (LIN.).

1758.—*Tringa lobata* LIN., Syst. Nat., 10 ed., I, p. 148, cfr. p. 824.—*Phalaropus l.* TURNER, Auk, 1885, p. 157.

1766.—*Tringa hyperborca* LIN., Syst. Nat., 12 ed., I, p. 249.—*Phalaropus h.* DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—BAIRD, Tr. Chicag. Acad., I, 1869 (p. 706).—TACZAN, Bull. Soc. Zool. France, 1876, p. 251.—*Id.*, Orn. Faun. Vost. Sibir., p. 55 (1877).—BLAKIST., Amend. List B. Jap., p. 21 (1884).—*Lobipes h.* DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 209.—TACZAN, J. f. Orn., 1873, p. 102.—*Id.*, *ibid.*, 1875, p. 256.—DALL, Avif. Alent. Isl. West. Unal., p. 5 (1874).—SWINH., Ibis, 1875, p. 455.—COUES in Elliott's Aff. Alaska, p. 180 (1875).—BLAKIST. & PRYER, Ibis, 1878, p. 221.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 196.—*Id.*, *ibid.*, X, 1882, p. 113.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 165.—ELLIOTT, Monogr. Seal Isl., p. 129, (1882).—NELSON, Cruise Corwin, p. 91 (1883).

1810.—*Phalaropus cinereus* MEY. & WOLF, Taschenb. Deutsch. Vögelk., II, p. 417.—MIDDEND., Sibir. Reise, II, 2, p. 215 (1853).—SCHRENCK, Reis. Amurl., I, p. 418 (1860).—FINSCH, Abh. Brem. Ver., III, 1872, p. 65.

1826.—*Phalaropus ruficollis* PALL., Zoogr. Ross. As., II, p. 203.

1826.—*Phalaropus cinerascens* PALL., Zoogr. Ross. As., II, p. 204.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
89177	1097	Bering Island.....	May 29, 1882	♂ ad.	184	104	52	21	20	21
89178	1098	.....do.....	May 29, 1882	♂ ad.	180	103	47	19	20	20
89020	1121	.....do.....	May 30, 1882	♂ ad.	177	101	48	21	21	20
89173	1093	.....do.....	May 29, 1882	♀ ad.	.....	110	52	20	20	22
89174	1094	.....do.....	May 29, 1882	♀ ad.	196	113	53	22	21	20
89175	1095	.....do.....	May 29, 1882	♀ ad.	187	109	50	21	21	20
89176	1096	.....do.....	May 29, 1882	♀ ad.	194	106	54	20	20	20
89019	1120	.....do.....	May 30, 1882	♀ ad.	187	110	51	.....	22	21
92821	1265	.....do.....	July 20, 1882	juv.	165	80	35	18	20	20
92822	1266	.....do.....	July 17, 1882	pull.	.....	.....	.....	12	19	21

No. 89177.—Iris dark brown. Bill black. Feet grayish blue; joints blackish.

No. 89020.—Iris dark brown. Bill black. Feet grayish blue; outer aspect of tarsus, outer toe, and the joints darker; soles and outer web blackish.

No. 92821.—Iris hazel. Bill blackish. Feet flesh-color; outer aspect and joints dark grayish. A few downy feathers still on the neck.

No. 92822.—Like the foregoing.

The Red-necked Phalarope is one of the commonest breeding summer birds on Bering Island.

In 1882 they arrived in large numbers on the 29th of May, and during the following week all the smaller ponds on the tundras all over the northern part of the island were crowded. In 1883 the new-comers made their appearance five days earlier, as the first ones were shot on May 24.

56. *Crymophilus fulicarius* (LIN.).

1766.—*Tringa fulicaria* LIN., Syst. Nat., 12 ed., I, p. 249.—*Phalaropus f.* NELSON, Cruise Corwin, p. 91 (1883).—SEEB., Ibis, 1884, p. 33.—BLAKIST., Amend. List B. Jap., p. 37 (1884).—*Crymophilus f.* STEJNEGER, Ank, 1885, p. 183.

1788.—*Tringa glacialis* GMEL., Syst. Nat., I, p. 675.

1809.—*Phalaropus rufus* BECHST., Naturg. Deutschl., IV., p. 381.—PALL., Zoogr. Ross. As., II, p. 205 (1826).

1840.—*Phalaropus rufescens*.—KEYS. & BLAS., Wirbelth. Europ., p. lxxii.—MIDDEND., Sibir. Reis., II, 2 (p. 216) (1853).—TACZAN., Bull. Soc. Zool. France, 1876, p. 251.—*Id.*, Orn. Faun. Vost. Sibir., p. 55 (1877).

1880.—*Lobipes wilsonii*? BLAKIST. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 196.—*Id.*, *ibid.*, X, 1882, p. 113.

When on my boat expedition around Bering Island I observed a flock of Phalaropes, August 21, 1882, several miles at sea. No specimen could be secured, but I do not think I was wrong in my identification.



## ORDER CHENOMORPHÆ.

## Superfamily ANATOIDEÆ.

## Family ANATIDÆ.

57. *Anser segetum middendorffi* (SEVERZOW).

- 1853.—*Anser grandis* MIDDEND., Sibir. Reise., II, 2 (p. 225, tb. xx, fig. 1) (*nee* GMEL.).—SCHRENCK, Reis. Amurl., I, p. 462 (1860).—RADDE, Reis. Süd. Ost-Sibir., II, (p. 354) (1863).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—TACZAN., J. f. Orn., 1873, p. 108.—*Id. ibid.*, 1874, p. 336.—*Id., ibid.*, 1875, p. 256.—*Id.*, Orn. Faun. Vost. Sibir., p. 67 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 42.—*Id., ibid.*, 1883, p. 343.
- 1873.—*Anser middendorffi* SEVERZOW, Turkest. Jevotn. (pp. 70, 149).—*Id.*, J. f. Orn., 1874, p. 435.—*Id.*, Ibis, 1876, p. 416.
- 1875.—*Anser segetum* var. *serrirostris* TACZAN., J. f. Orn., 1874, p. 333 (*nee* SWINH.).
- 1875.—*Anser segetum* SWINH., Ibis, 1875, p. 456 (*part*).—BLAKIST. & PRYER, Ibis, 1878, p. 212 (*part*).—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 182 (*part*).—*A. segitum.* *Id., ibid.*, X, 1882, p. 94 (*part*).—BLAKIST., Chrysanth., 1883, p. 27 (*part*).—(*segetum*).*Id.*, Amend. List B. Jap., p. 8 (*part*).

The state of things in regard to the species of geese of Eastern Asia is in a deplorable condition, and with my scanty material I can hardly expect to solve the question. With all our doubts it is, however, most fortunate that the geese have not suffered the common fate of difficult birds of that region, viz, to be lumped together under one heading. If that had been the case it would have been hopeless to try to unravel the confusion. This confusion goes even so far that Taczanowski, who, in 1877, enumerates as No. 372 *Anser grandis* PALL., and as No. 371 *Anser grandis* MIDD., *nee* PALL. (!), still in 1883 speaks of *Anser grandis* MIDD., a form which already, ten years before, was called *Anser middendorffi* by his countryman, Severzow.

As already stated, my material is rather scanty, consisting of the following specimens: Four birds from Europe, referable to *A. segetum* and to *A. segetum arrensis*. Three birds from Bering Island, which certainly belong to *A. middendorffi* (= *grandis* MIDD.), as will be shown below. One specimen from Shanghai, which I take to be a typical *A. segetum serrirostris* for reasons to be discussed further on.

It is at first sight evident that these birds belong to two groups, one with rather slender bills, to which all the European specimens are referable,\* the other with much heavier bills ("huge bills," as Swinhoe says), to which all the eastern birds belong. In coloration I can detect no difference, except that the eastern specimens have the heads perceptibly more brownish, a feature which, according to Schrenck's statement, is not constant. This brown wash seems to me to be due to a similar cause to that which colors the heads of the swans more or less rusty. This is especially striking in specimens which still have the white semilunar spots on the feathers bordering the bill, in which these white spots are tinged exactly in the same manner as in the swans. A white-fronted goose before me presents the same feature. If in the swans the rusty color is due to external staining, then the same is the case with the brown color of the heads of the eastern geese. As the rest of the plumage is essentially the same both in the western and the eastern birds, the whole question as to their distinctness becomes a question of size.

Before proceeding further a comparative table of dimensions may not be out of place.

U. S. Nat Mus. No.	Collector's No.	Collector's name.	Locality.	When collected.	Sex and age.	Total length.
92824.....	2022	L. Stejneger.....	Bering Island.....	May 10, 1883	♂ ad.	850
92825.....	2023	..... do .....	..... do .....	May 10, 1883	♀ ad.	772
101207.....	114	N. Grebnitski.....	..... do .....	May 22, 1884	(♀) ad.	.....
85758.....	58	L. P. Jouy.....	Shanghai.....	Dec. 27, 1880	♀ ad.	(711)
34099.....		Mus. Stockholm.....	"Suecia" (63°).....	July 21, 1859	♂ ad.	.....
57160.....		Schlüter.....	Germany.....		♀? ad.	.....
57161.....		..... do .....	..... do .....		♀ ad.	.....
57162.....		..... do .....	..... do .....		♂? ad.	.....

\* I am not prepared to pass any opinion at present upon the two alleged European races. So much is certain from my material at hand, that the number of lamellæ does not correspond with the greater or less development of the yellow color on the bill. An old male with a very narrow and well-defined yellow ring behind the nail, even narrower than on Naumann's pl. 287, vol. xi, has not less than twenty-six lamellæ. As my specimens agree mutually in all characters in which they are separate from the eastern ones, it suffices here to handle them as one group.

U. S. Nat. Mus. No.	Wings beyond tail.	Wing.	Tail-feathers.	Expos. culmen.	Bill along gape.	Bill to hind border of nostrils.	Nail of bill.	Height of bill bc hind nail.	Height of bill at base.	Breadth of bill at middle of nostrils.	Tarsus.	Middle-toe with claw.	Number of lamellae.
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
92824.....	10	495	143	75	72	53	19	18	40	25	96	93	20
92825.....	25	463	134	68	66	48	18	.....	37	24	86	82	20
101207.....	.....	435	122	63	67	47	18	16	35	24	85	81	23
85758.....	.....	500	145	60	64	45	16	.....	36	25	82	82	20
34099.....	.....	(*)	135	63	63	42	15	11	32	21	85	84	24
57160.....	.....	470	134	61	62	40	16	13	30	20	.....	80	22
57161.....	.....	445	128	60	63	42	17	13	30	20	.....	74	24
57162.....	.....	440	121	60	62	40	16	13	30	20	.....	.....	26

\* Moulting.

The difference in the dimensions of the bills of the two groups is so striking that no further comment is necessary. It will, however, be seen that the eastern birds show quite a considerable difference too in the bill, as the latter in the Chinese bird is not longer than in the European forms, while its height and breadth are almost identical with the corresponding dimensions of my Bering Island birds. There is also another difference. If the measurement of the total length (28 inches) given on the label is reliable, the Shanghai bird is a considerably smaller bird, having, however, both wings and tail longer than even the male bird from Bering Island. In the coloration I can see no tangible difference.

I will not deny even the probability of these differences being only individual variation within the same species, but I do not feel justified in uniting them under the same name, as long as there exists a possibility of their being distinct. Should this be proven, I would be rightly blamed if adding to the present confusion by unnecessarily lumping them together. This course is the safer one also for the reason that most writers on the birds of Eastern Asia recognize two or more forms of *A. segetum*.

The next question is, what names shall be applied to the two forms.

In the first place it may now be regarded as a well established fact that Gmelin's and Pallas's *grandis*, which has the bill nearly 4 inches long, is a bird quite different from either of the two forms here discussed. That Middendorff's *grandis*, however, is identical with the specimens from Bering Island can hardly be doubted, so well do their measure-

ments agree with those given as taken from typical Amur specimens.\* They will therefore have to stand as *A. segetum middendorffi*.

The Chinese specimen is probably entitled to the name *A. segetum serrirostris* † on account of its locality. It is difficult to make anything out of Swinhoe's description. He says (P. Z. S., 1871, p. 417): "They are of large size, and peculiar in having huge bills approximating that of *A. grandis*. I have handled several, and they were all so distinguishable." The "*A. grandis*" with which Swinhoe was acquainted was only Middendorff's "*grandis*" (cf. P. Z. S., 1863, p. 323), as the true *grandis* of Pallas and Gmelin at that time had not yet been rediscovered. If the "hugeness" of the bill in his specimen only approximated that of *grandis*, it must have been somewhat similar to that of the Shanghai bird in the National Museum.

Not knowing of the occurrence in Eastern Asia of a slender-billed form like the typical *A. segetum*, I have referred all instances of the latter name to *serrirostris*, where it has been used in opposition to *A. middendorffi*.

It seems as if both forms occur in Japan. In the different lists of the birds of Japan, published by Blakiston and Pryer, we find repeatedly: "There seem to be two forms, a large and a small, possibly separable." Captain Blakiston has most liberally placed his manuscript notes in my hands for a critical review, but as only measurements of the bills of a few specimens are given I can throw very little light on the present question. The measurements given all belong to *A. middendorffi* (80<sup>mm</sup> and 3¼ to 2⅞ inches = 77 to 70<sup>mm</sup>).

Finally, I give the detailed description of my two birds as they were taken down from the fresh specimens less than an hour after their death:

♂ ad., U. S. Nat. Mus. No. 92824, L. Stejueger No. 2022; Ladiginsk, Bering Island, May 10, 1883.

Tip of middle toe (without claw) reaches 72<sup>mm</sup> beyond tip of tail, legs being

\* The measurements given by Severzow of the bill of males from the Amur (Ibis, 1876, p. 417), 1' 9'''—2''\* may probably rest on a mistake or a misprint. Schrenck gives commissure 3 inches (= 76<sup>mm</sup>), and culmen 2' 9'''—2'' 10''' (= 70—72<sup>mm</sup>).

† The following is a partial synonymy of this form:

*Anser segetum serrirostris* SWINH.

1853.—*Anser segetum* MIDDEND., Sibir. Reise, II (p. 225).—SWINH., Ibis, 1860, p. 67.—*Id.*, *ibid.*, 1861, p. 344.—*Id.*, *ibid.*, 1862, p. 253.—*Id.*, *ibid.*, 1867, p. 392.—*Id.*, *ibid.*, 1875, p. 456 (part).—*Id.*, P. Z. S., 1863, p. 323.—SCHRENCK, Reis. Amur., I, p. 462 (1860).—RADDE, Reis. Süd. Ost-Sibir., II (p. 356) (1863).—DYBOW & PARVEY, J. f. Orn., 1868, p. 338.—BLAKIST & PRYER, Ibis, 1878, p. 212 (part)!.—*Id.*, Tr. As. Soc. Jap., VII, 1880, p. 182 (part)!.—(*A. segetum*) *Id.*, *ibid.*, X, 1882, p. 94 (part)!.—BLAKIST., Chrysanth., 1883, p. 27 (part)!.—(*segetum*) *Id.*, Amend. List B. Jap., p. 8 (part)!

1871.—*Anser segetum* var. *serrirostris* SWINH., P. Z. S., 1871, p. 417.—TACZAN., J. f. Orn., 1873, p. 108.—*Id.*, Orn. Faun. Vost. Sibir., p. 67 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 42.



stretched backwards. Weight 10 pounds.\* Iris dark brown. Bill brownish black, with a clear yellow band across the bill.

Not long after the drawing (pl. vii, fig. 1) was made the color changed to a brownish orange, paler and more approaching flesh-color anteriorly. Feet orange, with more yellowish webs, and black nails. Rather lean.

No trace of white on feathering bordering the bill.

♀ *ad.*, *U. S. Nat. Mus. No. 92325, L. Stejneger, No. 2023; Ladiginsk, Bering Island, May 10, 1883.*

Middle toe reaches 68<sup>mm</sup> beyond the tail. Weight 8½ pounds. Iris dark brown. Color of bill very much as in the specimen above, the yellow, however, being of a paler shade, and not extended behind the nostrils. Feet as in the foregoing. Rather fat. Eggs swollen, the largest one having a diameter of 15<sup>mm</sup>.

Feathering along the base of bill with faint traces of white semilunes, these, however, being strongly tinged with rusty.

Grebniński's specimen (No. 101207) is very much like the latter, but there are faint yellowish mottlings along the lower border of the nostrils, and no trace of white on the feathers encircling the bill.

This goose, which is said to be very common in many parts of Kamtschatka, is not of regular occurrence on Bering Island even during the migrations. The appearance of a small flock in May, 1883, out of which the present pair were shot, was due to the same cause which brought so many Kamtschatkan species over to the islands. From Governor Grebniński I afterwards received a specimen shot on Bering Island May 22, 1884.

#### 58. *Anser albifrons gambeli* (HARTL.).

1827.—*Anser albifrons* BONAP., Specchio Comp., p. 70.—*Anser a.* SWINH., Ibis, 1875, p. 456.—*Id.*, *Ibid.*, 1877, p. 146.—BLAKIST. & PRYER, Ibis, 1878, p. 212.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 182.—*Id.*, *ibid.*, X, 1882, p. 95.—BLAKIST., Amend. List B. Jap., p. 8 (1884).

1852.—*Anser gambeli* HARTL., Rev. and Mag. Zool., 1852, p. 7.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 294.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 5 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 6 (1874).

1852.—*Anser erythropus* BAIRD, Stansbury's Rep., 1852 (p. 321) (*nee* LIN.).—SCHLEG., Mus. P. B. Anser., p. 110 (1867).

1872.—*Anser albifrons* var. *gambeli* COUES, Key, 1 ed., p. 282.—NELSON, Cruise Corwin, p. 93 (1883).—TURNER, Ank, 1885, p. 158.

1875.—*Anser brachyrhynchus* SWINH., Ibis, 1875, p. 456 (*nee* BAILL.).—BLAKIST. & PRYER, Ibis, 1878, p. 212.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 182.—*Id.*, *ibid.*, X, 1882, p. 95.—SEEB., Ibis, 1883, p. 369.—BLAKIST., Chrysanth., 1883, p. 27.—*Id.*, Amend. List B. Jap., p. 33 (1884).

Schlegel has already pointed out that the Japanese white fronted geese belong to the large American form which, by Hartlaub, has been called *gambeli*, and Nelson gives it as occurring on the Siberian coast of Bering Sea. The specimen obtained by me on Bering Island confirms these statements, since it certainly belongs to the typical *A gambeli*, as

\* Cfr. Severzow (*l. c.*), "10-10½ lb."

will be seen from the measurements given below; it matches average North American specimens in every particular.

On the average the American birds are larger and their bills bigger than true *A. albifrons*, although the difference is much less than between the latter and *erythropus*. In the United States National Museum, however, there is a specimen said to be from Abydos, which is fully as large as the average American birds. The locality is not undoubted, however, and the specimen may have come from America. On the other hand, a winter specimen from Texas is not larger than typical *albifrons*, but is probably a migrant from Greenland, where this form breeds and where *A. gambeli* is not known to occur.

At all events, the measurements which I have taken have convinced me that *gambeli* is only a race or subspecies of *albifrons*, while the latter may be regarded as specifically distinct from *erythropus*.

The specimen from Bering Island measures:

♀ ad., U. S. Nat Mus. No. 92826, L. Stejneger No. 2021; Kamennij valley, Bering Island, May 10, 1883.

Total length 685<sup>mm</sup>. Closed wings beyond tail 20<sup>mm</sup>. Middle toe (without claw) reaches tip of tail, legs being stretched backwards. Wing 417<sup>mm</sup>. Tail-feathers, 124<sup>mm</sup>. Bill, from tip to frontal feathering, 51<sup>mm</sup>; along gape to angle of mouth 52<sup>mm</sup>; to posterior angle of nostrils 37<sup>mm</sup>. Breadth of bill at middle of nostrils 18<sup>mm</sup>; height at base 29<sup>mm</sup>. Tarsus 78<sup>mm</sup>. Middle toe with claw 76<sup>mm</sup>.

The following notes were taken down immediately after the bird was shot and a colored drawing (pl. vii, fig. 2) made:

Weight 6 $\frac{3}{4}$  pounds. Iris very dark brown. Bill, milky white; the anterior part and tomlia with a very faint rosy tinge; the posterior parts with a hardly perceptible wash of bluish; a square figure on culmen, edges of nostrils, a small spot beneath them, and the basal two-thirds of the lower half of the under mandible, cadmium yellow; naked skin on mental angle and corner of mouth of the same color, but paler; a stripe along the forehead pale brownish yellow; nail cream colored; naked eye-ring, dark brownish gray. Feet vivid cadmium yellow; webs somewhat paler and purer yellow; nails horny white. Fat.

The colors changed about an hour after the colored drawing was finished, the white becoming flesh-color.

This specimen was shot on the same day on Bering Island as the pair of the foregoing species, but in a different part of the island. At least three were seen. It seems to occur regularly during the spring migration, and has already been mentioned by Steller from Bering Island. In 1882 I had the opportunity of examining two specimens shot on Lake Saranna, Bering Island, in April. They were prepared by Mr. Grebnitski, who had them forwarded to St. Petersburg. The culmen of the male measured 51<sup>mm</sup>.

59. *Branta canadensis hutchinsii* (RICH.).

- 1826.—*Anser canadensis* PALL., Zoogr. Ross. As., II, p. 230.  
 1831.—*Anser hutchinsii* RICHARDS, in Sw. & Rich. Faun. Bor. Amer., II, 470.—*Bernicla* h. DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 295.—FINSCH, Abh. Ver. Brem. III, 1872, p. 20.—SEEB., Ibis, 1882, p. 309.—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 96.—BLAKIST., Amend. List B. Jap., pp. 9, 33 (1884).  
 1836.—*Anser leucopareus* BRANDT, Bull. Sc. Acad. St. Petersb., I, 1836, p. 37.—A. (*Bernicla*) l. Id., Descr. and Icon. Anim. Ross. Nov. Aves, I, p. 13.—*Bernicla* l. BLAKIST. & PRYER, Ibis, 1878, p. 212 —*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 183.—*Branta* l. STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 70.  
 1872.—*Branta canadensis* var. *hutchinsii* COUES, Key N. Am. B., p. 234.—TURNER, Auk, 1885, p. 158.

A comparison of undoubted specimens of the true *hutchinsii* with skins from the Aleutian Islands and Brandt's original description, containing the dimensions of *leucopareus*, convinces me that these two names are absolute synonyms, being different, however, from what has usually been called *leucopareia* by American writers. In 1858 Baird (Hist. N. Amer. B., p. 765) headed a species *leucopareia* to which he gave the name *occidentalis* in the text, suspecting it to be different from Brandt's bird, as it really was. Afterwards the name *leucopareia* was applied by Dr. Coues to a small short-billed race, specimens of which were obtained at the Prybiloff Islands, and herein American authors have afterwards followed him when speaking of the same form as occurring in Alaska, or, during the migrations, in more southern localities along the western coast. This race, which probably is a northern and northwestern form of *occidentalis*, in the same manner as *hutchinsii* seems to be a northern and northwestern form of the true *canadensis* has been called *Branta minima* by Robert Ridgway. Both this and *hutchinsii* (= *leucopareia*) inhabit Alaska, and hence the confusion.

Several marks have been given as distinctive of the two small forms, *hutchinsii* and *minima*, *e. g.*, the absence or presence of a white ring round the lower part of the neck, the absence or presence of a black "bridge" separating the two white cheek-patches, &c., but none of these characters hold good through an extensive series. The really distinctive marks seem to be the relative length of the bill, it being longer in *hutchinsii*, besides the lighter surface of the latter form, the color of the breast fading gradually into the white of the belly, while in *minima* the limit is abrupt and well marked. Both forms have sixteen tail-feathers, and are about of the same size.

Captain Blakiston was correct in identifying the birds from Japan as *leucopareia*, and so was Mr. Seebohm when he afterwards referred them to the true *hutchinsii*, but he is entirely wrong when saying (Ibis, 1882, p. 369): "A skin sent (No. 2621) proves to be of this species (*hutchinsii*), and not of *B. leucopareia*. The former has sixteen tail-feathers, with the wing 16 inches long, whilst the latter is said to have eighteen tail-feathers, with the wing 18 inches long." He evidently confounds *leucopareia* with *B. occidentalis* BAIRD, which, like *canadensis*, is said to have eighteen to twenty rectrices,(?) and the wing measuring from 16.25 to 18 inches, while *leucopareia* (= *hutchinsii*) has only sixteen tail-feathers, and the wing from 13.60 to 16.35 inches long. I find in Captain Blakiston's manuscript notes measurement of birds from the Kuriles agreeing closely with those of true *hutchinsii*. Mr. Seebohm has apparently been led to make the above statement by not being aware that Baird's *leucopareia* (B. N. A., p. 765) is the same author's *occidentalis*, which is different from Brandt's *leucopareia*.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing beyond tail.	Wing.	Tail-feathers.	Bill from frontal feathers.	Bill along gape.	Bill to hind border of nostrils.	Breadth of bill at nostrils.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
89109	1259	Bering Island	July 11, 1882						34	40	27	18
92827	2165	.. do .....	June 9, 1883	♂ ad..	657	0	390	108	32	37	24	17

No. 89109.—Head only.

No. 92827.—Bill and feet black. Testes small, hardly 10<sup>mm</sup> long. Rather lean. Weight 4½ pounds. Number of rectrices 15.

Hutchinson's white-cheeked goose is probably the only one of the *Leucoblepharon* group which breeds in the Palearctic ornis. As already announced in my preliminary report (Pr. U. S. Nat. Mus., 1883, p. 70), I found it breeding in small numbers on Bering Island, where I observed them repeatedly on the large swamp east of the village, and where afterwards an adult was shot and one of the six downy young captured. My hope that the latter might escape being eaten by any of the six hundred dogs of the village was not fulfilled.

In 1883 the first arrivals were announced on the 2d of May, and on the 9th of June a male was killed near Saranna.



This species has also been found breeding on the Kurile Islands, and seems to pass the winter in Japan. It is nowhere common in the Old World, where it probably is only an immigrant of comparatively late date.

#### 60. *Branta nigricans* (LAWR.).

- 1826.—*Anser brenta* PALL., Zoogr. Ross. As., II, p. 229 (part).  
 1846.—*Anser nigricans* LAWRENCE, Ann. Lye. N. Y., IV, 1846, p. 171.—*Bernicla n.* DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 295.—DALL, Avif. Aleut. Isl. west Unal., p. 6 (1874).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 166.—NELSON, Cruise Corwin, p. 94 (1883).—BLAKIST., Amend. List B. Jap., p. 33, (1884).  
 1858.—*Anas bernicla* KITTL., Denkw., II, p. 384 (nec LIN.).  
 1878.—*Bernicla torquata* BLAKIST. & PRYER, Ibis 1878, p. 212 (nec VIEILL.)—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 183.—*Id.*, *ibid.*, x, 1882, p. 96.  
 1882.—*Bernicla brenta nigricans* COUES, Check-list, 2 ed., p. 112.—SEEB., Ibis, 1884, p. 32.

The Black Brant has already in "The Ibis" for January of last year been shown to occur in the eastern part of the Palæartic region, as it winters in Northern Japan.

On the islands visited by me it only occurs during the migrations, and even then very sparingly. A young female, the only specimen caught during my stay, was obtained late in fall, when swimming at sea, a little off the northern shore. It kept company with some individuals of *Phalacrocorax pelagicus*, no others of its own kind being seen in the neighborhood. The œsophagus contained green algæ and leaves of a *Zostera*. It was very fat. The measurements are as follows:

♀ jun., U. S. Nat. Mus. No. 92828, *Stejneger*, No. 1712; *Svernij, Bering Island, November 8, 1882.*

Total length 568mm. Tail beyond wings 15mm. Wing 330mm. Tail-feathers 88mm. Bill along gape 33mm. Tarsus 64mm. Middle toe, with claw 55mm. Weight 5 pounds. Iris dark brown.

#### 61. *Olor cygnus* (LIN.).

1758. *Anas cygnus* LIN., Syst. Nat., 10 ed., I, p. 122 (part).  
 1779. *Anas olor* PALL., Sv. Vet. Acad. Handl., XL, p. 27 (nec GMEL., 1788).—*Cygnus o. Id.*, Zoogr. Ross. As., II, p. 211 (part) (1826).  
 1809.—*Cygnus musicus* BECHST., Gemein. Naturg. Deutschl., IV, p. 830.—MIDDEND., Sibir. Reise, II, 2 (p. 224) (1853).—SCHRENCK, Reis. Amurl., I, p. 455 (1860).—SWINH., Ibis, 1862, p. 254.—*Id.*, *ibid.*, 1875, p. 456.—*Id.*, P. Z. S., 1863, p. 323.—*Id.*, *ibid.*, 1871, p. 416.—BLAKIST., Ibis, 1862, p. 332.—*Id.*, Chrysanth., 1883, p. 26.—*Id.*, Amend. List B. Jap., p. 23 (1884).—RADDE, Reis. Süd. Ost-Sibir., II (p. 348) (1863).—DYBOW. & PARVEX., J. f. Orn., 1863, p. 338.—PRZEW., Putesch. Ussur. (n. 189) (1870).—TACZAN., J. f. Orn., 1873, p. 108.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Bull. Soc. Zool. France, 1877, p. 44.—*Id.*, *ibid.*, 1883, p. 343.—*Id.*, Orn. Faun. Vost. Sibir., p. 68 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 211.—*Id.*, Tr. As. Soc. Jap. VIII, 1880, p. 182.—*Id.*, *ibid.*, X, 1882, p. 94.

No specimens of this swan were procured, but I identified several heads in Petropaulski as belonging to the Hooper, which, in fact, is the common species of this region. During the winter 1882-'83, swans were repeatedly observed on Bering Island, but as they were extremely shy none were obtained, nor was it even possible to get so near to them as to be able to identify the species with absolute certainty. I have little doubt, however, that they belonged to the species in question, and not to the following.

The first ones were observed on October 15, 1882, when a flock of six individuals was seen flying over the village, Bering Island, from west to east. Two seem to have passed the winter at Severnij, where they were observed on January 10 and March 18, 1883. Another was reported from Zapadnij, April 24, 1883.

#### 62. *Olor columbianus* (ORD).

1815.—*Anas columbianus* ORD in Guthrie's Geogr. 2d Amer. ed. (p. 319).—*Olor c.* TURNER, Ank, 1885, p. 157.

1831.—*Cygnus americanus* SHARPLESS in Doughty's Cab. Nat. Hist., I, No. 8, p. 185.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 293.—DALL, Avif. Aleut. Isl., west Unal., p. 6 (1874).—*Olor a.* NELSON, Cruise Corwin, p. 92 (1883).

On November 3, 1882, one of the natives of Bering Island brought me a young swan, shot at Fedoskija, which puzzled me not a little.

According to all information, the two species of swans of Eastern Asia should be *Olor cygnus* and *Olor bewickii*, and the specimen, therefore, ought to belong to one of them. The young of these species have been considered difficult to distinguish, but in my "Monograph of the Cygninæ" (Pr. U. S. Nar. Mus., Stat. 1882, p. 174 seqv.) I had pointed out a character, which I was now going to try. A close examination showed me that my specimen, a young male, in its gray plumage, was just a little larger than the largest *O. bewickii* ever measured by me (more than twenty), being much smaller, however, than young *O. cygnus* (= *musicus*) of the same age. But, while agreeing better with *bewickii* as to size, the bill was essentially that of *O. cygnus*, not high at the base, with nearly perpendicular *processus maxillaris* of the nasal bone, as in the former, but rather depressed and with the said *processus* decidedly oblique, as in the latter. In addition to these features the bird was remarkable for having the feet colored white; not light gray, but decidedly white. I at first fancied it to be a smaller eastern representative of *O. cygnus*, but heads of adults of the latter from Kamtschatka convinced me that eastern specimens of the Hooper are as typical as those from Europe.

The measurements agreed, however, still better with those of *Olor columbinaus* (= *americanus*), and a careful comparison with specimens of the latter in the National Museum renders it absolutely certain that the bird shot on Bering Island belongs to this American species. This is the first record of the Whistling Swan having been obtained in Asia.

The young American Whistling Swan agrees with *O. cygnus* in having the bill depressed at base and the *processus maxillaris* of the nasal bone much oblique, thus being easily distinguished from *Olor bewickii*. It is, however, much smaller than *O. cygnus*, and the outline of the culmen is different, being slightly concave in the latter, while straight or rather convex in *O. columbianus*.

My specimen is a perfect counterpart of examples from various parts of America in the National Museum, being only a trifle lighter and with whitish feet. In the latter respect it seems to agree with No. 81230 from Alaska, which in all probability had the feet equally light when alive. In all other respects the Bering Island bird matches No. 85579 (cfr. description and measurements in my Monograph, *tom. cit.*, p. 212). A comparison of the measurement of the two specimens will be appended below.

The following notes on the color of the naked parts were written down immediately after receiving the bird: Iris dark brown. Bill and lores whitish flesh-color, tinged with reddish in front of the nostrils, with bluish behind those, and with yellowish at the base, and on the naked eye-ring; terminal half of the portion between nostrils and tip, including the nail, as also the borders of the nostrils and tomia, blackish; naked skin of mental angle flesh-color. Feet white, with a faint bluish tinge, and with a yellowish wash on the lower part of tarsus in front, and on the sides of the toes; webs, under surface of feet, and upper portion of tarsus mottled with dark gray; claws horny white, black towards the tips.

## Table of dimensions.

[Taken from the fresh specimens.]

Olor columbianus.	U. S. Nat. Mus. No. 85579. Curtituck, North Carolina, November 28, 1881, jun.		U. S. Nat. Mus. No. 92823; Stejneger No. 1709, Bering Island, November 3, 1882, ♂ jun.	
	mm.	mm.	mm.	mm.
Total length .....	1183	1165		
Tip of tail beyond closed wings.....	63	40		
Length of bill along gape .....	84	88		
Length from tip to the front of the nostrils.....	39	45		
Length to the fore border of the eye .....	108	113		
Breadth of bill at the middle of the nostrils.....	31	29		
Length of toes with claws:				
Outer toe .....	130	126		
Middle toe .....	138	128		
Inner toe .....	107	112		
Hind toe .....	26	26		
Length of tarsus.....	110	112		
Length of wing.....	510	550		
Length of longest tail-feathers.....	137	134		
Stretch of wings .....		2060		

The weight of the Bering Island specimen was 12½ pounds.

It was most likely an accidental straggler, as, in all probability, the other swans observed during the winter belonged to the species common in the region, *O. cygnus*.

63. *Anas boschas* LIN.

1758.—*Anas boschas* LIN., Syst. Nat., 10 ed., I, p. 127.—PALL., Zoogr. Ross. As., II, p. 225 (1826).—MIDDEND., Sibir. Reise, II, 2 (p. 229) (1853).—KITTL., Denkw., II, p. 294 (1858).—SCHRENCK, Reis. Amurl. I, p. 472 (1860).—SWINH., Ibis, 1861, p. 344.—*Id.*, *ibid.*, 1862, p. 254.—*Id.*, *ibid.*, 1877, p. 146.—*Id.*, P. Z. S., 1863, p. 324.—*Id.*, *ibid.*, 1871, p. 417.—BLAKIST., Ibis, 1882, p. 332.—*Id.*, Chrysanth., 1883, p. 27.—RADDE, Reis. Süd. Ost-Sibir. II, (p. 363) (1863).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 296.—PRZEW., Putesch. Ussur. (n. 197) (1870).—DALL. Avif. Aleut. Isl. Unal. eastw., p. 5 (1873).—TACZAN., J. f. Orn. 1873, p. 109.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, Orn. Faun. Vost. Sibir., p. 69 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 45.—*Id.*, *ibid.*, 1883, p. 343.—BLAKIST. & PRYER, Ibis, 1878, p. 213.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 183.—*Id.*, *ibid.*, X, 1882, p. 96.—SEEB., Ibis, 1879, p. 22.—HARTLAUB, J. f. Orn., 1883, p. 281.—NELSON, Cruise Corwin, p. 95 (1883).—TURNER, Auk, 1885, p. 158.

The Wild Duck is known by the natives as "*Selesenn*," being very numerous on Bering Island, and the only member of the group *Anatinae* wintering there, although in limited numbers.



On Copper Island it is only met with during the migrations, as there are few or no localities suitable for it to breed.

In Kamtschatka it is, of course, of common occurrence.

*List of specimens.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	Date.	Sex and age.	Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.
89117	1045	Bering Island .....	May 13, 1882	♂ ad.	283	92	55	46	61
101210	G. 21	do. ....	April—, 1884	(♂) ad.	280	95	55	44	57

REMARKS.—Iris dark brown. Bill olive; nail black. Feet light salmon red; webs blackish towards the middle.

Eggs were taken during the first part of June and measure as follows:

U. S. Nat. Mus. No. 21795, *Stejn.* No. 1172, Toporkoff Island, June 6, 1882; belonging to a clutch of nine; 60 by 41.5mm; 59 by 42.5mm.

Mus. No. 21781, S. No. 2194, Kamennij Vall., Bering Island, June 19, 1883; set complete: 56.5 by 44mm; 56.5 by 44mm; 56.25 by 42.5mm; 55 by 43mm; 56 by 42mm; 56 by 42.5mm; 56 by 42.5mm.

**64. *Dafila acuta* (LIX.).**

1758.—*Anas acuta* LIN., Syst. Nat., 10 ed., I, p. 126.—NORDMANN in Erman's Verz. Th. Pfl., p. 18 (1835).—TEMM. & SCHLEG., Faun. Jap. Av. (p. 123).—MIDDEND., Sibir. Reis., II, 2 (p. 233) (1853).—KITTL., Denkw., II, p. 292 (1858).—SCHRENCK, Reis. Amurl., I, p. 481 (1860).—RADDE, Reis. Süd. Ost-Sibir. II (p. 371) (1863).—SWINH., P. Z. S., 1863, p. 324.—PRZEW., Putesch. Ussur. (n. 204) (1870).—FINSCH, Abh. Brem. Ver., III, 1872, p. 66.—*Dafila a.* CASSIN, Exp. Jap. Perry, II, p. 231 (1857).—SWINH., Ibis, 1861, p. 345.—*Id.*, *ibid.*, 1867, p. 399.—*Id.*, *ibid.*, 1877, p. 147.—*Id.*, P. Z. S., 1871, p. 413.—BLAKIST., Ibis, 1862, p. 332.—*Id.*, Amend. List B. Jap., p. 9 (1884).—WHITELEY, Ibis, 1867, p. 207.—DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 297.—TACZAN., J. f. Orn., 1873, p. 109.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, Orn. Faun. Vost. Sibir., p. 69 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 45.—*Id.*, *ibid.*, 1883, p. 343.—BLAKIST. & PRYER, Ibis, 1878, p. 213.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 184.—*Id.*, *ibid.*, X, 1882, p. 97.—SEER., Ibis, 1879, p. 22.—NELSON, Cruise Corwin, p. 96 (1883).

1816.—*Anas caudata* LEACH, Syst. Cat. M. B. Brit. Mus., p. 33.—PALL., Zoogr. Ross. As., II, p. 280 (1826).

The Pintail (Russ. "*Vostrochvost*") arrives at Bering Island during the latter part of April. In 1883 I observed the first ones, while on a sledge trip to the southern end of the island, between Comandore and Polovino, on the 23d of April. Four days later they were seen in the neighborhood of the village. From this time on they were found everywhere in suitable places, as this species is undoubtedly the most numerous

among the fresh-water ducks on the island. Still, on the 20th of May I found them in flocks, but soon the pairs dispersed over the tundras and the swamps of the valleys, and already the 4th of June a nest with seven eggs was secured on Toporkoff Island; six days after, another nest with five eggs was taken.

I have no sure record of its having been found breeding in Copper Island, where, in fact, localities suitable for fresh-water ducks are rather scarce. But I have little doubt that a few pairs breed in Pestsehanij or in Gladkovskij.

The eggs measure as follows:

U. S. Nat. Mus. No.	Stejneger No.	Diameters.	Date.	Locality.	Remarks.
21784	2143	<i>mm.</i> 50 by 37 50.5 by 36 50 by 36.5 50 by 37 50 by 36.5	June 9, 1883	Bering Island.....	Whole clutch.
21796	1162	53 by 39 56 by 39 53 by 38.5 54.5 by 39 53.5 by 38 54 by 39 53 by 38	June 6, 1882	.....do.....	Clutch contained nine eggs.
21797	1114	54 by 38 53 by 38	May 29, 1882	.....do.....	

*List of specimens.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Expos. culmen.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
92832	1397	Bering Island.....	Aug. 3, 1882	♀ juv.	508	*200	90	44
89105	1400	.....do.....	Aug. 5, 1882	♂ juv.	505	*165	87	42
101208	G. 121	.....do.....	June —, 1884	(♂) ad.	.....	263	167	52
101209	G. 95	.....do.....	May 20, 1884	(♂) ad.	.....	254	109	50

\* Primaries not yet fully out.

No. 92832.—Iris dark brown. Bill bluish gray, blackish towards tip. Feet brownish gray, lighter and somewhat yellowish on the front of tarsus and toes.

No. 89105.—Iris blackish brown. Feet brownish gray, with a greenish tinge, and more yellowish on front of tarsus and toes.

65. *Nettion crecca* (LIN.).

1758.—*Anas crecca* LIN., Syst. Nat., 10 ed. I, p. 126.—PALL. Zoogr. Ross. As., II, p. 263, (1826).—TEMM. & SCHLEG. Faun., Japan, Av. (p. 127) (1849).—MIDDEND., Sibir. Reis., II, 2 (p. 230) (1853).—KITTL., Deukw., II, p. 292 (1858).—SCHRENCK, Reis. Amurl., II, p. 474 (1860).—RAUDE, Reis. Süd. Ost-Sibir., II (p. 367) (1863).—SWINH., P. Z. S., 1863, p. 324.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—PRZEW., Pnt. Ussur. (n. 205).—BLAKIST., Ibis, 1876, p. 335.—*Querquedula c.* SWINH., Ibis, 1861, p. 345.—*Id.*, *ibid.*, 1865, p. 347.—*Id.*, *ibid.*, 1867, p. 399.—*Id.* *ibid.*, 1870, p. 366.—*Id.*, *ibid.*, 1877, p. 147.—WHITELY, Ibis, 1867, p. 207.—TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, Oru. Faun. Vost. Sibir., p. 70 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 46.—*Id.*, *ibid.*, 1883, p. 343.—BLAKIST. & PRYER, Ibis, 1878, p. 213.—*Id.*, Tr. As. Soc. Jap. VIII, 1880, p. 184.—*Id.*, *ibid.*, X, 1882, p. 97.—SEEB., Ibis, 1879, p. 22.—BLAKIST., Chrysanth., 1883, p. 27.—*Id.*, Amend. List B. Jap., p. 9 (1884).—*Nettion c.* BLAKIST., Ibis, 1862, p. 332.

List of specimens.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Expos. culmen.
					mm.	mm.	mm.	mm.
89106	1038	Bering Island.....	May 11, 1882	♂ ad.	368	183	66	35
89107	1049	.....do.....	May 14, 1882	♀ ad.	338	168	61	33
89108	1409	.....do.....	Aug. 5, 1882	♂ juv.	.....	.....	.....	31
92834	1408	.....do.....	Aug. 5, 1882	♀	338	162	58	31
101211	G. 80	.....do.....	Apr. —1884	(♀) ad.	.....	175	60	36
92835	2636	Velutschka, Kamtschka.....	Sept. 21, 1883	♀	.....	168	62	34

No. 89106.—Iris hazel. Bill black, with a small light spot between the nostrils and the tomium. Feet light brownish gray; webs darker brownish.

No. 89107.—Iris hazel. Bill olive gray, blackish towards the point; culmen, except a V-shaped space along the angle of the forehead, with black spots; basal two-thirds of upper tomia ochre yellow, as also the lower jaw and mental angle. Feet brownish gray; webs darker than in the foregoing number.

No. 92834.—Iris dark yellowish gray.

The common Teal (*Tschirok* of the Russians) is the commonest fresh-water duck of the region next to the Pintail. It breeds numerously in all suitable places on Bering Island, and a young bird, nearly fledged, which I shot on Copper Island July 26, 1883, proves that it also breeds there, where the localities will in any way allow it to do so, as for instance at Pestschanij Osero.

In 1883 the first Teal was seen in a flock of *Anas boschas*, near the village, on the 13th of April, and another was observed on the southern Kitovaja Reschka. The weather had changed the foregoing day from cold to mild, with rain and southerly wind. Between the 22d and 27th of April I found them very numerous along the southeastern shore, between Cape Tolstoj and Bujan.

In the beginning of August the young ones were already fit for food. I need not say that the young teals were looked upon as a very welcome change in our somewhat uniform diet of corned beef and salmon.

An egg cut from the oviduct, June 11, 1883 (No. 2196; U. S. Nat. Mus. No. 21803), measures 43 by 33.5<sup>mm</sup>.

#### 66. *Querquedula querquedula* (LIN.).

- 1758.—*Anas querquedula* LIN., Syst. Nat., 10 ed., I, p. 126.—PALL., Zoogr. Ross. As., II, p. 264 (1826).—MIDDEND., Sibir. Reis., II, 2 (p. 229) (1853).—RADDE, Reis. Süd. Ost-Sibir., II (p. 371) (1863).—SWINH., P. Z. S., 1863, p. 324.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—PRZEW., Putesch. Ussur. (n. 202) (1870).—*Pterocyanca q.* TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, Orn. Faun. Vost. Sibir., p. 70 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 46.—*Id.*, *ibid.*, 1883, p. 343.
- 1758.—*Anas circia* LIN., Syst. Nat., 10 ed., I, p. 127.—*Querquedula c.* SWINH., Ibis, 1863, p. 434.—*Id.*, *ibid.*, 1867, p. 407.—*Id.*, P. Z. S., 1870, p. 427.—*Id.*, *ibid.*, 1871, p. 418.—TACZAN., J. f. Orn., 1874, p. 337.—BLAKIST. & PRYER, Ibis, 1878, p. 214.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 185.—*Id.*, *ibid.*, X, 1882, p. 98.—BLAKIST., Amend. List B. Jap., p. 34 (1884).—SEEB., Ibis, 1884, p. 175.—STEJNEGER, Naturen, 1884, p. 9.

The Garganey Teal is a bird of rather rare occurrence everywhere, and in Eastern Asia it is not more numerous than elsewhere. It has not been taken on the islands, and a male in very fine plumage, shot on a hunting excursion to Avatscha on the 25th of May, 1883, was the only specimen I obtained in Kamtschatka.

The measurements of this individual are as under:

U. S. Nat. Mus., No. 92,833; L. Stejneger, No. 2056. ♂ ad. Avatscha, Kamtsch., May 25, 1883.

Total length, 380<sup>mm</sup>; tail beyond wings, 5<sup>mm</sup>; wing, 193<sup>mm</sup>; tail-feathers, 66<sup>mm</sup>; exposed culmen, 38<sup>mm</sup>; tarsus, 30<sup>mm</sup>; middle toe with claw, 42<sup>mm</sup>.

The following notes were taken down from the fresh bird: Iris yellowish brown; bill dark pearl gray, with an olive wash on culmen and anterior half; feet gray, with a faint brownish tinge on the joints; webs blackish. Rather fat. Testes very large, swollen.

#### 67. *Eunetta falcata* (GEORGI).

- 1775.—*Anas falcata* GEORGI, Reis. Russ., I (p. 167).—PALL., Zoogr. Ross. As., II, p. 259 (1826).—MIDDEND., Sibir., Reis., II, 2 (p. 231) (1853).—KITTL., Denkw. II, p. 307 (1858).—SCHRENCK, Reis. Amurl., I, p. 476 (1860).—RADDE, Reis. Süd. Ost-Sibir., II (p. 369) (1863).—SCHLEG., Mus. P. B. Anser, p. 72 (1866).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 338.—PRZEW., Putesch. Ussur. (n. 201).—BLAKIST., Ibis, 1876, p. 335.—*Marca f.* CASSIN, Exp. Jap. Perry, II, p. 231 (1857).—*Eunetta f.* SWINH., P. Z. S., 1871, p. 419.—*Id.*, Ibis, 1874, p. 164.—STEJNEGER, Naturen, 1884, p. 9.—*Querquedula f.* TACZAN., J. f. Orn., 1873, p. 109.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, *ibid.*, 1875, p. 257.—*Id.*, Orn. Faun. Vost. Sibir., p. 69 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 45.—*Id.*, *ibid.*, 1883, p. 343.—BLAKIST. & PRYER, Ibis, 1878, p. 214.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 105.—*Id.*, *ibid.*, X, 1882, p. 98.—BLAKIST., Amend. List B. Jap., p. 9 (1884).—*Nettion f.* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.



- 1776.—*Anas falcaria* PALL., Reis. Russ. Reich, III (p. 701).—TEMM. & SCHLEG., Faun. Jap. Av. (p. —) (1849).—SWINII., Ibis, 1861, p. 345.—*Id.*, *ibid.*, 1862, p. 254.—*Id.*, P. Z. S., 1863, p. 324.—*Querquedula f.* BLAKIST., Ibis, 1862, p. 332.  
1860.—*Querquedula multicolor* SWINII., Ibis, 1860, p. 67 (*neo* SCOPOLI?).

## List of specimens obtained.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When obtained.	Sex and age.	Total length.		Tail beyond wings.		Wing.	Tail feathers.	Edges culmen.
					mm.	n.m.	mm.	mm.			
89112	1157	Bering Island .....	June 4, 1882	♂ ad.	435	.....	.....	.....	.....	.....	.....
92839	2047	Petropaulski, K. ....	May 19, 1883	♂ ad.	494	0	245	71	43	43	43
92840	2053	Petropaulski, K. ....	May 19, 1883	♂ ad.	.....	.....	243	73	43	43	43
92841	2061	Avatscha, K. ....	May 25, 1883	♂ ad.	483	.....	240	69	41	41	41

No. 89112.—Iris dark hazel. Bill uniform horny black. Feet delicate light olive gray, with yellowish tinge on the scutella of the tarsus; joints darker grayish; webs and under side blackish brown. Contents of stomach, leaves of plants.

No. 92839.—Bill blackish gray, with an olivaceous tinge. Feet, middle gray, joints darker, webs blackish. Tip of middle claw—legs being stretched backwards—20mm beyond tip of tail. Extremely fat. Testes large, swollen. Oesophagus contained grass.

The Falcated Teal (*Kassatoj Selcsenn* of the Russians), perhaps the prettiest species of the whole group, is a regular summer visitant to Kamtschatka, but seems not to be very numerous. During my trip to Petropaulski in the spring of 1883 I obtained several adult males, but it must be remembered that the rivers and lakes were not open yet, and that snow covered the ground everywhere, so that the ducks which had already arrived were compelled to await the opportunity of getting at their summer resorts, therefore congregating in large numbers at the mouths of the rivers.

It has been observed on Bering Island during the spring migration, and a few pairs may perhaps even breed, for instance, in the upper part of Kamennij Valley, but it is at all events a very rare bird there. A single specimen, a beautiful male, was procured on the 4th of June, 1882.

68. *Mareca penelope* (LIN.).

- 1758.—*Anas penelope* LIN., Syst. Nat., 10 ed., I, p. 126.—PALL., Zoogr. Ross. As., II, p. 251 (1826).—NORDMANN in Erman's Verz., Th. Pil., p. 18 (1835).—TEMM. & SCHLEG., Faun. Jap. Av. (p. 127) (1849).—MIDDEND., Sibir. Reis., II, 2 (p. 229) (1853).—KITTL., Denkw., II, p. 292 (1858).—SCHRENCK, Reis. Amurl., I, p. 471 (1860).—RADDE, Reis. Süd Ost-Sibir., II (p. 363) (1863).—SWINII., P. Z. S., 1863, p. 324.—PRZEW., Putesch. Ussur. (n. 199) (1870).—BLAK., Ibis, 1876, p. 335.—*Lareca p.* CASSIN, Exp. Jap. Perry, III, p. 231 (1857).—SWINII., Ibis, 1861, p. 345.—*Id.*, *ibid.*, 1867, p. 399.—*Id.*, *ibid.*, 1870, p. 366.—*Id.*, *ibid.*, 1875, p. 457.—*Id.*, P. Z. S., 1871, p. 418.—BLAKIST., Ibis,

1862, p. 332.—*Id.*, Chrysanth., 1883, p. 27.—*Id.*, Amend. List B. Jap., p. 9 (1884).—WHITELEY, *Ibis*, 1867, p. 207.—DALL, *Avif. Aient. Isl. Unal. eastw.*, p. 5 (1873).—TACZAN., *J. f. Orn.*, 1873, p. 110.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, *Orn. Faun. Vost. Sibir.*, p. 70 (1877).—*Id.*, *Bull. Soc. Zool. France*, 1876, p. 46.—*Id.*, *ibid.*, 1883, p. 344.—COUES in Elliott, *Affairs Alaska*, p. 191 (1875).—HARTING, *Fanna Prybil. Isl.*, p. 29 (1875).—BLAKIST and PRYER, *Ibis*, 1878, p. 213.—*Id.*, *Tr. As. Soc. Jap.*, VIII, 1880, p. 184.—*Id.*, *ibid.*, X, 1882, p. 97.—ELLIOTT, *Monogr. Seal-Isl.*, p. 130 (1882).—NELSON, *Cruise Corwin*, p. 96 (1883).

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Expos. culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
92829	2081	Bering Island.....	May 23, 1883	(♂) ad.	(481)	246	96	35	40	49
92830	1084	.....do.....	Oct. 13, 1882	jun.	420	238	80	29	35	45

No. 92830.—Iris hazel. Bill bluish-gray; tips, including nail, blackish. Feet bluish-gray with a faint yellowish wash; webs blackish.

The "*Svistsch*" or "*Svistun*," of the Russians, visits Bering Island during the spring migration, but, as it seems, not regularly or in equal numbers every year. Thus in the spring of 1882 none were seen, while during the following spring, from the latter days of April to the first week of June, they were numerous along the beaches of the northwestern part of the island, from Ladiginsk to Tonkij Mys.

69. *Mareca americana* (GMEL.).

1788.—*Anas americana* GMEL., *Syst. Nat.*, I, p. 526.—FINSCHE, *Abh. Brem. Ver.*, III, 1872, p. 66.—TURNER, *Ank.*, 1885, p. 158.—*Mareca a.* DALL & BANNIST., *Tr. Chicag. Acad.*, I, 1869, p. 298.—BAIRD, *Tr. Chicag. Acad.*, I, 1869 (p. 783).—BEAN, *Pr. U. S. Nat. Mus.*, 1882, p. 166.—NELSON, *Cruise Corwin*, p. 96 (1883).

A single individual of the American Widgeon was found dead among the sand dunes near the village, Bering Island, on the 1st of May, 1883. It was moulting, the old plumage very worn, and new feathers protruding all over the body. Some storm had probably carried it astray, as this species is not known as an inhabitant of the Asiatic side of the Pacific Ocean. So far as I am aware, this is the first record of its having ever been obtained in Asia. It was a female, and very lean.

This specimen is almost identical with No. 31947 U. S. Nat. Mus.; a female from Lower California; shot in February, 1860. The only differences are that the chin and upper throat are more brownish and not spotted, and the chin partly shaded with black,

The measurements are as follows:

*U. S. Nat. Mus. No. 92831, L. Stejneger, No. 2009. Bering Island, May 1, 1883. ♀ ad.*

Total length, 44<sup>mm</sup>; tips of closed wings reach tip of tail; wing, 234<sup>mm</sup>; tail-feathers, 73<sup>mm</sup>; exposed culmen, 34<sup>mm</sup>; tarsus, 41<sup>mm</sup>; middle toe, with claw, 50<sup>mm</sup>.

Bill dark plumbeous blue; tips, including nail, tomia, and lower mandible, black; feet plumbeous, with a faint yellowish tinge; webs blackish.

### 70. *Spatula clypeata* (LIN.).

- 1758.—*Anas clypeata* LIN., Syst. Nat., 10 ed., I, p. 124.—PALL., Zoogr. Ross. As., II, p. 282 (1826).—NORDMANN in Erman's Verz., Thier. Pflanz., p. 18 (1835).—TEMM. & SCHLEG., Fann. Jap. Av. (p. 128) (1849).—MIDDEND., Sibir. Reis., II, 2 (p. 233) (1853).—KITTL, Denkw., II, p. 294 (1858).—SCHRENCK, Reis. Amurl., I, p. 481 (1860).—RADDE, Reis. Süd. Ost-Sibir., II (p. 383) (1863).—SWINH., P. Z. S., 1863, p. 324.—PRZEW., Putesch. Ussur. (n. 206), 1870.—BLAKIST., Ibis, 1876, p. 335.—*Rhynchospis c.* SWINH., Ibis, 1861, p. 345.—*Id.*, *ibid.*, 1862, p. 254.—*Id.*, *ibid.*, 1867, p. 337.—TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, Orn. Faun. Vost Sibir., p. 20 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 46.—*Id.*, *ibid.*, 1883, p. 343.—*Spatula c.* BLAKIST., Ibis, 1862, p. 332.—*Id.*, Amend. List B. Jap., p. 9 (1884).—WHITELY, Ibis, 1867, p. 207.—DALL & BANNIST., Tr. Chicag. Ac., I, 1869, p. 297.—SWINH., P. Z. S., 1871, p. 417.—*Id.*, Ibis, 1875, p. 457.—BLAKIST. and PRYER, Ibis, 1878, p. 214.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 185.—*Id.*, *ibid.*, X, 1882, p. 95.—NELSON, Cruise Corwin, p. 96 (1883).

#### List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Expos. culmen.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
92838	2033	Petropaulski .....	May 5, 1883	♂ ad.	473	0	228	77	65
92837	2038	.....do .....	May 17, 1883	♂ ad.	520	10	237	85	63
92836	2114	Bering Island .....	May 31, 1883	♂ ad.	499	10	236	83	65

No. 92838.—Iris, pale yellow; bill black, with the extreme point of the mental angle pale yellowish; feet pale reddish orange; webs violet gray, when alive, the violet tinge disappearing as soon as dead. the color of the web becoming brownish afterwards. Not fat. Tips of tail, tips of closed wings, and middle claw, legs stretched backwards, meet in one point.

The Shoveller, known to the natives by its Russian name, "*Soksun*," is one of the rarer ducks on Bering Island. A few pairs breed probably in the open valleys on the southeastern shore, as, for instance, at Polavino. In 1883 the first ones were observed by me, on the 24th of April, on the beach between Polavino and Slastnoj. At the village they were seen at the end of May, and during the first week of June.

During my stay in Petropaulski, from the middle of May, 1883, to the

end of the month, I found this duck very common at the mouth of the rivers, which at that time were still partly ice-bound. It was then, by far, easier to approach than any other of the many kinds of ducks assembled there waiting for the general breaking up of the rivers.

### 71. *Aythya fuligula* (LIN.).

- 1758.—*Anas fuligula* LIN., Syst. Nat., 10 ed., I, p. 128.—PALL., Zoogr. Ross. As., II, p. 265.—TEMM. & SCHLEG., Faun. Jap. Av. (p. —) (1879).—MIDDEND., Sibir. Rejs., II, 2 (p. 47) (1853).—SCHRENCK, Rejs. Amurl., I, p. 4-4 (1860).—RADDE, Rejs. Süd. Ost-Sibir., II, (p. 375) (1863).—*Platypus f.* DYBOW. & PARVEX, J. f. Orn., 1863, p. 339.
- 1816.—*Anas cristata* LEACH, Syst. Cat. M. B. Br. Mus., p. 39 (*nee* GMEL. 1788).—*Fuligula c.* SWINH., Ibis, 1861, p. 345.—*Id.*, *ibid.*, 1862, p. 254.—*Id.*, *ibid.*, 1867, p. 399.—*Id.*, P. Z. S., 1863, p. 324.—PRZEW., Putesch. Ussur. (n. 209) (1870).—TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, Orn. Faun. Vost. Sibir., p. 70 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 47.—*Id.*, *ibid.*, 1883, p. 344.—BLAKIST. Ibis, 1887, p. 147.—*Id.*, Amend. List B. Jap., p. 9.—BLAKIST. & PRYER, Ibis, 1872, p. 214.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 186.—*Id.*, *ibid.*, X, 1882, p. 99.—SEEB., Ibis, 1879, p. 22.—*Fulix c.* SWINH., P. Z. S., 1871, p. 419.
- 1826.—*Anas colymbis* PALL., Zoogr. Ross. As., II, p. 266.

Although not uncommon in Kamtschatka this duck is only of casual occurrence on Bering Island where a single pair was shot on the 7th of June, 1883, in Kamennij Valley, being in company with several *A. marila*. Only the male was fit for preservation. It is probable that another male was shot during my absence in Petropaulski, in the latter part of May.

The measurements are as follows :

♂ *ad.* U. S. Nat. Mus. No. 92845; L. Stejneger No. 2134. Bering Island, June 7, 1883.

Total length, 417<sup>mm</sup>. Tail beyond wings, 17<sup>mm</sup>. Wing, 199<sup>mm</sup>; tail-feathers, 53<sup>mm</sup>; culmen, 41<sup>mm</sup>; tarsus, 36<sup>mm</sup>; middle toe with claw, 61<sup>mm</sup>.

Iris clear gamboge yellow. Bill grayish-blue; nail black. Feet gray, with a faint olive tinge; joints darker; webs blackish. Very fat.

### 72. *Aythya marila* (LIN.).

- 1761.—*Anas marila* LIN., Faun. Svecica, 2 ed., p. 39.—MIDDEND., Sibir. Rejs., II, 2 (p. 328) (1853).—RADDE, Rejs. Süd. Ost-Sibir., II (p. 375) (1863).—PRZEW., Putesch. Ussur. (n. 210) (1870).—*Fuligula m.* SWINH., Ibis, 1861, p. 345.—*Id.*, *ibid.*, 1862, p. 254.—*Id.*, P. Z. S., 1863, p. 324.—WHITELY, Ibis, 1867, p. 208.—TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, *ibid.*, 1876, p. 202.—*Id.*, Orn. Faun. Vost. Sibir., p. 70 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 47.—*Id.*, *ibid.*, 1883, p. 344 (*marila*, *err. typ.*).—BLAKIST. & PRYER, Ibis, 1878, p. 214.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 185.—*Id.*, *ibid.*, X, 1882, p. 98.—BLAKIST., Amend. List B. Jap., p. 9 (1884).—*Platypus m.* DYBOW. & PARVEX, J. f. Orn., 1868, p. 339.—*Fulix m.* SWINH., P. Z. S., 1871, p. 419.—*Id.*, Ibis, 1875, p. 457.



The Scaup Duck of the region is in every particular identical with the common form inhabiting the Atlantic portion of the palæartic continent, the true *A. marila*, from which is distinguishable a representative of the American *Aythya affinis* (EYTON), found in China and Japan, and entitled to recognition as *Aythya affinis mariloides* (VIG.). Nor must *A. marila* be confounded with its American subspecies *Aythya marila nearctica* STEJNEGER, which differs from the true *marila* in exactly the same manner as does *A. affinis* from *A. affinis mariloides*. The difference in size and in the light markings on the primaries is easily observable both in the males and the females. The males have the same additional distinguishing characters, and their differences may be tabulated thus:

*a*<sup>1</sup>. Size smaller; reflections on head chiefly purple; flanks narrowly vermiculated with dusky.

*b*<sup>1</sup>. Primaries from the fourth quill without whitish on the inner web, the latter being only a trifle paler than the rest of the quills.

1. *A. affinis* (EYTON).

*Hab.*—Nearctic Region, generally.

*b*<sup>2</sup>. Primaries from the fourth with a distinct white area on the inner web.

1a. *A. affinis mariloides* (VIGORS).

*Hab.*—Pacific coast of Asia, from Japan southward.

*a*<sup>2</sup>. Size larger; reflections on head green; Flanks uniform white without dusky vermiculations.

*b*<sup>1</sup>. Primaries from the fourth quill with a distinct white area on the inner web.

2. *A. marila* (LIN.).

*Hab.*—Palæartic Region, generally.

*b*<sup>2</sup>. Primaries from the fourth quill with a grayish—but not white—area on the inner web.

2a. *A. marila nearctica* STEJNEGER.

*Hab.*—Nearctic Region. Specimens examined from Alaska, Pacific coast, Guatemala, Arctic and Atlantic coasts, and interior of the United States.

Quite extensive series have been examined and the characters found to hold good in every single instance. As will be seen, the Palæartic forms agree in the pattern of the wing, having a quite pronounced white area on the inner webs of the inner primaries, a design only faintly marked in their American representatives, which have the corresponding area dull brownish gray.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
89111	1144	Bering Island.....	June 2, 1882	♂ ad..	<i>mm.</i> 465	<i>mm.</i> 211	<i>mm.</i> 55	<i>mm.</i> 41	<i>mm.</i> 38	<i>mm.</i> 67
92842	1480	.....do.....	June 20, 1882	(♂) ad..	.....	.....	.....	.....	.....	.....
89101	1145	.....do.....	June 2, 1882	♀ ad..	436	200	54	43	37	62
92843	1481	.....do.....	June 20, 1882	(♀) ad..	.....	204	52	41	37	65
89100	1139	.....do.....	June 1, 1882	♀ ad..	436	215	56	44	40	67
92844	1401	.....do.....	Aug. 5, 1882	pull..	.....	.....	.....	.....	24	23
.....	1462	.....do.....	Aug. 5, 1882	pull..	.....	.....	.....	.....	.....	.....

No. 89111.—Iris rich brown-yellow; bill clear bluish gray; nail and naked skin on mental angle black; feet dirty gray with a faint tinge of bluish; webs and soles blackish.

No. 89101.—As foregoing, but bill with a shade of brownish black on culmen, and feet more distinctly bluish.

No. 92844.—Iris dirty yellow; bill dark bluish gray; lower mandible flesh-colored; feet gray, with a slight greenish tinge; webs blackish, yellowish along the toes.

The Scaup Duck is known to the natives by the Russian name "*Tschernik*," being one of the most numerous ducks breeding on Bering Island. They arrive in the beginning of May (in 1883 on the 5th), and soon disperse over the island, taking up their residence at the numberless lakes, lakelets, and ponds. In the beginning of August the young are seen swimming with their parents.

The eggs measure as follows:

U. S. Nat. Mus. No.	L. Stejneger No.	Diameters.	Date.	Locality.	Remarks.
21793	1394	<i>mm.</i> 63 by 43 66 by 43.5	July 1882	Bering Island .....	Full clutch.
21792	1161	62.5 by 43 63 by 43 62 by 43 62 by 42 64 by 42 63.25 by 42.5	June 6, 1882	.....do.....	

73. *Clangula clangula* (LIN.).

- 1758.—*Anas clangula* LIN., Syst. Nat., 10 ed., I, p. 125.—PALL., Zoogr. Ross. As., II, p. 271 (1826).—TEMML. & SCHLEG., Faun. Jap. Av. (p. 128) (1849).—MIDDEND., Sibir. Reis., II, 2 (p. 287) (1853).—KITTL., Denkw., II, pp. 248, 278 (1858).—SCHRENCK, Reis. Amurl., I, p. 481 (1860).—RADDE, Reis. Süd. Ost-Sibir., II, p. 374 (1863).—*Faligula c.* PRZEW., Putesch. Ussur. (n. 207) (1870).—*Bucephala c.* SWINIL., P. Z. S., 1871, p. 419.—*Id.*, Ibis, 1877, p. 147.—*Glauclion c.* TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, Orn. Faun. Vost. Sibir., p. 71 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 47.—*Id.*, *ibid.*, 1883, p. 344.
- 1758.—*Anas glaucion* LIN., Syst. Nat., 10 ed., I, p. 126 (*nec* PALL.).—*Clangula g.* SWINIL., Ibis, 1861, p. 345.—WHITELY, Ibis, 1867, p. 208.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 339.—BLAKIST. & PRYER, Ibis, 1878, p. 215.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 186.—*Id.*, *ibid.*, X, 1882, p. 99.—BLAKIST., Amend. List B. Jap., p. 9 (1884).
- 1826.—*Anas hycmalis* PALL., Zoogr. Ross. As., II, p. 270 (*nec* LIN. 1758).

List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Expos. culmen.
					mm.	mm.	mm.	mm.	mm.
92869	1762	Bering Island .....	Nov. 29, 1882	♂ jun	468	.....	202	83	33
92870	1771	.....do.....	Dec. 3, 1882	♂	400	29	194	68	33

No. 92869.—Iris light brownish-yellow. Bill olive black, above the nostrils lighter olive-gray. Feet yellowish-brown, joints and underside darker brownish; webs blackish-brown. In stomach only plenty of small stones.

No. 92870.—Bill olive-black, lighter olive-gray between nail and nostrils and on the culmen between the latter.

The “*Gogol*” of the Russians occurs in small numbers on Bering Island during the winter. They do not breed there, and the latest observed—three females and two males—were seen at Saranna Reschka on March 18, 1883. It was one of the most difficult ducks to approach, on account of its extreme shyness.

CHARITONETTA \* n. gen.

(Type *Anas albcola* LIN.)

- < 1758.—*Anas* LIN., Syst. Nat., 10, ed., I, p. 124.  
 < 1824.—*Clangula* STEPHENS, Gen. Zool., XII, pt. ii, p. 184.  
 < 1828.—*Faligula* BONAP., Syn., p. 394.  
 < 1858.—*Bucephala* BAIRD, B. North Amer., p. 797 (type *A. albcola* LIN.) (*nec Bucephalus* BAER, 1827, qui *Ferm.*, *nec* SMITH, 1829, qui *Rept.*, *nec Bucephalon* LESSON, 1836, quod *Acaleph.*).

\* *Χάρις*, *χάριτος*, grace; *νήπιτα*, *ή*, a duck.

Bill short, somewhat depressed; nostrils in the anterior portion of the posterior half of the bill, not pervious, rather narrow, and with an acute tubercle visible at the posterior corner, lamella not visible below tomia; border of frontal feathering angular. Outer toe without claw, decidedly longer than middle one; tip of inner toe, without claw, reaches only to the second joint of middle toe; hind toe very short. First primary longest; none of the primaries sinuated in the inner web. Tail rather long, more than twice the length of the tarsus; reaches beyond the folded wings by nearly twice the length of culmen, graduated, of 16 rectrices. Feathering of the head of the male particularly puffy.

The Buffle-head is as well entitled to generic rank as the other genera among the *Fuliginæ*, differing, as it does, in many important structural features from the two species *Clangula glaucion* and *islandica*. The chief differences may be tabulated thus:

*Charitonetta.*

Nostrils behind the middle of the bill, being situated in the anterior portion of the posterior half.

Nostrils rather narrow and the tubercle visible.

Lamellæ not at all visible below tomia.

Outer toe, without claw, decidedly longer than middle one.

Tip of inner toe, without claw, reaching only to the second joint of middle toe.

Tail rather long, more than twice the length of the tarsus, reaching beyond the folded wings by nearly twice the length of the culmen.

*Clangula.*

Nostrils in front of the middle of the bill, being situated in the posterior portion of the anterior half.

Nostrils rather broad, tubercle not visible.

Tips of lamellæ visible below tomia at the middle of the commissure.

Outer and middle toes of equal length.

Tip of inner toe, without claw, reaching considerably beyond second joint of middle toe.

Tail rather short, not twice as long as the tarsus, reaching beyond the wings by less than the length of the culmen.

The above characters are taken from the birds when still in the flesh, and the accompanying figures, showing the difference in the bill of the two genera were drawn before the birds were skinned.



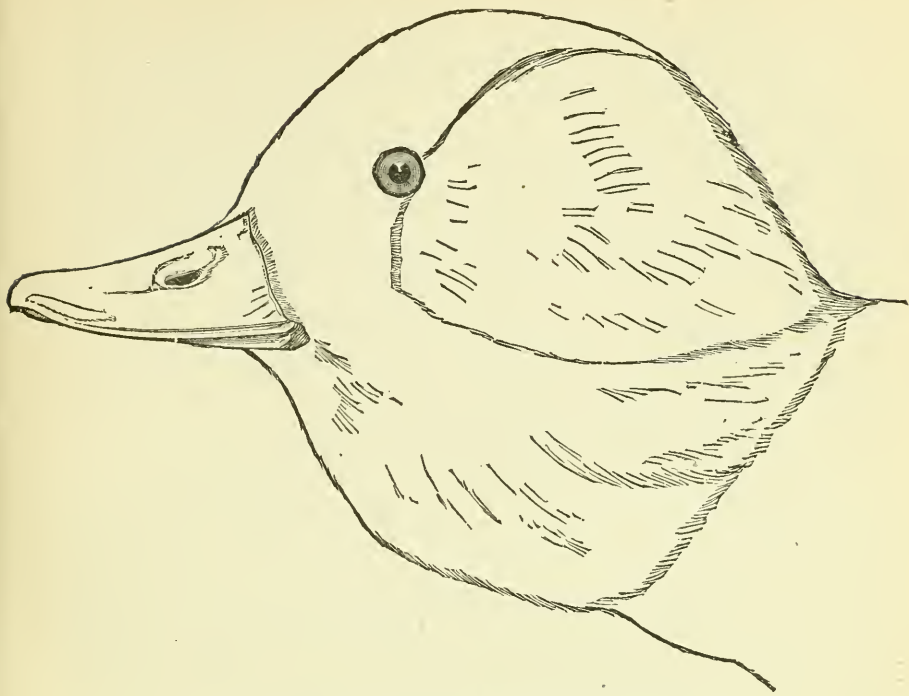


FIG. 6.—*Charitonetta albeola*, ♂ ad. Bering Island, January 19, 1883.

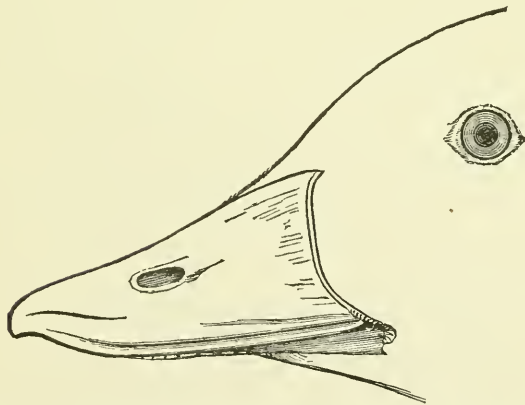


FIG. 7.—*Clangula clangula*, ♂ jun. Bering Island, November 29, 1882.

74. *Charitonetta albeola* (LIN.).

1758.—*Anas albeola* LIN., Syst. Nat., 10 ed., I, p. 124.—*Bucephala a.* DALL & BANNIST., Tr. Chicag. Acad., I, 1869, p. 298.—*Clangula a.* BEAN, Pt. U. S. Nat. Mus., 1882, p. 167.—HARTLAUB, J. f. Orn., 1883, p. 282.—TURNER, Auk, 1885, p. 158.

A beautiful male of this pretty species was obtained at Severnij, Bering Island, on the 19th of January, 1883. It was in company with another male and a female of the same species. As the Buffle-head is a strictly American bird, its appearance on the coast of the Commander Islands must be regarded as merely accidental. None of the inhabitants had ever seen it.

This is the first recorded instance of this species ever having been met with in any part of Asia.

The dimensions of this specimen were as follows :

*U. S. Nat. Mus. No. 92871; L. Stejneger No. 1873. ♂ ad. Bering Island, January 19, 1883.*

Total length, 372<sup>mm</sup>; tail beyond folded wings, 55<sup>mm</sup>; wing, 171<sup>mm</sup>; tail-feathers, 76<sup>mm</sup>; graduation of tail, 27<sup>mm</sup>; bill from tip to frontal feathers on culmen, 28<sup>mm</sup>; tarsus, 35<sup>mm</sup>; middle toe with claw, 59<sup>mm</sup>.

*Remarks.*—Iris dark brown. Bill bluish gray, lighter and somewhat tinged with yellow at tip, on culmen, along tomlia, and round the nostrils, darker at base and on the naked skin of the chin-angle. Tongue light flesh-colored. Feet flesh-colored, with a light tinge of violet-rosy; webs a little darker brownish, dirty-looking; nails black. Stomach contained gravel only. Very fat.

75. *Histrionicus histrionicus* (LIN.).

1758.—*Anas histrionica* LIN., Syst. Nat., 10 ed., I, p. 127.—PALL., Zoogr. Ross. As., II, p. 273 (1826).—TEMM. and SCHLEG., Faun. Jap. Av., p. 129 (1849).—MIDDEND., Sibir. Reis., II, 2, p. 537 (1853).—KITTL., Denkw., II, p. 347 (1858).—SCHRENCK, Reis. Amurl., I, p. 483 (1860).—RADDE, Reis. Süd. Ost-Sibir., II, p. 374 (1863).—SWINH., P. Z. S., 1863, p. 324.—*Clangula h.* WHITELY, Ibis, 1867, p. 208.—DYBOW. & PARVEX, Journ. f. Orn., 1868, p. 339.—BLAKIST., Ibis, 1876, p. 335.—*Id.*, Amend. List B. Jap., p. 9 (1884).—SWINH., Ibis, 1877, p. 147.—BLAKIST. and PRYER, Ibis, 1878, p. 215.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 186.—*Id.*, *ibid.*, X, 1882, p. 99.—SEEB., Ibis, 1879, p. 22.—HARTL., J. f. Orn., 1883, p. 283.—*Fuligula h.* PRZEW., Putesch. Ussur. (n. 208).—*Harelda h.* FINSCH, Abh. Brem. Ver., III, 1872, p. 67.—TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, *ibid.*, 1875, p. 257.—*Id.*, Orn. Faun. Vost. Sibir., p. 71 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 47.—*Id.*, *ibid.*, 1883, p. 344.—*Histrionicus h.* TURNER, Auk, 1885, p. 158.

1758.—*Anas minuta* LIN., Syst. Nat., 10 ed., I, p. 127.—*Histrionicus m.* NELSON, Cruise Corwin, p. 98 (1883).

1853.—*Anas histrionis* MIDDEND., Sibir. Reis., II, 2, pl. xxii.

1855.—*Clangula torquata* BREHM, Vogelf., p. 385.—*Histrionicus t.* BAIRD, Tr. Chicag. Acad., I, 1869 (p. 799).—DALL and BANNIST., Tr. Chicag. Acad., I, 1869, p. 289.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 5 (1873).—COUES in Elliott's Alask. Affairs, p. 191 (1875).—ELLIOTT, Monogr. Seal-Isl., p. 130 (1882).

The above synonymy shows, at least partly, how this species has been placed now in one, now in another genus, by those authors who are afraid of many genera, merely because they are many. Nothing indi-

cates more plainly that the Harlequin Duck is misplaced in all of them, and *Histrionicus*, in fact, is one of the best marked genera in the whole group. Besides all the other characters, it has a peculiarity of its own, which at once distinguishes it from all others of its kind, the soft, naked membrane at the base of the upper mandible overlapping the tomium and concealing the corner of the mouth and the base of the lower mandible for a distance of not less than 9<sup>mm</sup>.

This membrane shrinks considerably when the skin is prepared and dried. The true size and structure of the nostrils and many other parts of the bill are usually distorted in museum specimens. I, therefore, wrote down a synoptical comparison of the bills of *Histrionicus minutus* and *Harelda hyemalis*, with the fresh specimens before me, which I think it may be of some interest to reproduce; the notes are as follows:

*Harelda.*

Nail of upper mandible distinct, vaulted, narrower than the bill.

Tomia of upper mandible bent upwards toward the tip.

Lamellæ of upper mandible few, distant, and, in the hind part of the commissure, long, pendant, and visible below the tomium.

Edges of nostrils not swollen or raised above the surface of the bill.

Base of upper mandible without overhanging membrane.

Upper mandible of equal breadth to a point beyond the nostrils.

Frontal feathering proceeds farther on the bill, almost as far as the hind border of the nostrils, the mesial apex being rounded and the lateral border with a prominent but obtuse angle above, while concave below.

Lower mandible with a distinct "nail."

Lamellæ of the lower jaw few, distant, and very prominent, distinctly visible outside of the tomia when viewed from below.

Lateral outlines of lower jaw, viewed from below, decidedly curved inward.

Length of symphysis less than the breadth of the lower jaw at the hind border of the symphysis.

Feathering on mental angle pointed anteriorly.

Distance from mental feathering to tip of lower jaw less than from the former to corner of mouth.

*Histrionicus.*

Nail of upper mandible indistinct, flat, occupying the whole breadth of the bill.

Tomia of upper mandible straight to the tip.

Lamellæ of upper mandible numerous, close together, and not visible below the tomium.

Edges of nostrils swollen, raised above the surface of the bill.

Base of upper mandible with a soft, naked membrane overlapping the tomium.

Upper mandible diminishing in breadth gradually from the base.

Frontal feathering does not proceed so far on the bill as the hind border of the nostrils; mesial apex pointed; loral border convex.

Lower mandible without distinct "nail."

Lamellæ of lower jaw numerous, close together, and hardly perceptible outside of the tomia when viewed from below.

Lateral outlines of lower jaw, viewed from below, straight, converging gradually from the base.

Length of symphysis greater than the breadth of the lower jaw at the hind border of the symphysis.

Feathering on mental angle rounded anteriorly.

Distance from mental feathering to tip of lower jaw much greater than from the former to corner of mouth.

I have compared the birds collected by me, and numerous specimens from Alaska, with birds obtained from the Atlantic shores, without finding any tangible difference.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
				<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
89110	1059	Bering Island.....	May 18, 1882	♂ ad.	434	200	98	28	40	58
92862	1738	....do .....	Nov. 18, 1882	♂ ad.	439	203	104	29	39	60
92860	1750	....do .....	Nov. 25, 1882	♂ ad.	446	196	95	26	40	.....
92859	1878	....do .....	Jan. 20, 1883	♂ ad.	425	197	87	27	38	.....
92861	1958	....do .....	March 22, 1883	♂ ad.	438	198	100	27	39	.....
92863	1739	....do .....	Nov. 18, 1882	♂ jun.	412	183	73	27	39	.....

No. 89110.—Iris dark hazel. Bill, bluish gray; tip lighter, with a yellowish wash all over; naked skin of mental angle, violet black. Feet brownish gray; joints darker; webs blackish.

No. 92862.—Iris dark hazel. Bill bluish white, tinged with yellowish, becoming dark, bluish gray behind the middle of the nostrils. Feet grayish brown; joints darker; webs blackish. In the crop a *Cottus*, 50<sup>mm</sup> long, a small crab and two *Littorinae*.

No. 92861.—Iris dark hazel. Bill in front of nostrils, as also the swollen border of the latter, light bluish gray, basal part dark olive gray; nail hardly appreciable (except to the touch, as it is hard while the rest of the bill soft), 14<sup>mm</sup> long, and faintly tinged with yellowish; chin-angle blackish. Feet grayish brown; webs and below blackish.

No. 92863.—Iris dark hazel. Bill dark bluish gray; toms and borders of nostrils lighter; chin-angle black. Feet light-yellowish gray, with darker joints; tarsans behind, webs, and below, blackish.

The color of the soft parts of the adult No. 92862 and the young No. 92863, both males, and shot on the same date, is noteworthy.

The "*Kamenuschka*," as the Harlequin Duck is styled on the islands, inhabits the rocky shores of the Commander Islands in large numbers all the year round, and larger or smaller flocks may almost at any time be seen diving and swimming near the breakers where the high and inaccessible promontories tower up from the sea, or long, shallow, and stony reefs stretch out from the shore for a quarter of a mile and more. It loves the surf and rocks, and is perhaps more expert in diving "at shot" than any other duck, not being particularly shy, however.

I watched their large assemblages during the whole spring of 1883, and noted solid flocks at Bering Island as late as the middle of June, and on Copper Island, on July 1, the latter, however, consisting of adult males, all in their most beautiful plumage. Nevertheless, it is not found breeding on the islands. The natives or residents knew of no instance of its eggs or small young having ever been taken or seen; nor did I suc-



ceed in finding any evidence of its breeding; so that I have little doubt that the numerous flocks which remain over summer consist of birds not propagating during that season, for some reason or another. It is also probable that the flocks observed on July 1, and later, exclusively consisting of males in full adult plumage, are composed of adult males having already left the females and young on the breeding haunts, which I suspect to be the interior mountainous parts of Kamtschatka. It is probably the occurrence during the breeding season of similar flocks which has given rise to the supposition of the breeding of birds, like *Eniconetta stelleri* and *Somateria spectabilis*, in the latitudes of Kamtschatka and the Aleutian chain.

76. *Harelda hyemalis* (LIN.).

- 1758.—*Anas hyemalis* LIN., Syst. Nat., 10 ed., I, p. 126 (*nec* PALL.).—*Harelda h.* TURNER, Auk, 1885, p. 158.
- 1766.—*Anas glacialis* LIN., Syst. Nat., 12 ed., I, p. 203.—PALL., Zoogr. Ross. As., II, p. 276 (1826).—MIDDEND., Sibir. Reis., II, 2, p. 236 (1853).—RADDE, Reis. Süd. Ost-Sibir., II (p. 374) (1863).—*Harelda g.* SWINIL, P. Z. S., 1863, p. 324.—*Id.*, *ibid.*, 1871, p. 419.—*Id.*, Ibis, 1877, p. 147.—WHITELY, Ibis, 1867, p. 208.—DALL and BANNIST., Tr. Chic. Acad., I, 1869, p. 298.—BAIRD, Tr. Chic. Acad., I, 1869, p. 800.—FINSCH, Abh. Brem. Ver., III, 1872, p. 67.—DALL, Avif. Aleut. Isl. Unal. eastw. p. 5 (1873).—*Id.*, Avif. Aleut. Isl. west Unal. p. 7 (1874).—COUES, in Elliott's Affairs Alaska, p. 191 (1875).—TACZAN., J. f. Orn., 1876, p. 202.—*Id.*, Orn. Faun. Vost. Sibir., p. 71 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 48.—*Id.*, *ibid.*, 1883, p. 344.—BLAKIST. and PRYER, Ibis, 1878, p. 214.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 186.—*Id.*, *ibid.*, X, 1882, p. 100.—SEEB., Ibis, 1879, p. 23.—ELLIOTT, Monogr. Seal-Isl., p. 130 (1882).—NELSON, Cruise Corwin, p. 99 (1883).—HARTL., J. f. Orn., 1883, p. 282.—BLAKIST., Amend. List Birds Jap., p. 20 (1884).

As the changes of the different plumages of this species are now very well known, no further remarks are here required. I may mention, however, that the males commenced assuming their dark nuptial plumage about the middle of April, most of them being in full change in the latter part of this month. The time varies a great deal in different individuals, so that while two males shot on the 2d and 3d of June were in full nuptial plumage, another shot three days later had not passed through more than half the change.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.					
89113	1143	Bering Island .....	June 2, 1882	♂ ad.	*422+111	214	204	28	33	.....
89114	1149	.....do .....	June 3, 1882	♂ ad.	*428+88	299	193	26	31	55
89115	1166	.....do .....	June 6, 1882	♂ ad.	.....	225	203	27	36	53
92864	1773	.....do .....	Dec. 16, 1882	♂ ad.	*460+91	214	220	28	35	.....
92865	1879	.....do .....	Jan. 22, 1883	♂ ad.	*445+89	216	187	27	35	.....
89116	1113	.....do .....	May 29, 1882	♀ ad.	382	199	61	25	34	54
92866	1749	.....do .....	Nov. 26, 1882	♀	387	188	56	26	32	52
92867	1413	.....do .....	Aug. 7, 1882	pull.	245	.....	.....	18	27	35
92868	2332	.....do .....	July 9, 1883	pull.	.....	.....	.....	11	17	28

\* From tip of bill to tip of tail-feathers next to the middle pair + the length of the latter beyond the others.

No. 89113.—Iris light yellowish hazel. Bill bluish black with a broad, angulate band behind the nail of a rosy flesh-color shaded with bluish toward the nail and on the culmen; on the lower mandible the nail is more bluish and the rosy band more orange. Feet light bluish white; joints darker bluish gray; sole, webs, and nails blackish.

No. 92864.—Iris light hazel. Bill black with the rosy band fading into light flesh-color on the lower mandible. Feet pure bluish white; joints dark bluish gray; sole and webs blackish. Tips of closed wing reach tips of shorter tail-feathers; toes, stretched backwards, reach end of longest *white* tail feathers. Outer toe longer than middle one; inner toe, without claw, reaches second joint of middle-toe.

No. 98116.—Iris light yellowish hazel. Bill bluish gray, darker towards the tip; nail blackish; naked skin of mental angle dirty flesh-color. Anterior side of tarsus, toes, and webs along the toes bluish white; posterior surface of tarsus, joints, webs, and under side of toes blackish. In the oviduct was an egg 55<sup>mm</sup> long. Two largest eggs of the ovary measured 32 and 25<sup>mm</sup>.

No. 92867.—Iris dark brown. Bill dark gray, with greenish tinge. Feet light bluish gray, with yellowish tinge; darker on tarsus and joints; webs blackish.

The "*Safka*" is one of the commonest ducks on Bering Island, and is a resident throughout the whole year. It breeds on all the lakes and lakelets of the island.

It also frequents the neighboring Copper Island, but no instance of its having bred there was known by the natives.

The eggs of a full clutch, consisting of six (No. 2199, U. S. Nat. Mus. No. 21783), measure as follows: 54 by 37.5<sup>mm</sup>, 51 by 39<sup>mm</sup>, 50 by 36.25<sup>mm</sup>, 53 by 38.5<sup>mm</sup>, 51 by 37<sup>mm</sup>, 53 by 34<sup>mm</sup>.

77. *Eniconetta stelleri* (PALL.).

1769.—*Anas stelleri* PALL., Spicil. Zool., VI, p. 35.—*Id.*, Zoogr. Ross. As., II, p. 238 (1826).—MIDDEND., Sibir. Reise, II 2 (p. 234) (1853).—*Polysticta s.* DALL and BANNIST., Tr. Chicag. Acad., I, 1869, p. 999.—DALL, Avif. Aleut. Isl. Unal., eastw., p. 6 (1873).—*Id.*, Avif. Aleut. Isl. west Unal., p. 7 (1874).—NELSON, Cruise Corwin, p. 99.—*Somateria s.* TACZAN., Orn Faun. Vost. Sibir., p. 72 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 48.—*Id.*, *ibid.*, 1883, p. 344.—*Eniconetta s.* TURNER, Auk, 1885, p. 158.

1786.—*Anas dispar* SPARRMANN, Mus. Carlson. (tbb. 7 and 8).—*Somateria dispar* BLAKIST., Ibis, 1876, p. 335.—*Id.*, Amend. List B. Jap., p. 29 (1884).—BLAKIST. and PRYER, Ibis, 1878, p. 215.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 187.—*Id.*, *ibid.*, X, 1882, p. 100.

The bill of this species is very peculiar, and would alone justify its separation as the type of a distinct genus. Especially characteristic are the soft lobes formed by the tomia of the upper mandible in their anterior half. When dried they roll up so as to inclose the lower mandible and become hard, the lateral outline thereby being considerably changed, becoming unduly narrowed towards the tip.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.		mm.			
92854	1790	Bering Island.....	Dec. 10, 1882	♂ ad.	435	.....	205	90	37	38	.....
92852	1797	.....do.....	Dec. 13, 1882	♂ ad.	445	.....	213	94	36	41	63
92855	1798	.....do.....	Dec. 13, 1882	♂ ad.	455	.....	219	95	38	40	61
92853	1933	.....do.....	Mar. 4, 1883	♂ ad.	462	.....	221	87	37	39	59
92851	1963	.....do.....	Apr. 2, 1883	♂ ad.	440	44	209	88	38	40	.....
92857	1740	.....do.....	Nov. 20, 1882	♂ jun.	392	.....	189	69	37	38	.....
92856	1746	.....do.....	Nov. 24, 1882	♂ jun.	432	.....	198	74	36	39	57
92858	2003	.....do.....	Apr. 25, 1883	♀ ad.	456	42	208	80	38	40	.....

No. 92854.—Iris dark brown. Bill, light bluish gray; nail somewhat yellowish; skin of mental angle light as the bill. Feet gray, with a tinge rather brownish than bluish; joints and tarsus behind darker; webs blackish.

No. 92851.—Iris dark brown. Bill, light bluish gray; naked mental angle, hardly darker toward the feathering. Feet brownish gray; webs and below blackish. The crop contained green Algae, four different species of Mollusks, at least six species of Amphipods, and one *Idotea*.

No. 92857.—Iris dark brown. Bill, grayish blue, as is also the naked space of the mental angle. Feet of a brownish pearl-gray, darker on the joints and behind; webs blackish. New feathers in their sheaths, especially in the head, in the armpits, and on the rump.

No. 92856.—Like foregoing, only feet pure gray without any brownish tinge. New feathers on head, breast, and scapular region.

No. 92858.—New feathers in their sheaths all over the body. Extremely fat.

Nothing special is to be remarked about the plumage and the color of the specimens enumerated above, except that a narrow whitish spot is found in two of the old males on the outmost pair of rectrices, near their tip, while wanting in the other specimens (cf. also Keyserling and Blasius, Wirbelth. Europ., p. 230, and Naumann, Naturgesch. Vög. Deutschl., XII, p. 247). Another noteworthy feature is that in No. 92853, an adult male, the first primary in the left wing has the greater part of the inner web pure white, while some of the inner primaries and the hand-coverts likewise show signs of partial albinismus.

Steller's Duck made its appearance in 1882, about the 1st of November, at which time large flocks were observed, but no specimen was secured before the 20th, although several were shot, because the current would carry them away. They remained all winter round the coast, preferring the rockiest parts and the places where the breakers were most violent. Although very numerous during the whole winter, in spring their number was enormously increased, and immense flocks, covering many acres, could be seen floating on the sea, a quarter to a half of a mile off the shore, during April. The favorite places at that time were Tonkij Mys on the western coast, and the whole line of reefs from Staraja Gavan to Tolstoj Mys on the eastern side. Towards the end of this month their number decreased considerably, and I find among my notes that on the 20th of April, and the 2d, 4th, and 5th of May only a few were seen. On the 8th, half a dozen males and females were observed at Toporkoff Islet, but on the 10th large flocks were again met with between Kamennij Reschka and Tonkij Mys. They disappeared altogether about the 25th of May.

Prof. W. H. Dall, in a very important paper on the Avifauna of the Aleutian Islands, from Unalashka eastward (p. 6), speaks of this bird as a resident and breeding bird of the Aleutian Islands, and more especially of Unalashka. I cannot help thinking, however, that there is some mistake concerning the identification of the species. It is altogether improbable that this bird, which is known as a breeding bird from very high Arctic latitudes, should rear its young on the eastern Aleutian Islands. If the egg found on the 18th of May, 1872, really belonged to this species, the occurrence can only be regarded as a very anomalous one. I am not aware that later observations corroborate Professor Dall's statement.

During its stay at Bering Island, Steller's Duck is, next to *Clangula glaucion*, the shyest bird of the whole duck tribe. Usually the adult males keep apart from the females and the younger males, and their flocks are almost always farther out at sea than those of the latter.

As to the change of plumage in this species I have only a few remarks to offer. The young males in November had not yet all the new feathers of their first winter plumage fully developed. At the end of April the females were in full moult, while the males were not, and among the many thousands not a single young male was observed at that time to show a trace of a new white plumage.



78. *Somateria v-nigra* GRAY.

- 1769.—*Anas mollissima* PALLAS, Spicil. Zool., V, p. 28 ( *nec LIN.*).—*Somateria m.* TACZAN., Orn. Faun. Vost. Sibir., p. 71 (*part*) (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 48.—*Id.*, *ibid.*, 1883, p. 398.
- 1826.—*Somateria culberti* PALL., Zoogr. Ross. As., II, p. 235 (*part*).
- 1855.—*Somateria v-nigra* GRAY, P. Z. S., 1855, p. 212, pl. cvii.—DALL and BANNIST., Tr. Chicag. Acad., I, 1869, p. 300.—DALL, Avif. Aleut. Isl. Unal. westw., p. 7 (1874).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 167.—NELSON, Cruise Corwin, p. 101 (1883).—TURNER, Auk, 1885, p. 158.
- 1856.—*Somateria v-nigrum* BONAP., Compt. Rend., XLIII, 1856, p. 650.—STEJNEGER, Naturen, 1884, p. 51.

The only adult male I obtained was shot on the 3d of July, being still in its white and elegant breeding dress. But under the white feathers the brown post-nuptial plumage, which is only assumed for a very short time, had already made its appearance, and a few of the dark feathers were so far out as to show themselves between the white ones on the back, although still partly in their sheaths. It would therefore seem as if the Pacific Eider assumes its post-nuptial plumage somewhat later than its Atlantic cousin, of which old males, with the dark plumage almost fully developed, are known from various parts of Scandinavia as early as the latter part of June, notwithstanding that the breeding of the two species takes place at exactly the same time.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
92848	2223	Copper Island.....	July 3, 1883	♂ ad.	623	55	304	94	55	52	80
92847	2200	... do.....	June 15, 1883	(♂) ad.	.....	.....	302	94	49	51	.....
92850	2289	... do.....	July 25, 1883	pull.	236	.....	.....	.....	22	28	33

No. 92848.—Iris dark brown. Bill bright and pure orange, deeper brownish-red orange towards the base; lower mandible paler; nail cream-colored. Feet pale brownish orange; joints dusky; webs blackish brown. New (brown) feathers in their sheaths on different parts of the body, on the sides of the rump, shoulder region, and especially neck and head. Weight, 4½ pounds.

No. 92850.—Iris blackish brown. Bill plumbeous, with an olive tinge; nail horny yellow. Feet very dark yellowish gray; webs blackish. Gullet filled with *Gammaridæ*.

The Pacific Eider is now rather scarce on the Commander Islands. On Copper Island there are only a few places where it at present breeds, in very restricted numbers, namely, at Gladkovskij and at another creek nearer to Karabelnij. From there I got a male in perfect plumage, a fe-

male, a downy chick, and an egg. On Bering Island it does not occur at all, except as a rare visitor during the winter. Taczanowski, it is true, asserts (Bull. Soc. Zool. France, 1882, p. 398) that he has received a female and eggs from Bering Island, but this certainly is a mistake, as the bird and eggs, in all probability, are from the place, mentioned above, on Copper Island. I need not mention to anybody familiar with the water birds that his determination of the bird as *S. mollissima* is entirely wrong. This species, of course, does not at all occur in the North Pacific. I repeat that the Eider does not breed now on Bering Island, and has not bred there within the memory of the present inhabitants. The "*Pistrak*" was well known to the Copper-Islanders, who considered it a great delicacy, while only a few of the men on Bering Island had ever seen it. The only one I myself observed, while on Bering Island, was a white male near Zapadni on the 9th of March, 1883.

The downy young is in every particular a counterpart of the chick of *S. mollissima* of the corresponding age.

The only egg procured (No. 2,210, U. S. Nat. Mus. No. 21,782) measures 70 by 48 millimeters.

#### 79. *Oidemia americana* Sw. & Rich.

- 1814.—*Anas nigra* WILSON, Am. Orn. VIII (p. 135, pl. 72) (*nee* LIN.).  
 1831.—*Oidemia americana* SW. & RICH., Faun. Bor. Am., II, p. 450.—DALL & BANN., Tr. Chic. Ac. Sc., I, 1869, p. 300.—FINSCH, Abh. Brem. Ver., III, 1872, p. 68.—DALL, Avif. Aleut. Isl. Unal. eastw., p. 6, (1873).—BLAKIST. & PRYER, Ibis, 1878, p. 215.—*Id.*, T. A. S. J., VIII, 1880, p. 187.—*Id.*, *ibid.*, X, 1882, p. 100.—SEEBOHM, Ibis, 1879, p. 23.—TACZANOWSKI, Bull. Soc. Zool. France, 1883, p. 344.—NELSON, Cruise Corwin, p. 102 (1883).—BLAKIST., Amend. List B. Jap., p. 9 (1884).—TURNER, Ank, 1885, p. 158.

During winter this species occurs at the islands, but sparingly, and usually at sea far from the shore. I was therefore unable to procure a specimen, but identified the species beyond question by means of my binocular. The yellow knob at the base of the bill could not be mistaken; it was not *nigra*.

#### 80. *Oidemia deglandii* Br.

- 1814.—*Anas fusca* WILSON, Am. Orn., VIII, (p. 137, pl. 72) (*nee* LIN.).—KITTL., Denkw., I, p. 260 (1858).—*Melanetta f.* NELSON, Cruise Corwin, p. 102.  
 1850.—*Oidemia deglandii* BONAPARTE, Rev. Crit. Degland (p. 108).  
 1852.—*Oidemia velvetina* CASSIN, Tr. Phil. Ac., V, 1850-51, p. 126.—FINSCH, Abh. Brem. Ver., III, 1872, p. 68.—SWINH., Ibis, 1875, p. 457.—BLAKIST. & PRYER, Tr. As. Soc. Jap., X, 1882, p. 100.—*Melanetta r.* DALL & BANN., Tr. Chic. Ac., I, 1869, p. 300.—DALL, Avif. Aleut. Isl., Unal. eastw., p. 6 (1873).  
 1863.—*Oidemia americana* SWINHOE, Ibis, 1863, p. 435 (*nee* Sw. & RICH.).—*Id.*, P. Z. S., 1871, p. 419.

The systematic name by which this species is most commonly known is *Oidemia* (or *Melanetta*) *velvetina* Cassin, "1850." Bonaparte's *O. deglandii* was published the same year, and ornithologists deciding the priority by the number of the page must accept the latter name. But other authors will also be compelled to accept it, as Cassin's name was not published before 1851, for his paper was first read before the Academy of Sciences at Philadelphia on December the 24th, and on the last day of that year the committee reported in favor of its publication in the Proceedings (*cf.* Phil. Ac. Sc. Proc., V, 1850-'51, pp. 123 and 126), consequently, the publication can not have taken place in 1850, and may not have been effected before 1852, since the title page of the fifth volume is dated from the latter year.

The only bird obtained by me was a young male of the year, closely agreeing in every respect with a specimen from Shanghai in the U. S. National Museum, and both have the only reliable character by which young and females of this species, *O. deglandii*, can be distinguished from those of the true *O. fusca*, viz, the shorter distance between the lateral feathering of the lores and the nostrils, it being 5<sup>mm</sup> or less in the former against 6<sup>mm</sup> or more in the latter. Through the courtesy of Governor Grebnitski, I received this year two old males in splendid plumage, obtained at Bering Island in March and April, 1884, showing the distinctive characters of *O. deglandii* in their greatest development. The distance alluded to above is quite within the given limit; the lateral swelling of the naked part of the maxilla beneath and behind the nostrils, so noticeable in *fusca*, is here absent, and the knob shows a development which may be regarded as excessive even in *O. deglandii*, so much so that it is protracted anteriorly into a kind of a horn overhanging the culmen. In fact, the National Museum, which possesses quite a series of this species, has no specimen which, in that respect, can even be said to approach the two Bering Island birds, which are entirely alike.

The regular occurrence of *O. deglandii* on the Pacific coasts of the Old World may thus be regarded as established beyond the slightest doubt. There seems, however, to be good reasons for also admitting the true *fusca* as an inhabitant of the eastern shores of Asia, the probability then being that the latter occurs more to the northward and along the western shore of the Okotsk Sea to China, while *O. deglandii* reaches from Alaska across the Aleutian chain to Kamtschatka, the Kuriles, and Japan, where it winters and meets *O. fusca* proper, sometimes even traveling as far as China, while, on the other hand, a stray individual of *fusca* occasionally finds its way to Alaska.

The East Asiatic bird has universally and indiscriminately been registered as *O. fusca*. Just how many of these references really belong to it and how many to *deglandii* is difficult to say. I have, therefore, given the chief quotations in the foot-note.\*

*List of specimens.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	Date.	Sex and age.	Wing.	Tail.	Culmen.	From hind border of nostrils to loreal feathering.	Tarsus.	Middle toe with claw.
92, 847	1692	Bering Island.....	Oct. 23, 1882	♂ juv.	237	68	39	.....	47	72
101, 205	G. 78	.....do .....	March, 1884	(♂) ad.	275	90	46	5	47	76
101, 206	G. 79	.....do .....	April, 1884	(♂) ad.	.....	80	44	4.5	46	78

No. 92847.—Iris dark brown. Bill blackish gray. Feet reddish gray; tarsus behind and joints more grayish; webs more blackish. In stomach only small stones.

The "*Turpan*" is not a common winter visitor to the islands, it being mostly seen in fall and spring, and then mostly too far from the shore to be easily secured.

### 81. *Merganser merganser* (LIN.).

1758.—*Mergus merganser* LIN., Syst. Nat., 10 ed., I, p. 129.—PALL., Zoogr. Ross. Asiat., II, p. 286 (1826).—TEMM. and SCHLEG., Faun. Jap. Av. (p. —) (1849).—MIDDEND., Sibir. Reise, II, 2, p. 238 (1853).—KITTL., Denkw., II, p. 248 (1858).—SCHRENCK, Reis. Amurl., I, p. 485 (1860).—SWINH., Ibis, 1861, p. 344.—*Id.*, P. Z. S., 1863, p. 323.—RADDE, Reis. Süd. Ost-Sibir., II (p. 378) (1863).—PRZEW., Putesch. Ussur. (n. 212) (1870).—TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, Orn. Faun. Vost. Sibir., p. 72 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 48.—*Id.*, *ibid.*, 1883, p. 345.

1766.—*Mergus castor* LIN., Syst. Nat., 12 ed., I, p. 209.—SWINH., P. Z. S., 1871, p. 416.—*Id.*, Ibis, 1875, p. 456.—BLAKIST. & PRYER, Ibis, 1878, p. 215.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 187.—*Id.*, *ibid.*, X, 1881, p. 101.—BLAKIST., Amend. List B. Jap., p. 9 (1884).

The Goosander from Kamtschatka and Bering Island, the "*Bolschoj Krachal*" of the inhabitants, is the true *merganser*, indistinguishable from the bird occurring in the western portion of the Palæarctic region.

\* *Anas fusca* LIN., Syst. Nat., 10 ed., I, p. 123 (1758).—*Oidemia f.* SWINH., P. Z. S., 1863, p. 324.—*Id.*, *ibid.*, 1871, p. 419.—*Id.*, Ibis, 1875, p. 457.—WHITELEY, Ibis, 1867, p. 208.—FINSCH, Abh. Brem. Ver., III, 1872, p. 69.—TACZAN., J. f. Orn., 1873, p. 110.—*Id.*, Orn. Faun. Vost. Sibir., p. 71 (1877).—*Id.*, Bull. Soc. Zool., 1877, p. 48.—BLAKIST. & PRYER, Ibis, 1878, p. 215.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 187.—*Id.*, *ibid.*, X, 1882, p. 100.—BLAKIST., Chrysanth., 1883, p. 27.—*Id.*, Amend. List B. Jap., p. 9 (1884).—*Anas carbo* PALLAS, Zoogr. Ross. As., II, p. 244 (1826).—MIDDEND., Sibir. Reise, II, 2 (p. 236) (1853).—RADDE, Reis. Süd. Ost-Sibir., II (p. 373) (1863).



From the American form, the occurrence of which on the mainland of Alaska along the Bering Sea has not yet been reported,\* it differs not only in lacking the black stripe dividing the white wing-speculum, but the border line of the feathering on the bill is so differently arranged in the two forms, and so constant, that the appellation of *Merganser merganser americanus* is not defensible.

In order to make these differences better understood, I tabulate them as follows :

*Merganser americanus.**Merganser merganser.*

(1) The distance from the loreal apex to the angle of mouth is equal to *half* the distance from the loreal apex to the posterior corner of the nostrils;

(2) The distance from the loreal apex to the *posterior* corner of the nostrils is

(a) about equal to half the distance from the *anterior* corner of the nostrils to the tip of the bill,

(b) and considerably longer than the distance from the loreal apex to the tip of the naked frontal angle;

(3) The distance from the frontal apex to the posterior corner of the nostrils is shorter than the distance from the loreal apex to the same point.

(4) Wing-speculum white, divided by a transverse black bar.

(1) The distance from the loreal apex to the angle of mouth is equal to or longer than the *whole* distance from the loreal apex to the posterior corner of the nostrils;

(2) The distance from the loreal apex to the *posterior* corner of the nostrils is

(a) about equal to one-third the distance from the *anterior* corner of the nostrils to the tip of the bill,

(b) and shorter or equal to the distance from the loreal apex to the tip of the naked frontal angle;

(3) The distance from the frontal apex to the posterior corner of the nostrils is equal to the distance from the loreal apex to the same point.

(4) Wing-speculum white, undivided.

This species is rather common in Kamtschatka, but being more an inland bird than *M. serrator* it occurs on Bering Island in limited numbers only.

In 1883 the first new-comers—the species does not winter on the islands—were observed on April 15.

A male (*U. S. Nat. Mus. No. 92872*; *L. Stejneger No. 2027*) shot on Bering Island, May 17, 1883, measures as follows: Total length (654)<sup>mm</sup>. Wing, 297<sup>mm</sup>; tail-feathers, 110<sup>mm</sup>; culmen, 55<sup>mm</sup>; tarsus, 52<sup>mm</sup>. Middle toe with claw.

\* It has been obtained at Alexandrovsk, Kenay (Finsch); Ft. Yukon, Sitka, Unalashka (Dall); Kodiak (Bean); Chilcoot (Hartlaub).

83. *Merganser serrator* (LIN.).

- 1758.—*Mergus serrator* LIN., Syst. Nat., 10 ed., I, p. 129.—PALL., Zoogr. Ross. As., I, p. 286 (1826).—MIDDEND., Sibir. Reis., II, 2, (p. 238) (1853).—SCHRENCK, Reis. Amurl., I, p. 486 (1860).—BLAKIST., Ibis, 1862, p. 332.—*Id.*, Amend. List B. Jap., p. 10 (1884).—RADDE, Reis., Süd. Ost-Sibir., I (p. 379) (1863).—SWINH., P. Z. S., 1863, p. 323.—*Id.*, *ibid.*, 1871, p. 416.—*Id.*, Ibis, 1875, p. 456.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 339.—BAIRD, Tr. Chic. Acad., I, 1869, (p. 814).—DALL & BANNIST., Tr. Chic. Acad., I, 1869, p. 301.—PRZEW., Putesch. Ussur. (n. 213) (1870).—FINSCH, Abh. Brem. Ver., III, 1872, p. 72.—TACZAN., J. f. Orn., 1873, p. 111.—*Id.*, *ibid.*, 1874, p. 337.—*Id.*, Orn. Faun. Vost. Sibir., p. 72 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 49.—*Id.*, *ibid.*, 1883, p. 345.—DALL, Avif. Aleut. Isl. west Unal., p. 7 (1874).—BLAKIST & PRYER, Ibis, 1878, p. 216.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 187.—*Id.*, *ibid.*, X, 1882, p. 101.—HARTLAUB, J. f. Orn., 1883, p. 283.—NELSON, Cruise Corwin, p. 103 (1883).—*Merganser s.* TURNER, Auk, 1885, p. 158.
- 1761.—*Mergus serratus* LIN., Faun. Suec., 2 ed., p. 48.—SWINH., Ibis, 1860, p. 67.—*Id.*, *ibid.*, 1861, p. 344.

This is the "*Krakhal*" of the inhabitants. It is a very common breeding bird on Bering Island, rearing its young on all suitable lakes and rivers. A few stay over all winter. On Copper Island it is rare, for want of suitable localities. It breeds, however, in a few places, thus, for instance, in Pestschanij Valley, near the village.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Middle toe with claw.
					mm.	mm.	mm.	mm.	mm.	mm.
89103	1127	Bering Island .....	May 30, 1882	♂ ad ..	568	245	77	58	52	65
92873	1478	.....do .....	June 20, 1882	(♂) ad .....	250	80	62	45	67	
92874	1479	.....do .....	June 20, 1882	(♀) ad .....	223	73	51	39	59	
89104	1421	.....do .....	Aug. 12, 1882	pull ...	185	.....	.....	19	21	27

No. 89103.—Iris consists of two differently colored rings, the outer fiery red, the inner more brownish. Upper mandible, blackish brown, reddish toward base and edges; lower mandible, blood red. Inner aspect of legs, deep orange-red; joints, shaded with brown; outside and below, reddish brown; webs, brownish livid.

No. 89104.—Inner ring of iris, darker; outer one, lighter gray. Bill, grayish brown; nail, lighter. Feet, light brownish gray; webs, a little darker, and yellowish along the toes.

83. *Mergus albellus* LIN.

- 1758.—*Mergus albellus* LIN., Syst. Nat., 10 ed., I, p. 129.—PALL., Zoogr. Ross. As., II, p. 289.—TEMM. and SCHLEG., Faun. Jap. Av. (p. —) (1849).—MIDDEND., Sibir. Reis., II, 2 (p. 238) (1853).—SCHRENCK, Reis. Amurl., I, p. 486 (1860).—SWINH., Ibis., 1861, p. 344.—*Id.*, P. Z. S., 1863, p. 322.—RADDE, Reis. Süd. Ost-Sibir., II (p. 379) (1863).—DYBOW. and PARVEX, J. f. Orn., 1868, p. 339.—

PRZEW., Putesch. Ussur. (n. 214) (1870).—TACZAN., J. f. Orn., 1874, p. 337.—*Id.*, Orn. Faun. Vost. Sibir., p. 72 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 49.—*Id.*, *ibid.*, 1883, p. 345.—SEEB., Ibis, 1879, p. 23.—*Mergellus a.* SWINH., P. Z. S., 1871, p. 416.—TACZAN., J. f. Orn., 1873, p. 111.—BLAKIST. & PRYER, Ibis, 1878, p. 215.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 187.—*Id.*, *ibid.*, X, 1882, p. 101.—BLAKIST., Amend. List B. Jap., p. 9 (1884).

The Smew is only a visitor to Bering Island during the spring migration, but is not a regular one. A pair was shot there during the abnormal spring of 1883, abnormal, at least, as far as ornithology is concerned. Another pair was sent me this year by Governor Grebnitski, and a remark on one of the labels indicates that the Smew was rather numerous during the spring of 1884.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Culmen.	Tarsus.	Mid. toe with claw.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
92875	2028	Bering Island .....	May 20, 1883.	(♂) ad.	(494)	190	74	29	32	55
101213	G. 85	.....do .....	May 8, 1884.	(♂) ad.	.....	187	78	30	34	56
92876	2029	.....do .....	May 20, 1883.	(♀) ad.	(390)	177	71	26	32	50
101212	G. 83	.....do .....	May, — 1884	(♀) ad.	.....	172	67	27	30	48

## ORDER STEGANOPODES.

### Superfamily PHALACROCORACOIDEÆ.

#### FAMILY PHALACROCORACIDÆ.

##### 84. *Phalacrocorax perspicillatus* PALL.

- 1826.—*Phalacrocorax perspicillatus* PALL., Zoogr. Ross. As., II, p. 305.—GOULD, Zool. Sulphur, p. 49, pl. xxxii (1844).—TACZAN., Orn. Faun. Vost. Sibir., p. 66 (1877).—*Id.*, Bull. Soc. Zool. France, 1877, p. 41.—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 65.
- 1850.—*Graculus urile* REICHENB., Natat. Novit., pl. xvii, figs. 2311 and 2312 (*nec* GMEL.) (Cf. BONAP., Consp. Av., I, p. 168, and A. B. MEYER, Index Reichenb., p. 44; no name on the plate!)

When Steller was wrecked on Bering Island in 1741 he found this species very numerous.\*

It has now been totally exterminated on the island, and I have nothing to add to what I have said in my preliminary report concerning this species (Pr. U. S. Nat. Mus., 1883, p. 65): "It is not to be doubted that the *Phalacrocorax perspicillatus* does not occur on the islands at present. The natives, however, remember very well the time when it was plentiful on the rocks, especially on the outlying islet Aij Kamen. About thirty years ago, they say, the last ones were seen, and the reason they give why this bird has become exterminated is that it was killed in great numbers for food. They unanimously assert that it has not been seen since, and they only laughed when I offered a very high reward for a specimen."

If the stupidity of the bird has caused its extermination on Bering Island within a hundred years of its discovery—being in every respect a fitting analogue to the history of the extermination of the great northern Sea cow (*Rytina gigas*)—very little probability exists that it should have escaped the fate of this sluggish mammal. There is a bare possi-

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\* Hanc speciem *Stellerus* nusquam nisi in Beringii infausta insula, ubi naufragus vixit, observaverat. Copiosissimi ibi sunt, nunquam tamen Camtschateæ littora adeunt. Uti magnitudine, ita et stoliditate congenere superant, quumque carne sua tres facile famelicos una impleat, magno naufragis solatio fuere. (Pall., Zoogr., l. c.)



bility that it may still be found on some uninhabited, never or seldom visited, rock or island of the Aleutian chain, but it is altogether improbable that it should have escaped detection by such energetic and successful travelers as Prof. W. H. Dall, Mr. L. M. Turner, and the other gentlemen who have collected in that region.

I myself have no doubt that we have to register the Spectacled or Pallas's Cormorant in the same category as the Great Auk (*Plautus impennis*) and the Labrador Duck (*Camptolaimus labradorius*), to which, before long, several other species will have to be added.

### 85. *Phalacrocorax urile* (GMEL.).

- 1788.—*Pelecanus urile* GMEL., Syst. Nat., I, p. 575.—*Carbo* (*Pelecanus*) *urile* KITTL., Isis 1832, p. 1104.
- 1788.—?? *Pelecanus violaceus* GMEL., Syst. Nat., p. 575 (*nec* LAW., 1858).—*Phalacrocorax v.* TACZAN., Bull. Soc. Zool. France, 1883, p. 341.
- 1826.—*Phalacrocorax bicristatus* PALL., Zoogr. Ross. As., II, p. 301 (*nec* TEMM. & SCHLEG., qui *pelagicus*).—KITTL., Denkw., II, p. 224 (1858).—*Id.*, J. f. Orn., 1858, p. 389.—SWINH., Ibis, 1874, p. 164.—BLAKIST. and PRYER, Tr. As. Soc. Jap., X, 1882, p. 102.—NELSON, Cruise Corwin, p. 103 (1883).—BLAKIST., Amend. List B. Jap., p. 10 (1884).—*Graculus b.* BAIRD, Tr. Chic. Acad., I, 1869 (p. 321, pl. 33).—DALL & BANNIST., Tr. Chic. Acad., I, 1869, p. 302.—FINSCH, Abh. Brem. Ver., III, 1872, p. 86.—DALL, Avif. Aleut. Isl. west Unal., p. 7 (1874).—COUES, in Elliott's Affairs Alaska, p. 192 (1875).
- 1860.—*Carbo pelagicus* COINDE, Rev. Mag. Zool., 1860, p. 401.

The name of the present species has been involved in great uncertainty and confusion. Some authors have called it *Ph. violaceus* (GMEL.), a name which, by the American ornithologists, almost unanimously has been referred to what Pallas called *Ph. pelagicus*. The latter have mostly used the appellation *bicristatus* PALL., which, on the other hand, by the authors of Fauna Japonica and many of their followers has been misapplied to *pelagicus*, while *urile* GMEL. was doubtfully referred to the present species or to *perspicillatus* PALLAS, or to both.

This uncertainty as to the proper location of Gmelin's *urile* has arisen from a slip of the pen on the side of the author of the "Arctic Zoology," which, like many other elephants, was swallowed whole by Gmelin.

Gmelin's *Pelecanus urile* is based entirely and solely upon the "Red-faced Corvorant, *Aret. Zool.*, 2, p. 584, C.; Red-faced Shag, *Iath. syn.*, III, 2, p. 601, n. 17; *urile*, *Steller Camtschate.*, p. 157," the latter quotation evidently being referable to James Grieve's English edition of Kraschennikoff's "The History of Kamtschatka" (Gloucester, 1764). In the diagnosis he says: "*gutturæ et orbitis albis, facie nuda et carnescente rubra,*" which, as compared with Pallas's diagnosis of *Ph. per-*

*spicillatus* (Zoogr. Ross. As., II, p. 305) "*facie nuda rubro cærulescentique varia, circulo cutaneo oculos ambiente albo,*" has caused the belief that *urile*, at least partially, was referable to *perspicillatus*.

If we now turn to the "Arctic Zoology," p. 584, we find the following:

"C. RED-FACED CORVORANT. Ouril of the Kamtschatkans, *Descr. de la Kamtschatka*, 493.—Latham, iii.

"P. With a slender bill; upper mandible black; lower red: from the bill to the eyes is a space covered with a bluish red, naked skin: round each eye a white cutaneous circle: \* \* \* on the fore part of the neck a few white slender feathers; \* \* \* tail consisting of twelve feathers only. \* \* \* LENGTH of one I measured thirty-one inches. *Steller* compares its size to that of a goose.

"Inhabits the high precipices on the coasts of *Kamtschatka*."

We then proceed to the French edition of Kraschenninikoff's "Description du Kamtschatka" (Paris, 1763), the one cited by Pennant, from which we quote as follows (p. 493): "L'Ouril est de la grosseur d'une Oie ordinaire: \* \* \* Il a aussi sur le cou, par places, de longues plumes blanches & minces comme des cheveux. Les yeux sont entourés d'une petite membrane rouge, comme dans les Coqs de bois. \* \* \*"

From the above it seems unquestionable that Pennant's, "a white cutaneous circle," is only a slip of the pen for "a red cutaneous circle" (entourés d'une petite membrane rouge), a conjecture we shall find confirmed if looking still closer into the matter. It may be well, however, to remark here that it also is evident that Pennant had a specimen which he had measured, and from which he took the characters "bill slender," and "tail consisting of twelve feathers."

Next comes Latham's description. (Synops., III, pt. 2, p. 601. London, 1785—same year as the Arctic Zoology.)

"Red-faced Corvorant, *Arct. Zool.*, p. 584, c. *Urile*, *Hist. Kamtsch.*, p. 157. 17.

"This is somewhat less than the *Corvorant*: Length two feet ten inches [34 inches]. Bill three inches and a half long; the base of a reddish green, the end black: round the eye a bare skin of a reddish colour: \* \* \* on the middle of the neck before a few slender white narrow feathers thinly interspersed among the others, many of them two inches and a half in length: \* \* \* tail six inches in length, consisting of twelve feathers. \* \* \*

"Inhabits *Kamtschatka*."

From his reference, the English edition of the "History of Kamtschatka," p. 157, we only quote: "The fowl *urile*, of which there is great plenty in *Kamtschatka*, \* \* \* has a red membrane or skin round the eyes," this latter expression being evidently the translation of *Steller's* "*periophthalmiis cinnabarinis*," as given in a foot-note.

It is plain from the above that Latham also had a specimen before him, and I think there can be little doubt that it was the same as de-

scribed and measured by Pennant,\* the description of which agrees in every particular with the bird afterward described by Pallas as *bicristatus*.

We have now concluded (1) that the "Ouiril" and "Uirile" of the "Description of Kamtschatka" is the *bicristatus*; (2) that Pennant's and Latham's "Red-faced Corvorant or Shag" was based upon the above partly, and partly upon a specimen belonging to that very species; (3) that the character given by Pennant as "a white cutaneous circle" was only a slip of the pen; (4) that the name *uirile*, given by Gmelin, and also the erroneous diagnosis, are based on the above; in other words, that *uirile* is the older name for *bicristatus*, and that *uirile* is not a synonym of *perspicillatus*, not even in part. The latter conclusion is also apparent by a comparison of the characters given, except the white (!) eye-ring.

*Uirile* is said to have the bill slender; in *perspicillatus* it is robust. *Uirile* has 12 rectrices only, while *perspicillatus* is said to have 14. The former is given as having white slender feathers on the fore part of the neck only, while the characteristic feature of the latter is the long and straw-yellow feathers on the head and neck.

There remains now only to dispose of the name *violaceus* GMEL., which is absolutely of the same date as *uirile*, occurring on the same page.

In this case, too, Gmelin bases his name and diagnoses upon the same two works as above; his diagnosis, "P. niger violaceo-nitens, capite cristato." "*Habitat circa* Kamtschateam, *vicinasque insulas*," being a literal translation of the whole text of Pennant relating to the species, viz: "P. With the body wholly black, glossed with violet color. Found about *Kamtschatka* and the isles." Latham does not add anything, except the remark, "the size not mentioned."

It will be seen that it is impossible to determine the bird from the above description, so we may safely do away with a name which has caused so much confusion, being fortunate enough in having a name of the same date and of indisputable pertinency.

Mr. Taczanowski, in a recent memoir (Bull. Soc. Zool. France, 1883, p. 341) says: "Les deux espèces voisines des mers de Kamtschatka, sont si distinctes entre elles et si bien caractérisées par Pallas, qu'il est étonnant qu'elles soient confondues par plusieurs ornithologistes modernes." Schlegel (Mns. P. B., l. c.) cannot be said to have confounded them, as he

\*The difference in the length—31 and 34 inches—is hardly of any account, if we remember that the measurements are taken from a mounted specimen.

quotes neither *Ph. pelagicus* PALL. nor *Ph. bicristatus* PALL. among the synonyms of his *Ph. violaceus*. Swinhoe, in 1874 (*Ibis*, p. 164), clearly pointed out the difference between the two forms, and was followed by all later writers on Japanese ornithology. Professor Baird, in 1869 (*Tr. Chicag. Acad.*, I, 1869, p. 321), correctly kept the two species separate, retaining for the one Pallas's name *bicristatus*, while applying Gmelin's name *violaceus* to *pelagicus* PALL., and herein he has been followed by all later American authors without exception. The only modern ornithologist, of any consequence, who has confounded the two species is evidently Mr. Taczanowski himself, quoting, as he has done, *pelagicus* PALL. as a synonym of *bicristatus* PALL. (see *Bull. Soc. Zool. France*, 1877, p. 41).

Mr. Taczanowski then proceeds to give a comparative table of the distinctive characters of the breeding males of the two species; but, although generally correct, he falls into some errors in describing the colors of the naked parts. In *urile* (= *bicristatus*) the naked skin of the face is not "d'un rouge minium," but bright reddish orange, while the "peau nue sur la naissance de la mandibule inférieure, au bord de la mâchoire, et de la gorge," is not "noirâtre," but beautiful blue. The difference in color of the naked parts is truthfully represented in the colored drawings, pl. viii, figs. 1 and 2, made by me from the fresh specimens less than an hour after they were killed. The drawings also represent the difference in the coloration of the iris in the two species.

It is not only in the coloration of the naked parts of the faces that the two species differ. They are easily told apart by structural differences in almost all ages, and even the downy young and the eggs are easily distinguishable.

But before proceeding to a detailed comparison, I want to call attention to the measurements of the two forms, as given in the paper of Mr. Taczanowski (*op. c.*, p. 343). In the first place, the measurements of the "longueur totale" and the "vol" are transposed; this typographical error is obvious and easily disposed of. Looking at Taczanowski's table we find, however, that the measurements given show *pelagicus* to be a larger bird than *urile* (*bicristatus*). But so is not the actual fact, as *urile* decidedly is the larger one of the two. An inspection of the measurements given by me under the headings of the two species will prove that such is the case.\* I may add that the dimensions accompanying Pallas's description of *bicristatus* and *pelagicus* likewise show the former

\* The weight of an adult *urile* (No. 92877) was 5 pounds, while an adult specimen of *pelagicus* at the same time only weighed 2 pounds 5 ounces.



to be the larger species. The opposite result of Taczanowski's table can only be accounted for by supposing that the measurements of the two species have been transposed in the same manner as those of the total length and the stretch of the wings.

Nobody, however, who has ever seen the adults of both species when fresh, or nearly so, mistook them for being the same species. The difficulty has arisen from the young plumage, in which both species are very much like each other. In the adult of the present species the feathering of the forehead does not reach the base of the bill, thus rendering it very easily separable from *Ph. pelagicus*; but in the young *urile* (= *bicoloristatus*) the forehead is as fully feathered as in *pelagicus*. Nevertheless, it is the outline of the feathering at the base of the bill which will furnish us with the best character, as in the young *pelagicus* it forms a well-pronounced malar apex below the angle of the mouth, while in *urile* it runs down in nearly a straight line without forming so conspicuous an apex.

A difference in the wing formula, as supposed by Mr. Swinhoe, cannot be verified in a large series, there being hardly two individuals of exactly the same relation between the primaries.

But also the young in the nest are rather easily distinguished even before they have got any feathers. I give the following remarks as I wrote them, with the downy young of both species, just taken out of their nests, before me :

In <i>urile</i> the limit between the whitish color of the gular portion and the lead-colored skin of the remaining portion of the body is very distinctly defined,	while in <i>pelagicus</i> this limit is much more irregular and has a quite different outline.
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The dusky down of <i>urile</i> is tipped with brownish gray,	the down in <i>pelagicus</i> being uniform black, so as to give the whole bird a much darker appearance.
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On the outside of the thighs is a large spot dotted with white down,	while white down is altogether missing in <i>pelagicus</i> .
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Of structural differences, is especially to be mentioned, in <i>urile</i> the greater breadth of the bill at base,	compared with the much narrower shape of the bill at base in <i>pelagicus</i> .
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Even the eggs of the two species cannot be confounded. Not only are those of *urile* considerably larger than those of *pelagicus*, but the green color, when looked at through the shell, is totally different, being much more bluish in the former, against yellowish in the latter.

The difference between the adults will be best understood from the colored drawings (pl. viii, figs. 1 and 2), and no further remarks are thought necessary, except perhaps, that the irides in the adult are totally different colored, being brownish in *urile*, while green in *pelagicus*.

The color of the plumage and its general characters are pretty much the same in both species, except that the purplish bronzy gloss on the scapulars is stronger and more violet in *urile* than in *pelagicus*, and that the latter has a more purplish tinge on the upper neck.

Before leaving the subject I may perhaps mention a structural character which I noted in the fresh birds, viz, that in *urile* the outer—longest—toe is proportionally much longer than in *pelagicus*, its last joint reaching considerably beyond the tip of the nail of the middle toe, while in the latter species the end of the nail just reaches the joint.

I had no opportunities of investigating the changes of plumage and the moult of the present species. The extensive series in the National Museum enables me, however, to state that the changes exactly correspond to those of the following species as examined by me. A detailed account of these observations will be found under the heading of that species.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Culmen.	Bill along gape.	Tarsus.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
92877	2261	Glinka, Copper Island.	July 14, 1883	♂ ad.	791	188	300	171	54	79	62
92878	2287	Saint Mathew, Copper Island.	July 25, 1883	jun.	778	176	296	171	53	77	61
92879	2262	Glinka, Copper Island.	July 14, 1883	pull.	348	.....	.....	.....	.....	43	31

No. 92877.—Iris light, of a "raw umber" color. Bill, a upper mandible brownish-black, with a stripe on culmen, flames on the sides, and at base horny, yellowish white, at base, blue; lower mandible horny yellowish; tip blackish; base faint bluish. Fore-head, lores, and eye-region, naked and smooth, and bright orange, connected with the rugated wattles which are orange-red and encircle the gular sac by a narrow orange-colored stripe behind the mouth; the soft parts next to the bill all around and the gular sac of a bright blue, tinged with violet, and deepening in color from the forehead down to the gular sac. Feet uniformly brownish black without any kind of spots or mottling. Interior of mouth blue. Not fat. Weight, 5 pounds.

No. 92878.—Iris as in the foregoing specimen. Bill dark horny brown, towards base as also the naked parts of the face light flesh-color, with a faint tinge of bluish on the lower mandible; the eye-ring with an olive tinge. Feet uniformly brownish black; webs lighter, dark brownish, without blotchings. Weight, 4.6 pounds.

No. 92879.—Skin of body whitish next to the lower mandible, violet blackish on the rest of the body, somewhat lighter on the feet, and still more so on the belly and the inside of the tibiae.

The inhabitants of the islands distinguish the present species as "*Bolschoj Uril*" in contradistinction to the "*Malinkij Uril*," which is

*Ph. pelagicus*. Being not only the rarer of the two species, but also the most difficult to shoot, no specimen was obtained from Bering Island, where it is only known to breed with certainty on Arij Kamen which also was the last refuge of *Ph. perspicillatus*. On Copper Island it is more numerous, especially towards the southern end of the island, but is by no means common, compared with the number of *Ph. pelagicus* in the same locality.

Three eggs (U. S. Nat. Mus. No. 21765, L. Stejneger No. 2263) were taken from a nest at Peresjejek, Copper Island, on the 14th of July, 1883. All three were perfectly clear, measuring 61 by 40, 63.5 by 39, and 66 by 37<sup>mm</sup>. Another egg from Bering Island (Mus. No. 21766; L. Stejneger No. 2328) measures 61 by 39<sup>mm</sup>.

### 86. *Phalacrocorax pelagicus* PALL.

- 1826.—*Phalacrocorax pelagicus* PALL., Zoogr. Ross. As., II, p. 303.—SWINH., Ibis, 1874, p. 164.—*Id.*, *ibid.*, 1877, p. 147.—BLAKIST. & PRYER, Ibis, 1878, p. 216.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 187.—*Id.*, *ibid.*, X, 1882, p. 102.—TACZAN., Bull. Soc. Zool. France, 1883, p. 341.—TURNER, Auk, 1885, p. 158.
- 1849.—*Carbo bicristatus* TEMM. & SCHL., Faun. Jap. Av., pl. 84 (*nec* PALL.).—SWINH., Ibis, 1861, p. 410.—*Phalacrocorax b.* SWINH., Ibis, 1861, p. 408.—*Id.*, *ibid.*, 1863, p. 434.—*Id.*, P. Z. S., 1863, p. 325.—WHITELY, Ibis, 1867, p. 211.—BLAKIST. & PRYER, Ibis, 1878, p. 216.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 188.—*Graculus b.* SWINH., P. Z. S., 1871, p. 420.—TACZAN., J. f. Orn., 1876, p. 203.—*Id.*, Bull. Soc. Zool. France, 1877, p. 41.—*Id.*, Orn. Faun. Vost. Sibir., p. 66 (1877).
- 1867.—*Phalacrocorax volus* SWINH., Ibis, 1867, p. 395.
- 1872.—*Graculus violaceus* FINSCH, Abh. Brem. Ver., III, 1872, p. 86 (*nec* GMEL.).—*Phalacrocorax r.* NELSON, Cruise Corwin, p. 103 (*part*) (1883).
- 1874.—*Graculus bairdii* DALL, Avif. Aleut. Isl. west Unal., p. 8 (*nec* COOPER).

It will be seen that in the above synonymy all American references are left out, except those relating to the occurrence of the species on the Aleutian Chain. A close inspection convinced me that my birds, and also those from the other Aleutian Islands, are distinct from the race occurring on the coasts of the mainland of Alaska, being in fact nearer to the southern race, the so-called *Ph. pelagicus resplendens*. This fact, however, has no bearing upon the name of the Kamtschatkan bird, which certainly is the bird to which Pallas originally gave the name *pelagicus*. It is the Alaskan form which required a new name, and it has, consequently, been named by Mr. Ridgway *Ph. pelagicus robustus*.

I made a few observations regarding the change of plumage in this species which may be of some interest, as this part of the natural history of the Pacific birds seems to have been unduly neglected.

It will be necessary first to remark that these birds raise two broods

during the summer. This is not to be understood as a positive statement that the same parents rear two sets of young every year—although I believe that most of them do—but simply that I have found the colonies of this species having eggs and downy young at two different times. The first season commences early in May, the young of this brood being fully fledged in the latter part of July. In the middle of this month, however, the colonies again contained all stages, from fresh eggs to newly-hatched young. During the first days of August I found downy young of almost the same age and still without feathers, while on the 21st of August, 1882, I visited a numerous colony at Poludjonij, Bering Island, in which the oldest young were about half fledged. These would not be able to fly before the first week of September. Between the two periods, young in all stages of development will be found in the colonies, but proportionately few in number. It will thus be seen that it is safe to assume that the difference in age between the earliest and the latest born young in one year amounts to three months, at least.

We are now prepared to understand that we can find two birds undergoing the corresponding moult at times as much apart as the birth-days of the same two birds. If the first moult occurs, say, ten months after the bird broke the shell, the bird born in the middle of May will moult in the middle of March next year, while the one born in the middle of August will not moult before the middle of June next year. And this conclusion is borne out fully by the observed facts. As will be seen from the details relating to the birds collected by me, as given below, I shot birds in the latter part of February, both younger and older, which were just in the first stage of moulting,\* while, on the other hand, I have a skin before me in full moult from young to adult plumage, as late as July, a discrepancy hardly to be accounted for, except by the above explanation.

Wren about ten months old, the first plumage, which is of the dark grayish sooty color, with some green and purplish reflections in the fresh plumage, changes into the resplendent garb of the adult,† from which it then is undistinguishable, except by not having the bright

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\* In fact, I should not have been able to ascertain the fact had it not been that I always was on the lookout for the moult when skinning the fresh bird, and making my notes right on the spot.

† Mr. N. S. Goss in a paper in "The Auk" (1884, p. 164) thinks that the birds (*Ph. pelagicus resplendens*) must be two years at least in acquiring the adult plumage, because many of the young birds were still of a brown color on the 6th of June. The explanation is simply that the greater part had not yet commenced their moult as early as that date.



colors of the naked parts of the face and by lacking the white feathers on the neck and thighs. In the following spring, or when about twenty-three months old, it begins to breed.

The white plumes on neck and thighs belonging to the breeding plumage are generally assumed during the early part of the winter; still, many of them were undeveloped in a female shot on the 26th of April, 1883. These white feathers do not exclusively belong to the adult plumage, as a young female, shot in February, has the thighs of the sooty plumage broadly streaked with white feathers, which are not dense enough, however, to form a continuous patch. Even in the young, only a few days old, the down on the thighs is distinctly white, in strong contrast to the brownish color of the down on the rest of the body. The ornamental white plumes disappear in the course of summer, when the breeding process is over, at which time also the gradual moult of the wing and tail-feathers commences.

During winter the color of the naked parts in the young changes from an ashy flesh-color to a dark grayish brown, while at that time the adults have the caruncles of a dull brownish orange, which color, towards the breeding season, changes into a deep vermilion, while the skin between the caruncles remains dark grayish brown. Mr. Taczanowski says\* that the red caruncles disappear after the breeding season, and that the naked sides of the face are then covered more or less with feathers. This is, however, not the case, his mistake evidently being caused by having before him young birds in their second plumage, say between thirteen and twenty months old.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Culmen.	Bill along gape.	Tarsus.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89120	1169	Bering Island .....	June 8, 1882	♂ ad.	726	.....	270	132	49	75	53
89119	1168	.....do.....	June 8, 1882	♀ ad.	706	.....	261	144	45	62	49
92881	1927	.....do.....	Feb. 21, 1883	♀ ad.	714	140	260	142	48	69	53
92883	2005	.....do.....	Apr. 26, 1883	♀ ad.	678	146	.....	.....	.....	.....	.....
92882	1926	.....do.....	Feb. 21, 1883	♀ jun.	672	133	243	135	44	67	50
92880	2265	Copper Island.....	July 14, 1883	pull.	377	.....	.....	.....	.....	42	30

\* *Tom. cit.*, p. 342.

No. 89120.—Iris yellowish green. Bill horny blackish brown, lighter at base; caruncles along border of bill, on the lores, around the eyes, and on the chin-angle brownish vermilion. Feet jet black.

No. 89119.—Colors exactly like foregoing.

No. 92881.—Bill blackish brown; lower mandible and especially the tomia lighter; naked parts of face dark grayish brown with brownish orange warts. Feet black. Nail of outer toe falls 23<sup>mm</sup> short of tip of tail, legs being stretched backwards. New feathers in their sheaths, but still concealed under the old ones, all over the back, nape, and head. None of the white plumules in the sheaths. Very fat.

No. 2005.—Iris deep sea-green. Naked skin of face dark grayish brown with brownish vermilion papillæ. Feet black. Backwards stretched toes reach tip of tail; tip of closed wings hardly reach the heel-joint, nor do they reach the tips of upper tail coverts, the distance being 21<sup>mm</sup>. All the white plumules are new, those on neck and head still partly or wholly in their sheaths. Largest eggs in ovary of the size of small peas. Extremely fat.

No. 92882.—Bill horny blackish brown, lighter along tomia; naked parts of face dark grayish brown. Feet black. New tertials and feathers on the crown of the head in their sheaths. The white plumules on the thighs show no traces of being new. Nail of outer toe falls 10<sup>mm</sup> short of tip of tail, legs being stretched backwards.

No. 92880.—Colors of naked skin exactly as in the downy young of *Ph. urile*, No. 92879.

The Pelagic Cormorant is a very abundant resident of both islands, breeding on all the most rugged and steepest promontories which rise immediately from the sea, as well as on the outlying islets and stones. Many of them winter around the coast, but they are not by far so common at that season as during summer.

Although very plentiful at the present date, their number is said to have been vastly greater before 1876, when their endless myriads in some places were real "landmarks," which could be relied upon even in foggy weather, such a point, for instance, being the northern cape of Copper Island, as Captain Sandman informed me. But during the winter of 1876-77 thousands and thousands were destroyed by an apparently epidemic disease, and masses of the dead birds covered the beach all round the islands. During the following summer comparatively few were seen, but of later years their number has again been increasing, though people having seen their former multitude think that there is no comparison between the past and the present. From Bering Island the reports are similar, with the addition that the stone-foxes would not eat the corpses. As the "*Uril*" forms a not inconsiderable part of the fresh food of the natives during the time of the year when the fur-seal (*Callorhinus ursinus*) is not slaughtered, especially now when "*Nerpi*" (*Phoca vitulina*) are getting scarce, the people were very much afraid that these birds might be totally exterminated, like *Phalacrocorax perspicillatus*.

The eggs measure as follows :

U. S. Nat. Mus. No.	L. Stejneger No.	Locality.	Date.	Diameters.
21763	1170	Bering Island .....	June 8, 1882	<i>Millimeters.</i>
				56 by 37.5
				56.5 by 37.5
				53 by 37
				59 by 37
21764	2264	Copper Island .....	July 14, 1883	59 by 34.75
				58 by 35

Of the latter set one egg was perfectly clear, the second contained a very small embryo, while the third one, which was broken, contained a somewhat larger fœtus.

## ORDER RASORES.

### Superfamily TETRAONOIDEÆ.

#### Family TETRAONIDÆ.

##### 87. *Urogallus parvirostris kamtschaticus* (KITTL.).

1858.—*Tetrao kamtschaticus* KITTLITZ, Denkw. Reis., II, p. 354, fig. on p. 353.

1870.—*Tetrao parvirostris* GRAY, Handl. B., II, p. 276 (*see* BR.).

1883.—*Tetrao kamtschaticus* TACZANOWSKI, Bull. Soc. Zool. France, 1883, p. 333.\*

1884.—*Tetrao urogalloides* BOGDANOW, Consp. Av. Imp. Ross., I, p. 24 (*part*).

The Kamtschatkan Capercalzie has been shown by Mr. Taczanowski to be distinct from the bird called by Middendorff *T. urogalloides*†, and I have only little to remark in addition to his very full and accurate descriptions (Bull. Soc. Zool. France, 1883, pp. 333–338). It is evident, however, that he lays too much stress on the difference in the graduation of the tail in the two forms, since my specimen is exactly intermediate, and hence I conclude that the two forms are not more than subspecifically distinct.‡

\* Taczanowski quotes erroneously "Kittlitz, Reis. Russ. Amer., I, p. 314;" the correct citation is as given above.

† It is strange that many authors still persist in using this name after it has been shown that Prof. Sven Nilsson, long before Middendorff, applied *urogalloides* to the hybrid between the Black Cock and the Capercalzie so common in Scandinavia. Whether applied to a hybrid or not, the name is preoccupied, and Bonaparte's substitute, *parvirostris*, should be adopted without delay. Its synonymy is as follows:

##### *Urogallus parvirostris* (BR.).

1826.—*Tetrao urogallus* PALL., Zoogr. Ross. As., II, p. 56 (*part*).

1853.—*Tetrao urogalloides* MIDD., Sibir. Reise, II, 2 (p. 195, tab. xviii) (*nec* NILSS.).—SCHRENCK, Reise Amur., I, p. 396 (1860).—RADDE, Reise Süd. Ost-Sibir. II (p. 299) (1863).—ELLIOT, Monogr. Tetr., pl. vi (1865).—DYB. & PARV., J. f. Orn., 1868, p. 336.—TACZAN., J. f. Orn., 1873, p. 98.—*Id.*, Bull. Soc. Zool. France, 1876, p. 242.—*Id.*, Orn. Fauna Vest. Sibir., p. 47 (1877).—BOGDAN., Consp. Av. Imp. Ross., I, p. 24 (1884).

1856.—*Tetrao parvirostris* BONAP., Compt. Rend., XLII, p. 880.

Pallas in a note (*op. cit.*, p. 58) mentions this species as a smaller variety, which the Russians call "Rock Capercalzie." Upon this has been founded the following altogether unwarranted quotations: "*Tetrao urogallus* var. *minor* Pallas Zoogr. R. A., II, pp. 58, 59" (Elliot, Monogr. Tetraon., text to pl. vi), and "*Tetrao urogallus* var. *rupes- tris* Pallas, Zoographia Rosso-Asiatica, II, p. 58, Nota 2" (Bogdanow, Consp. Av. Imp. Ross., I, p. 24).

‡ Of the genus *Urogallus* we then have two well-defined species. It does not seem that *Urogallus urogallus* has been studied closely enough as to its local varie-



The downy chicks of this form, which is rather common on the mainland of Kamtschatka, have not yet been described so far as I know. I was fortunate enough to obtain two, the larger of which may be described as follows:

*Pullus* (*U. S. Nat. Mus.*, No. 92705; *L. Stejneger*, No. 2300. *Petropaulski, Kam.*, beginning of July, 1883).

Above pale rusty ochraceous, more or less spotted with blackish; underneath pale buff, more yellowish on jugulum and abdomen, unspotted; the spots on the upper surface are arranged as follows: On the forehead an arrow-shaped blackish spot and a double one on the lores; just on the border between forehead and crown a large horseshoe-shaped spot with the opening turned toward the beak; on the crown a somewhat indistinct cross-streak, and a similar one across the nape; on the ear-coverts two very distinct spots, and behind them, on the side of the neck, a larger rusty brown spot circumscribed by black; along the middle of the hind neck a longitudinal streak; back more or less mottled with dusky, which color on the posterior part of the back forms into two indistinct parallel longitudinal bands of a more rusty hue. The remiges and the larger coverts are out, with more or less regular mottlings of dusky and pale rusty in both webs and broadly margined with rusty cream-color, which also runs up along the shafts; the tips of the light margins of the great coverts are nearly white, so as to form a conspicuous band across the wing. Chin, throat, and tibiæ pale buff, as the rest of the under surface, and without dark markings.

The two specimens are exactly alike in every particular.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Expos. culmen.	From anterior border of nostrils to tip of bill.	Tarsus.	Middle toe with claw.	Graduation of tail.	Distance from upper tail-coverts to tip of tail.	Height of bill.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
92704	2059	(♂) ad	Petropaulski.....	1883. March	375	315	37	24	68	73	100	96	21
92705	2300	pull.	.....do.....	July	70	25	9	6	23	23	.....	.....	.....
92706	2301	pull.	.....do.....	July	61	12	8	5	21	22	.....	.....	.....

ties. There are apparently at least two forms in Europe (being now without sufficient material, I shall only hint at *Tetrao eremita*, described in "*Svenska Vetenskaps Akademiens Handlingar för 1789*" (p. 179), which is "smaller than the usual bird, and ashy gray, with somewhat darker head and neck"), and one East Siberian variety which may be called *Urogallus urogallus taczanowskii*. It is described by Mr. Taczanowski thus: "Les mâles obtenus d'Irkutsk se distinguent par plusieurs détails des oiseaux de l'Europe, c'est-à-dire: ils ont les pattes beaucoup plus velues, et les doigts couverts jusqu'à la dernière articulation; ils ont le bec un peu plus court, plus renflé sur les côtés au devant des narines; le plumage en général plus mou avec un dessin généralement plus fin. Les femelles ont les plumes des pattes plus abondantes que dans les femelles européennes, mais la différence n'est pas aussi grande que chez les mâles; leur bec est aussi plus large à la base" (*Bull. Soc. Zool. France*, 1876, p. 243). The other species is *Urogallus parvirostris* (BP.) with its two subspecies *U. parvirostris kamtschaticus* (KITTL.), and *Urogallus parvirostris sachalinensis* (BOGDANOW) (*Tetrao urogalloidus* var. *β. sachalinensis* BOGDAN., *Consp. Av. Imp. Ross.*, I, 1884, p. 122).

88. *Lagopus lagopus* (LIN.).

- 1758.—*Tetrao lagopus* LIN., S. N., 10 ed., I, p. 159.—PALL., Zoogr. Ross. As., II, p. 56 (part) (1826).
- 1788.—*Tetrao albus* GMEL., Syst. Nat., I, 2 p. 750.—*Lagopus a.* MIDD., Sibir. Reise, II, 2 (p. 190) (1883).—SCHRENCK, Reise Amurl. I, p. 395 (1860).—RADDE, Reisen Süd. Ost-Sibir. (p. 294) (1863).—BAIRD, Trans. Chic. Acad., I, 1869 (p. 663).—DALL & BANN., *ibid.*, p. 287.—FINSCH., Abh. Brem. Ver., III, 1872, p. 62.—TACZAN., J. f. Orn., 1873, p. 98.—*Id.*, Bull. Soc. Zool. France, 1876, p. 242.—*Id.*, Orn. Faun. Vost. Sibir., p. 47 (1877).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 163.—NELSON, Cruise Corwin, p. 80 (1883).—STEJNEGER, Natnren, 1884, p. 8.—BOGDAN., Consp. Av. Ross., I, p. 32 (1884).
- 1788.—*Tetrao lapponicus* GMEL., Syst. Nat., I, 2, p. 751.
- 1815.—*Tetrao saliceti* TEMM., Gall. et Pig., III, p. 208.—KITTL., Denkw., II, p. 249 (1858).—ADAMS, Ibis, 1878, p. 436.
- 1817.—*Tetrao subalpinus* NILSS., Orn. Svec., I, p. 307.—? *Lagopus s.* NORDQUIST in NORDENSKJ., Voy. Vega, Amer. ed., p. 433 (1882).
- 1883.—*Lagopus alpinus* NELSON, Cruise Corwin, p. 82 (*nec* NILSSON).

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
92707	2042	Petropaulski .....	May 19, 1883	♂ ad.	417	72	203	120
92708	2048	.....do .....	May 19, 1883	♂ ad.	410	65	200	110

No. 92707.—Iris dark brown. Bill horny blackish, plumbeous. Crop contained buds of willows, catkins of alder, and a hip of *Rosa kamschatca*.

A few small flocks were met with on a hunting expedition in the neighborhood of Petropaulski on the 19th of May, 1883. They were exceedingly shy, and as the snow was 4 to 6 feet deep on the ground we had to hunt the grouse in sledges drawn by ten dogs, and to shoot from the sledge. A strange way of hunting grouse! Only the males had commenced assuming the dark plumage, the head and neck being already brown, all the brown feathers still partly in their sheaths.

This species does not occur on the islands.

89. *Lagopus ridgwayi* STEJNEGER.

- 1826.—*Tetrao lagopus* PALL., Zoogr. Ross. As., II, p. 63 (part).
- 1883.—*Lagopus albus* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 72 (*nec* GMEL. of. "The Auk," 1884, p. 82).
- 1883.—*Lagopus alpinus* DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 368.
- 1884.—*Lagopus ridgwayi* STEJNEGER, Proc. Biol. Soc. Washingt. I, April 10, 1884, p. 98.—*Id.*, Amer. Naturalist, XVIII, 1884, p. 774 —*Id.*, Zeitschr. Ges. Orn., I, 1884, p. 89 pl. v.—*Id.*, Ibis, 1885, p. 50.
- 1884.—*Lagopus rupestris* subsp. *insularis* BOGDANOW, Consp. Av. Ross, p. 34.

I consider myself excusable in making the mistake of calling this bird *Lagopus albus*, when I wrote my preliminary report on the islands, although it really belongs to the *Attagen* group, so differently colored is it from all other Rock-ptarmigans. Of course, if I had looked closer at the structural characters, such an error could not have happened, but the specimens were not at hand when I wrote my report, and the general color, in connection with the statement of Prof. W. H. Dall (Notes on the Avifauna of the Aleutian Islands, especially those west of Unalashka, 1874, p. 5) that *L. albus* is the only species of grouse found on the Aleutian Islands,\* led me to make such a blunder. As soon as I got winter specimens the mistake was plain, but I never dreamed of a new species of ptarmigan before it came to actual comparison of specimens.

It seems from the blackish preæstival plumage of this species, especially the almost uniform blackish præpectus, that it is more nearly allied to *L. muta* than to *L. rupestris*, in spite of its brown color; but it is a perfectly good species and affords a most interesting proof of the palæarctic relationship of the Commander Islands on the one hand, and of their remarkable isolated zoological position on the other. It would almost seem as if the isolation, as a factor in the development of new species or forms, is effective in inverse proportion to the size of the isolated area. The ptarmigans of Europe have been separated from each other on three or four different mountain systems, probably as far back as the end of the Glacial period. Still the difference between *L. mutus* from Scandinavia and *L. mutus vulgaris* from Southern Europe is rather slight. It is at present hardly possible to tell how long a time has elapsed since the Commander Islands have been separated from the mainland; but, even if that took place still earlier, the distinctness of many of the birds appears very remarkable.

Before entering on a more detailed comparison with allied forms, some remarks upon the changes of plumage among these birds may not be out of place.

In my preliminary report (p. 74), I concluded "that no marked seasonal plumage can be distinguished, except the white plumage of the winter and the dark one of the summer," for the reason that these birds

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\* It now turns out that the species inhabiting the American islands of the Aleutian Chain belong to two different races, *L. rupestris nelsoni* STEJN., and *L. rupestris atkhensis* (TURNER), and that *alba* does not occur at all on the islands. It is first on the Shumagin Islands that *alba* is found. I have myself examined a ♀ in breeding plumage obtained by Dr. T. Bean on Unga.

are "subject to an uninterrupted change from the moment when the first dark feathers make their appearance in spring until the last one has disappeared in fall." Additional material and subsequent observations force me to modify this statement to the effect that there are two very different summer plumages indeed—one preæstival and one post-æstival, which, however, on account of the uninterrupted change during the whole summer, are, during the middle part of the season, so blended and mixed together as to justify the expression that there is no marked limit between them. As to my failure in recognizing a third summer plumage I refer here to some remarks further below.

The first dark feathers of the summer plumage of the male make their appearance on the upper part of the head about the beginning of May. Still, in the middle of June, the greater part of the lower surface, except the jugulum and præpectus, are white, and many white feathers of the old plumage are mixed among the dark ones on the upper parts. These dark feathers are more or less uniform blackish; an explicit description of this plumage will be found further on, sub No. 89059. In some males the moulting proceeds more rapidly, in others the process takes longer time. A male shot on the 11th of June, 1883, had much more white than the one referred to above. From this time feathers, more regularly transversely banded, and vermiculated with brown, protrude between the first ones; similarly colored feathers take the place of the white ones below; the first blackish feathers are also shed, until the bird, a little later than the middle of August, has assumed its full summer plumage, in which even the abdomen and the tibiæ are blackish, there being no other white feathers than those of the wings. This perfect plumage lasts hardly fourteen days, as the white feathers of the new winter plumage, simultaneously with the last brown ones, now commence protruding from their sheaths. In the middle of October the bird has the white and brown similarly distributed as in the middle of June, and before the middle of November the perfect white plumage is completed.

The moulting of the wing-feathers takes place about the time when the summer plumage is most perfect, that is to say, about the middle of August. The new primaries have then blackish shafts, a color which in the following spring fades away, so that the old feathers when shed have almost wholly white shafts.

The late Prof. Sven Nilsson was the first who discovered that the ptarmigans yearly shed their claws as regularly and completely as they



moult their feathers, an observation fully sustained by my specimens. In the birds shot in July and August, before shedding, the middle claw measures 18 to 20<sup>mm</sup>, while in a specimen shot on the 23d of August, and which has just thrown the old ones away, the length of the new claw is only 11<sup>mm</sup>. Most interesting is, however, a male, shot the same day, as it has the claws only half shed, the old claws having loosened from their base and forced 2 to 3<sup>mm</sup> out, still covering the tip of the new ones, except on two of the toes, in which they have already fallen off (No. 89062).

The old tail-feathers, the white ends of which are wholly worn away, are shed a little later, and replaced by new black ones, with broad white terminal edges in October specimens.

A similar change takes place in the plumage of the females, as the first broad-barred plumage is succeeded by a finely mottled garb, which they assumed later than the males, and which does not seem to reach its full development, as the white feathers protrude before it is finished. In spring the moult of the females commences earlier and takes place more rapidly than in the males.

Since the preliminary report was written I shot another male, on the 19th of October, which at a close examination fully convinces me that there is no distinct third summer plumage, in this species at least. Strange enough, I at first regarded this specimen as a proof against this opinion, so that at one time I really believed in a third summer plumage, as maintained by Professor Newton, because the aspect of the bird, on a superficial look, certainly seems different, especially lighter. But if placed alongside those shot in August it will be seen that the brown feathers on the back are exactly like those of the birds in the perfect dark plumage, and that the light appearance is caused by the new white feathers which are protruding from below the brown ones and shining through them.

I believe that this is the explanation of the third summer plumage in the allied forms also, and the material at hand seems to indicate the same. I am led to this belief by the fact that *L. ridgwayi* is the species which seems to have the most highly developed dark plumage of all forms known to me; further, that it, more than others, shows a tendency to retain a dark color even in winter, consequently warranting the presumption that it ought to have the third fall plumage, if such a thing occurred at all among the allied species.

This tendency to assume a dark color in winter needs further ex-

planation. Among the ptarmigans shot on Bering Island during the winter 1882-'83 a considerable proportion are found having a number of dark feathers among the white ones. Some of these feathers were wholly dark colored, other ones only partially so, with larger or smaller dark spots on the white feathers, sometimes symmetrically, sometimes only on one web, sometimes obliquely over both. Not less than about 6 per cent. among some seven hundred specimens examined were thus marked, males and females, a proportion which held good throughout the winter, at the beginning, in the middle, and at the close.

Such dark feathers among the white ones also occur in the allied species, though not to such an extent, that I am aware of, and has probably given rise to the theory that the dark feathers of the fall plumage fade into the white winter garb without moulting. But if any proofs are needed against this hypothesis my specimens will furnish them. In the first place, I found partially dark feathers in their sheaths, and in the second place; *these dark feathers of the winter plumage are totally different from those of the fall plumage of which they ought to be the remnants!* The postæstival plumage of the males is of a saturated ferruginous brown, with fine, but distinct, blackish vermiculations and cross-bands. The dark feathers of the male's winter plumage are almost wholly black, sometimes with some faint and indistinct brownish undulations and shadings, consequently more like the feathers of the preæstival or spring plumage. The ground color of the summer plumage of the females is of an ochraceous orange color, with rather broad blackish cross-bars; the dark feathers among the white ones in winter are brown, very finely undulated and vermiculated, and consequently very much like those of the fall plumage *of the male!*

One of these females (No. 92717) had a very well pronounced black loreal stripe too, as had in fact not a few of them, but upon dissection I found the ovary normal; no trace of sterility, nor indication of any disease.\*

The most interesting specimen in regard to this dark winter plumage is a female (No. 92714), the sex of which was also determined by dissection, and which had the ovary well developed and normal. Besides having a mere indication of a black eye-stripe and several brown feathers on the hind neck, the seventh, eighth, ninth, and tenth primaries and the eighth primary covert on each wing are not white, as is otherwise

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\* This case shows how hyper-cautious the collector must be in indicating the sex. He should make it a rule *never* to mark the sex upon a label if he has not examined the specimen by dissection.

the case in all plumages, both summer and winter, but show the following coloration :

The ground color is a delicate creamy yellow, becoming whitish toward the tip of the interior feathers. The outer web has a series of dusky spots, while the inner one is marbled rather coarsely with blackish, darker toward the base, where the feathers appears dusky with faint light mottlings, while the tip is without dark markings.

Proceeding now to the comparison of *L. ridgwayi* with allied forms it will be well to bear in mind that there are at least four different stages which must be compared with corresponding stages of the other kinds. It would not do to compare a preæstival *L. ridgwayi* with a postæstival *muta*, or a female of the former with a male of *rupestris*. It is, however, on similar comparisons that the present most generally adopted views concerning this interesting group of birds are based. It may furthermore be remarked that we are not satisfied with the negative results furnished by the fact that we hardly can distinguish ptarmigans in their white winter plumage.\* Nor do we consider all the rock-ptarmigans identical, even if the distinguishing marks pointed out by the late Professor Sundevall do not hold good. He paid especial attention to the greater or lesser extent of the white markings on the exterior tail-feathers, but later authors have denied the value of this character and proved a great individual variation in this respect. Nevertheless, it seems to me that the characters will average as indicated by him. An observation by me, and verified on a large series of specimens, seems to prove, that the females have more white at the base of the exterior rectrices than the males.

It has already been mentioned that *L. ridgwayi* is sufficiently distinguishable from *L. rupestris* by the uniform black præpectus of its preæstival plumage, agreeing in this respect with *muta* and its allies. From these it is distinguished in its summer plumage not only by the saturated brown color, but especially by lacking every trace of whitish or grayish edgings of the feathers, there being in the postæstival plumage only some faint indications of lighter rusty at the end of a few feathers. I have seen Norwegian specimens of *L. muta* almost without whitish edgings, but it was in every case plainly due to abrasion, while in the

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\* This assertion does not seem quite superfluous in view of the following comparison of Dr. O. FINCH: "One specimen [of *alba*] in the uniform white winter plumage from Alexandrovsk is not in the least distinguishable from European specimens (from Russia and Norway) in the museum in Bremen. The distribution of the species [*alba*] consequently embraces the whole Arctic region, as is also the case with *L. alpinus* NILSS.

new species they are wanting, as well in the first and not fully grown feathers, as in those of the more advanced season; besides, the two birds could never be confounded on account of the different ground color, this being decidedly grayish in *L. muta*.

There is one point, however, in which *L. ridgwayi* seems to differ from all the known forms of both *muta* and *rupestris*, and that is, that in the perfect summer plumage of the male the feathers of the abdomen and the tibiæ are of a dull, smoky black, a coloration I have not been able to find in any of the numerous specimens of the other species examined by me; nor have I been able to find it mentioned in any description, all of which expressly state that the abdomen is always white.

As might be expected, the female of *L. ridgwayi* differs only very little in color from the females of its congeners. In the preæstival plumage the light bars are, perhaps, a little more distant, and the yellow color a shade richer and more brownish orange than in *rupestris*.

A small chick taken on Bering Island, August 5, 1882, shows a great difference from one of corresponding age from Quickjock, in Norwegian Finmarken (U. S. Nat. Mus. No. 33550, July 25, 1862), as it is rich brownish orange with much broader barring and fewer white spots than the rather dull-colored specimen from Norway. A very striking difference also prevails in the coloring of the wing-feathers, which in the pullus of *ridgwayi* are distinctly and broadly barred with orange and blackish, especially the inner ones, while these feathers in *muta* are grayish brown, with minute yellowish gray vermiculations and scarcely any indication of cross-bars. On the other hand, the Norwegian specimen is distinctly barred over the whole breast, while in the Bering Islander the more distant dark cross-bars are confined to the sides of the breast only.

The general size does not differ from its nearest allies, but the bill is considerably longer and stouter, in the latter respect intermediate between *L. alba* and the members of the *Attagen* group, and, as to the bill, probably approaching *L. islandorum* (FABER).

All taken into consideration, I regard *L. ridgwayi* as a well-defined species; in fact, as the best circumscribed form in the whole group, *L. hyperborea* (SUND.) not excepted.

♂ ad.—U. S. Nat. Mus. No. 89059, *L. Stejneger* No. 1167. Bering Island, June 6, 1882.

Most of the nasal, mental, and malar feathers, breast, flanks, abdomen, under tail-coverts, primaries, secondaries, and most of the wing-coverts, a few feathers on the lower back, and uropygium, and also the two longest upper tail-coverts, still white, the shafts of the remiges being almost wholly white. The remainder of the plumage is of a dull blackish brown, with ferruginous brown transverse bars round the neck, the feathers of the lower back and uropygium finely mottled with the same color; a



similar mottling is partly seen on many other feathers especially on those of the shoulders.

First primary shorter than sixth; second shorter than fourth, longer than fifth; third equal to fourth, longest. (See list of specimens collected.)

♂ ad.—U. S. Nat. Mus. No. 89062, L. Stejneger No. 1487. Bering Island, August 23, 1882.

Primaries, secondaries, most of the wing-coverts, and the remnants of the feathers covering the tarsus, white, more or less soiled and abraded, except the new feathers in the wings. Forehead and crown black, with ferrugineous brown edging; chin smoky black, with whitish edging. Middle of breast and abdomen, including the peculiar loose and downy feathering of the latter, and the tibiae, smoky black, the latter whitish at the base and somewhat grayish at the tips, giving these parts a cloudy appearance. The remaining plumage, including the under tail-coverts, distinctly crosswise vermiculated with black and saturated ferrugineous brown, except on the longest upper tail-coverts, and the sides of the abdomen where the design is so indistinct as to become a fine mottling only; in some of the feathers of the back the terminal or subterminal brown is of a somewhat lighter shade. Tail-feathers black to the base, and the white tips wholly worn away. The inner primaries are new and not yet fully out. They have blackish shafts, while those on the three first primaries, still left from the foregoing winter plumage, are almost wholly white.

List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.		Wing beyond tail-feathers.		Wing.	Tail-feathers.	Bill from nostrils.	Remarks.
					mm.	mm.	mm.	mm.				
82059	1167	Bering Island.....	June 6, 1882	♂ ad.	390	.....	187	102	10.0	Type!		
92713	1342	.....do.....	July 29, 1882	♂ ad.	382	.....	193	107	11.2			
89058	1419	.....do.....	Aug. 10, 1882	♂ ad.	387	.....	197	112	10.5			
89062	1487	.....do.....	Aug. 23, 1882	♂ ad.	385	.....	191	108	12.0	Type!		
89060	1489	.....do.....	Aug. 23, 1882	♂ ad.	398	.....	190	111	10.5			
92716	1689	.....do.....	Oct. 19, 1882	♂ ad.	396	.....	197	111	11.2	Type!		
92991	2083	.....do.....	May 25, 1883	(♂) ad.	.....	.....	197	103	11.0			
92992	2104	.....do.....	June 11, 1883	♂ ad.	391	59	200	112	11.3			
92709	1867	.....do.....	June 11, 1883	♂ ad.	411	73	201	106	10.7	Type!		
89061	1165	.....do.....	June 6, 1882	♀ ad.	357	.....	182	100	10.0			
89057	1418	.....do.....	Aug. 10, 1882	♀ ad.	376	....	187	94	10.5	Type!		
92710	1677	.....do.....	Oct. 9, 1882	♀ ad.	.....	.....	186	94	10.5			
92714	1869	.....do.....	Jan. 9, 1883	♀ ad.	384	60	185	98	9.5			
92717	1868	.....do.....	Jan. 11, 1883	♀ ad.	375	63	179	91	9.5			
92712	1877	.....do.....	Jan. 19, 1883	♀ ad.	381	75	187	93	9.3	Type!		
92715	1891	.....do.....	Jan. 29, 1883	♀ ad.	358	78	182	91	9.7			
92711	1940	.....do.....	Mar. 3, 1883	♀ ad.	384	.....	189	89	9.5			
89063	1399	.....do.....	Aug. 5, 1882	pull.	170	.....	93	33	5.7			

No. 92713.—Iris dark brown. Contents of gullet: seeds of *Polygonum*.

No. 89060.—Naked portion of toes light pearl gray.

No. 92716.—In the gullet only buds of a *Salix*.

No. 92709.—Bill horny black. Gullet crammed full with ends of *Empetrum nigrum*, and a few leaves of *Rhododendron chrysanthum*.

No. 92717.—Gullet crammed with ends of *Empetrum* and buds of a *Salix*.

No. 92712.—In gullet leaves of *Empetrum* and a few ones of *Rhododendron*.

No. 92715.—Contents of gullet same as of foregoing specimen.

No. 89063.—Iris dark brown.

The "*Kuropatka*" or "*Kuropaschka*," as the natives call the ptarmigan, is very common on both islands, although much more numerous on Bering than on Copper Island. During the winter of 1882-'83 two hunters shot not less than fourteen hundred of them,\* and our bill of fare during the whole time from November to March was every day distinguished by ptarmigan in some or another style, and not seldom was its palatable meat served twice a day. The natives, however, do not appreciate it as it deserves, as it is too dry for them, and, if taken ill, they will, by far, prefer a tender old "Tschaika" (sea-gull). It is well so, as otherwise not many ptarmigans would be left. It happened several times that, after an absence of an hour and a half, I returned home with between thirty and forty birds on the sledge. In March the flocks are loose, and, leaving the low-lands, they are then mostly found on the mountains about 600 to 1,000 feet above sea level. Toward the end of April the flocks disband completely, and the cry of the males is heard everywhere among the mountains, while the hen keeps herself better concealed. On a short trip in dog sledge to the south end of the island during the latter part of April I shot as many ptarmigans as I cared for, but they were all single birds and males, without exception.

The habits of the present species do not show any difference from those of the allied ones. It feeds chiefly upon the leaves of *Empetrum nigrum*, partially also on those of *Rhododendron chrysanthum*, more seldom on *Betula nana* and *Salix*, and, in the autumn, on berries and the seeds of *Polygonum*, the latter being a favorite food of the chicks.

On the 6th of July, 1883, I found a nest on Copper Island, close to the seal-rookery at Karabelnij. It was a rough affair consisting of dry grass and a few feathers, with a diameter of 140<sup>mm</sup>. It contained nine quite fresh eggs (No. 2321, U. S. Nat. Mus. No. 21804), resembling those of the allied species. The long and short diameters measure as follows: 46 by 33<sup>mm</sup>, 48 by 32.25<sup>mm</sup>, 46 by 33<sup>mm</sup>, 45 by 32.5<sup>mm</sup>, 45 by 32<sup>mm</sup>, 45 by 32<sup>mm</sup>, 45.5 by 32<sup>mm</sup>, 45 by 32.25<sup>mm</sup>, 45 by 31.5<sup>mm</sup>.

Two eggs of another set, collected in July, 1882, on Bering Island (No. 1393, U. S. Nat. Mus. No. 21805) measure 46.5 by 32.25<sup>mm</sup>, 47 by 32<sup>mm</sup>.

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\* STELLER gives the following account of the occurrence and tameness of this bird (PALL., Zoogr. l. c.): In insula Beringii gregariae, hominem minime formidantes, ut fustibus occidi et in uno loco intra horae spatium ad 80 sclopo occidi potuerint, magno naufragorum solatio. The natives even now occasionally kill them with sticks.

## ORDER ACCIPITRES.

### Superfamily ACCIPITROIDEÆ.

#### Family FALCONIDÆ.

##### 90. *Falco rusticolus* LIN.

- 1753.—*Falco rusticolus* LIN., Syst. Nat., 10 ed., I, p. 88.—*Id.*, Syst. Nat., 12 ed., I, p. 125 (1766).—FABRICIUS, Fauna Grœnl., p. 55 (1780).—MOHR, Islandsk Naturh., p. 19 (*part*) (1786).—GMELIN, Syst. Nat., I, p. 268 (1788).—LATHAM, Ind. Orn., I, p. 28 (1790).—STEJNEGER, Ank, 1885, p. 188.
- 1764.—*Falco islandus* BRÜNNICH, Orn. Bor., p. 2, No. 9.—GMELIN, Syst. Nat., I, p. 271.
- 1776.—*Falco islandus fuscus* MÜLLER, Prodr. Zool. Dan. (p. 73 et p. viii, fide Fabr.).
- 1780.—*Falco fuscus* FABRICIUS, Fauna Grœnl., p. 56.
- 1783.—*Falco gyrfalco* BODDAERT, Tabl. Pl. Enl. (pl. 210), p. 13 (*nec* LIN.).—TACZANOWSKI, Bull. Soc. Zool. France, 1883, p. 331.
- 1788.—*Falco candicans*  $\beta$  *islandicus* GMELIN, Syst. Nat., I, p. 275.—SCHLEGEL, Rev. Crit., p. i (1844).—*Id.*, Abh. Zool. Anat., I, p. 14 (1884).
- 1800.—*Falco islandicus* DAUDIN, Tr. d'Orn., II, p. 100.—BREHM, Lehrb. Vög. Eur., p. 44 (1823).
- 1800.—*Falco groenlandicus* DAUDIN, Tr. d'Orn., II, p. 107.—BREHM, Isis, 1826, p. 990.
- 1854.—*Falco arcticus* HOLBÖLL, Zeitschr., Ges. Nat., III (p. 426) (*nec F. communis*  $\mu$  *arcticus* GMEL., 1788).
- 1862.—*Falco gyrfalco groenlandicus* SCHLEGEL, Mus. P. B. Falcones, p. 13.
- 1862.—*Falco gyrfalco islandicus* SCHLEGEL, Mus. P. B. Falcones, p. 14.
- 1873.—*Falco holbælli* SHARPE, P. Z. S., 1873, p. 415.
- 1882.—*Hierofalco gyrfalco sacer* BEAN, Pr. U. S. Nat. Mus., 1882, p. 161 (*nec* FORST.).
- 1883.— $\left\{ \begin{array}{l} \textit{Falco gyrfalco-candicans} \\ \textit{Falco candicans-gyrfalco} \end{array} \right\}$  SEEBOHM, Brit. B. Eggs, I, p. 16.
- 1884.—*Hierofalco islandus* a. *holbælli* GURNEY, List Diurn. B. Prey, p. 111.

The Gray Gyrfalcon, as Mr. Gurney appropriately calls this form of the circumpolar species, usually referred to as *Falco gyrfalco*, was the only form obtained on Bering Island during the winter. It was at that season by no means uncommon, and fed chiefly on the numerous field-mice which now infest that island; but, being very shy, specimens were only secured with great difficulty. Whether this species also breeds on the island, I am unable to say, but the female, shot as late as May 5, had the ovaria in such a condition as to make it probable that she was going to breed there. This specimen was just changing from the young to the adult plumage.

The adult female (No. 101193), a very fine specimen in perfect plumage, was collected by Mr. Grebnitski after my departure and kindly presented to me.

I have been unable to distinguish, at present, the alleged races of this particular form, the Greenland *holbælli* and the typical Icelandic bird. My specimens from Bering Island are rather light, however, and may, perhaps, be nearest related to the Greenland race, if any average differences exist. I should, however, be inclined to the belief that in such case the Pacific bird might be entitled to separate recognition. The paucity and smallness of the dark spots on the under parts would seem to indicate such a possibility, but, as remarked above, I shall not venture to separate the possible races of the Gray Gyrfalcon, at present.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Chord of culmen from cere.	Tarsus.	Middle toe without claw.
92719	1795	Bering Island . . . . .	Dec. 13, 1882	♂	524	62	370	202	23	64	51
92718	1930	...do.....	Feb. 28, 1883	♂	515	52	374	210	22	65	49
92720	1959	...do.....	Mar. 23, 1883	♂	518	.....	360	205	22	66	51
92721	2011	...do.....	May 5, 1883	♀	573	76	395	228	25	64	49
101193	*64	...do.....	Jan. —, 1884	(♀) ad.	.....	.....	413	234	25	66	51

\* Grebnitski.

No. 92719.—Bill and cere bluish white; tip, including tooth, horny black; naked eye-ring white, faintly tinged with bluish. Feet white with a faint tinge of blue and yellow; nails uniform, horny black. Contents of crop: two *Arvicolæ*.

No. 92718.—Bill very light bluish gray; tip, including tooth, blackish; naked eye-ring bluish white with a strong yellowish wash behind the eye. Feet dirty white with a slight tinge of blue and yellow (not green, however!). In the stomach a ball of hairs of *Arvicolæ*. Rather fat. Weight, 4 pounds. New feathers in sheaths protruding all over the body, especially on the back.

No. 92720.—Iris dark brown. Bill light grayish blue, tip and tooth blackish; cere and naked eye-ring light bluish gray with a yellowish tinge. Feet dirty bluish white with a yellowish wash. Testes not swollen. Crop and stomach filled with remains of several *Arvicolæ*. Not fat. Weight, 4 pounds. New feathers in sheaths here and there all over the body.

No. 92721.—Bill light bluish gray, terminal half of both mandibles dark horny blue; naked eye-ring light bluish gray; cere gray with an olive shade. Feet bluish white, yellowish underneath. Ova swollen, the diameter of the largest being 5.5<sup>mm</sup>. Crop and stomach empty. Extremely fat. Weight, 4½ pounds. New feathers protruding.

91. *Falco islandus* BRÜNN.

1764.—*Falco islandus* BRÜNNICH, Orn. Bor., p. 2, Nos. 7 and 8.—FABRICIUS, Fauna Grœnl., p. 58 (1780).—LATHAM, Suppl. Synops., I, p. 282 (1787).—STEFJENGER, Auk, 1885, p. 187.

1783.—*Falco gyrfalco* BODDAERT, Tabl. Pl. Enl. (pl. 446), p. 26 (*nec* LINN.).—*Accipiter gyrfalco* SCHÄFFER, Mus. Orn., p. 7, pl. i (1789).—BREHM, Lehrb. Vög. Eur., p. 43 (1823).—PALLAS, Zoogr. Ross. As., I, p. 324 (1826).

1786.—*Falco rusticolus* MOHR, Islandsk Naturh., p. 19 (*part*).

1788.—*Falco islandus* β *albus* GMELIN, Syst. Nat., I, p. 271.

1788.—*Falco islandus* γ *maculatus* GMELIN, Syst. Nat., I, p. 271.

1788.—*Falco candicans* GMELIN, Syst. Nat., I, p. 275.—DALL & BANNIST., Tr. Chic. Ac., I, 1869, p. 271.—BLAK. & PR., Ibis, 1878, p. 249.—PALMÉN, Swed. Cat.



- London Fish. Exhib., p. 304 (1883).—SAUNDERS, Ibis, 1883, p. 350.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 351.—*Hierofalco c.* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.
- 1790.—*Falco islandicus* LATHAM, Ind. Orn., I, p. 32.—AUDUBON, Birds Am. (pl. cccxvi) (1831).
- 1806.—*Falco grænlandicus* TURTON, Gen. Syst. Nat., I (p. 147) ( *nec* DAUDIN, 1800).—HANCOCK, Ann. N. H., II, p. 249.
- 1854.—*Falco islandicus candicans* HOLBÖLL, Zeitschr. Ges. Naturw., III (p. 426).
- 1860.—*Falco gyrfalco* var. *candicans* SCHRENCK, Reis. Amurl., I, p. 223.—*Hierofalco g. c.* NELSON, Cruise Corwin, pp. 77 and 56 *e* (1883.)
- 1874.—*Hierofalco holbælli* SHARPE, Cat. B. Brit. Mus., I, pl. xiii, right-hand figure.

The White Gyrfalcon breeds on Bering Island, though in limited numbers only. A pair had their nest in a steep and inaccessible rock in the so-called "Nakovalnaja," a couple of miles from the main village. One of the old birds (No. 89126) was shot on the 27th of August. It is pure white underneath, spotted above, with black streaks on the crown and blackish, cordate spots on back and wings; the tail is uniform white, with dusky mottlings along the edges. This bird is the whitest of a large series in the National Museum.

The other specimen (No. 92722), a female, shot May 2, 1883, is pure and unspotted white below; the dark spots on the upper surface are brownish and very much faded and rather few; the form of these spots shows that the bird is in the "tear-dropped" stage; the streaks on top of head are very narrow; tail uniform white, with only faint brownish mottling along the edge.

The breeding of the White Gyrfalcon under latitude 55° is very interesting, and affords additional proof of the distinctness of this species as compared with *F. gyrfalco* and its allies. As to the name here applied, *Falco islandus*, I refer to my article in "The Auk," 1885, p. 185.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Culmen from cere.	Tarsus.	Middle toe without claw.
					mm.	mm.	mm.	mm.	mm.	mm.	mm.
89126	1627	Bering Island . . . . .	Aug. 27, 1882	(♂) ad.	.....	.....	400	235	27	70	51
92722	2006	.....do.....	May 2, 1883	♀	598	84	413	233	24	66	.....

No. 89126.—Bill bluish white, with a faint yellowish tinge, dark bluish gray at tip; cere dark bluish gray. Feet white, with a faint bluish tinge above, and a more yellowish cast below; nails dark bluish gray, whitish along the edges.

No. 92722.—Bill very light bluish gray, tip and tooth darker; cere and naked eye-ring with a faint yellowish wash. Feet white, with a faint bluish and yellowish tinge, both colors independently discernible; claws light horny brownish gray, at tip and below whitish. Extremely fat. In the crop was found meat, fat, and feathers of a gull.

92. *Falco pealei* RIDGW.

1854.—*Falco polyagrus* CASS., Illustr., pl. 16 (dark figure!).

1873.—*Falco communis* var. *pealei* RIDGW., Bull. Essex Inst., V, 1873, p. 201.

1874.—*Falco gyrfalco* RIDGW., Am. Nat. VIII, 1874, p. 434 (*nec* LIN.).—DALL., Avif. Aleut. Isl. west Unal., p. 3 (1874).

1881.—*Falco peregrinus pealei* RIDGW., Nomencl. N. A. Birds, p. 37.—*Id.*, Ibis, 1882, p. 297 (foot-note).—NELSON, Cruise Corwin, p. 78 (1883).—TURNER, Auk, 1885, p. 157.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.		Wing.	Tail-feathers.	Chord of culmen from cere.	Tarsus.	Middle toe without claw.	Stretch of wing.
					mm.	mm.	mm.		mm.	mm.	mm.	mm.	
92726	1876	Bering Island	Jan. 19, 1883	♂ ad.	442	7	342	161	22	50	48	1045	
92724	1800	.....do.....	Dec. 9, 1882	(♀) ad.	.....	.....	385	194	26	59	51	.....	
92725	2080	.....do.....	May 18, 1883	(♀) ad.	(502)	.....	382	196	25	57	56	.....	
92723	1862	.....do.....	Jan. 9, 1883	♀ jun.	482	40	380	195	25	56	55	1158	
Dybowski	.....do.....	.....do.....	Apr. 5, 1882	(♂) jun.	.....	.....	330	170	.....	49	48	.....	
Grebniński	.....do.....	.....do.....	.....	(♀) jun.	(498)	(50)	378	200	.....	56	52	(1145)	

No. 92726.—Iris dark brown. Bill with the terminal half bluish gray, darkening toward the tip and tooth, behind fading into the light yellowish gray color of the basal half; cere bright yellow; naked eye-ring pale yellow. Feet vivid golden yellow; claws blackish gray. Stomach contained feathers of a sea bird. Extremely lean, probably resulting from an old shot wound. Weight, 2½ pounds. New feathers in the sheaths protruding all over the body.

No. 92724.—Bill bluish white. Culmen, tip, and tooth horny bluish black; cere and naked eye-ring yellow. Feet yellow; claws black.

No. 92723.—Iris dark brown. Bill, cere, and naked eye-ring very light bluish gray with a faint yellowish tinge; terminal half of culmen and of upper tomtia, including the tooth, as also the tip of lower mandible, horny blackish blue. Feet pale straw yellow with a faint greenish tinge; claws horny black. Stomach containing a few feathers only; in the crop a piece of meat. Very fat. Weight, 3½ pounds.

The "*Tschornij Jastrip*" (*i. e.*, Black Hawk), as the natives call the present bird in Russian, or "*Agulekh*," as they name it in Aleutian, is a common resident of both islands, breeding in high and inaccessible cliffs.

Peale's Falcon, first described by Mr. Ridgway in 1873, seems to form a constant and well-circumscribed offshoot from the *peregrinus* stock, the constancy of its characters securing for it the title of species and the benefit of a binominal only.

All the specimens of this form which I have seen are remarkably uniform, both in the adult and the young plumage. The two adult females which I procured are in every respect counterparts of the typical female (U. S. Nat. Mus. No. 63413) described by Mr. Ridgway in "*The Ibis*," 1882, p. 297 (foot-note). The adult male has not been described, as far

as I am aware, so that the following description may not be out of place:

*♂ ad. U. S. Nat. Mus. No. 92726; L. Stejneger No. 1876. (Bering Island, Kamtschatka, January 19, 1883.)*

General color of upper surface clear plumbeous, darker, nearly blackish slate on the interscapuleum, the transition to the lighter color of the lower back and the uropygium formed by the light margins and cross-bands on the posterior interseapulars; the crown and nape are considerably darker than the lower back, but still distinctly plumbeous, and not blackish, with well defined, narrow, black, shaft-streaks; lower back rather indistinctly barred with dark plumbeous, the bars becoming deeper and more distinct on the uropygium and upper tail-coverts, and only half as broad as the light interspaces. Upper surface of the wings, primaries excepted, anteriorly blackish slate, gradually turning into plumbeous posteriorly, harmonizing with the adjacent parts of the back; the lesser wing-coverts, consequently, are nearly uniform blackish slate with slightly paler margins; those following have narrow, light cross-bars in addition, while on the larger coverts and the secondaries the light and the dark bars are of about equal breadth; primaries and primary coverts black, externally with a plumbeous tinge, the latter ones, as also the inner ones, of the former, narrowly tipped with whitish; the inner webs of the primaries with whitish (more or less mottled with dusky), lense-shaped cross-spots, except on the terminal one-fourth. Tail light plumbeous, darkening somewhat toward the tip and covered by distinct blackish bars, generally narrower than the light interspaces; tips dirty whitish. Lower surface white, from the breast backward lightly tinged with plumbeous and with a general, but faint, wash of buff all over; chin and throat nearly immaculate, only a few black, hair-fine shaft-streaks on the latter; on the jugulum these streaks become gradually heavier and more numerous, and most of them widening at the lower end into small "tear-drops;" breast, sides, and flanks transversely barred with blackish, the bars on the breast, however, not being continuous, as they consist of series of transverse spots of a somewhat cordate form, near the tip of the feathers, but not reaching the edges; the width of these bars averages 3 to 4<sup>mm</sup>, and the white interspaces 4 to 5<sup>mm</sup>; further back, on belly, thighs, crissums, and under tail-coverts the dark cross-lines gradually become more plumbeous, more distinct, and narrower, the black lines averaging about 2<sup>mm</sup>, the light interspaces 4 to 5<sup>mm</sup>. Under wing-coverts and axillaries barred with very sharply defined black and white bands of nearly equal width, except on the axillaries, where the white predominates. Mustache, subloral region, the feathers bordering the naked eye-space, and a postocular streak slaty black; subocular and auricular region exactly like the top of the head, the dark shaft-stripes being a trifle less distinct perhaps, connecting with the white of the throat behind the mustache. For colors of bill, feet, and iris, as well as dimensions, see under "List of specimens obtained." Second primary longest, first one scarcely longer than third; only the first with inner web emarginated.

The young female, No. 92723, agrees in every particular with the type (U. S. Nat. Mus., No. 12022), the brown color being only somewhat darker, which is probably due to the fact that the type is mounted and has been on exhibition for many years.

Two young specimens had been collected on Bering Island during the winter previous to my arrival there, one, the male, belonging to Dr. Dybowski, the other, the female, to Mr. Grebnitski. With the kind permission of these gentlemen I made an accurate description of the two birds, which is here appended, the dimensions being incorporated with the "List of specimens obtained."

♂ jun. (*Bering Island, April 5, 1882*).

Upper surface blackish brown, faintly tinged with bluish slate, and with faint buffy edges to each feather, which are lighter and broader, nearly whitish, on neck and fore part of the crown; forehead buffy white, with the shafts black; a stripe underneath and behind the eye, and a large patch underneath and behind the mouth blackish brown; chin and cheeks buffy white, the latter with blackish brown longitudinal stripes. Lower surface blackish brown, with buffy white edges on each feather which, besides, is crossed by one or two broad angular bars of similar color, the angle pointing towards the tip of the feather; these cross-bars are concealed, however, by the overlying feathers; on the abdomen and flanks these bands are reduced to rounded spots situated near the margin of the feathers and somewhat exposed; under tail-coverts buffy white with black transverse bars. Upper aspect of the wing similar to the rest of the upper surface, each primary having numerous buff transverse spots on the inner web towards the margin; under wing-coverts like the under surface of the body, except that the whole margin and not the edges alone are light colored, and that the angle of the light cross-bar points towards the base instead of the tip of the feathers. Tail brownish black tinged with slate gray, with buff-colored transverse spots along the margin of the inner webs, and corresponding dots of the same color on the outer webs; all tail-feathers narrowly tipped with whitish. First primary equal to third, and 10<sup>mm</sup> shorter than the second, which is longest; fourth 23<sup>mm</sup> shorter than third.

♀ jun. (*Bering Island*.)

Agrees closely with the foregoing in general coloration, but the under wing-coverts show less light, the buffy margins and spots being much narrower. On the under side of the body the pattern of the individual feather is somewhat different, as those of the breast have the concealed angular cross-bands reduced to marginal spots, while those on the belly, as a rule, have only such a spot left in one of the webs, and often wanting altogether. First primary 2 to 3<sup>mm</sup> longer than third, and about 7<sup>mm</sup> shorter than second, which is longest; fourth 24<sup>mm</sup> shorter than third; inner web of first only sinuated.

### 93, *Archibuteo lagopus* (BRÜNN.).

- 1764.—*Falco lagopus* BRÜNNICH, Orn. Bor., p. 4.—*Accipiter l.* PALLAS, Zoogr. Ross. As., I, p. 360 (1826).—*Buteo l.* MIDDENED., Sibir. Reis., II, 2 (p. 126) (1853).—DYBOW., Bull. Soc. Zool. France, 1883, p. 351.—*Archibuteo l.* DALL & BANNIST., Tr. Chic. Acad., I, 1869, p. 272.—TACZAN J. f. Orn., 1872, p. 347.—*Id.*, Bull. Soc. Zool. France, 1876, p. 123.—*Id.*, *ibid.*, 1883, p. 330.—*Id.*, Orn. Faun. Vost. Sibir., p. 10 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 248.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 238.—*Id.*, *ibid.*, X, 1882, p. 182.—BLAKIST., Amend. List B. Jap., p. 67 (1884).—*Aquila l.* SEEB., Ibis, 1884, p. 43.
- 1882.—*Archibuteo lagopus sancti-johannis* BEAN, Pr. U. S. Nat. Mus., V, July 25, 1882, p. 162 ( *nec* GMEL.).—NELSON, Cruise Corwin, p. 79 (1883).

The Rough-legged Buzzard did not put in its appearance during my sojourn, and it was only with a query that my manuscript notes referred to this species as being probably the "brown hawk," which the natives told me was occasionally seen. A fine specimen was, however, included in the valuable collection which Mr. Grebnitski had the kindness to send me in 1884, thus insuring beyond doubt the correctness of the identification. As yet, the species is only an occasional visitor to



the islands, but it would not be surprising to learn, in a not distant future, that it had become a breeding bird. The *Arvicola* were introduced only a few years ago, but are now so extremely abundant that they might afford food for a numerous colony of birds of prey.

The specimen in question shows no appreciable difference from birds of Europe, Japan, or Northwestern America. The suspicion of Taczanowski, that the Kamtschatkan specimen, which presented some peculiarities of coloration, might belong to a separate race (Bull. Soc. Zool. France, 1883, p. 330), seems, therefore, not well founded. On the other hand, after comparison, I agree perfectly with Mr. Nelson (*l. c.*), that the Alaskan specimens are indistinguishable from the palæarctic form.

The specimen, alluded to above, measures as follows:

“ ♀ ” *U. S. Nat. Mus. No. 101194; Grebn. No. 65. Bering Island, January, 1884.*

Wing, 430<sup>mm</sup>; tail-feathers, 243<sup>mm</sup>; culmen from cere, 25<sup>mm</sup>; commissure, 41<sup>mm</sup>; tarsus, 77<sup>mm</sup>; middle toe without claw, 35<sup>mm</sup>.

#### 94. *Haliaeetus leucocephalus* (LIN.).

1766.—*Falco leucocephalus* LIN., Syst. Nat., 12 ed., I, p. 124.—KITTL., Kupfert, I, p. 4 (1832).—*Aquila l.* PALL., Zoogr. Ross. As., I, p. 347 (1826).—KITTL., Denkw., II, p. 278 (1858).—*Haliaetus l.* STEPH. in Shaw, Gen. Zool., XIII, 2, p. 13 (1826).—DALL & BANN., Tr. Chic. Ac., I, 1869, p. 272.—FINSCH, Abh. Brem., Ver., III, 1872, p. 22.—DALL, Avif. Aleut. Isl., Unal eastw., p. 2 (1873).—*Id.*, Avif. Aleut. Isl., west Unal., p. 3 (1874).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 162.—NELSON, Cruise Corwin, p. 30 (1883).—HARTLAUB, J. f. Orn., 1883, p. 263.—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 66.—*Id.*, Naturen, 1884, p. 8.—PALMÉN, Swed. Cat. Lond. Fish. Exh., p. 203 (1883).—SAUNDERS, Ibis, 1883, p. 350.—TURNER, Auk, 1885, p. 157.

1826.—*Aquila pelagica* PALL., Zoogr. Ross. As., I, p. 143 (*part*).

The Bald Eagle inhabiting Bering Island is here recorded under the name of *H. leucocephalus*, though I am, by no means, satisfied as to the propriety of so doing, since all the specimens which I have obtained and those which I have had the opportunity of examining—altogether eleven specimens—indicate certain differences from typical *leucocephalus*, which make me believe that we will have to recognize ultimately a northwestern race of this bird, somewhat corresponding to the northwestern race of the gray sea eagle, which Faber has designated as *H. albicilla borealis*. I do not deem the material quite sufficient, however, to decide the question, for, although twenty-four specimens are not a despicable number of so large a bird, the fact that the sexing in many cases is evidently unreliable, while in others no determination of the sex has been attempted by the collector, makes it less valuable and conclusive than would otherwise have been the case. It may therefore be considered best only

to present the facts as they are before me, leaving the question open for future investigation. Any one looking at the Bering Island birds will at once be impressed by their much larger size as compared with specimens from the American continent, the extremely powerful bill and claws being particularly striking, in proof of which I submit the following tables of dimensions. I may remark that the sex is given in parenthesis, when not verified by Mr. R. Ridgway or myself by dissection, and furthermore that the specimens from the States are the largest ones I could pick out. All specimens with black tails are recorded as young, while those with the rectrices white, or more white than black, are given as adult.

TABLE I.—*Specimens from Bering Island.*

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Culmen from cere.	Radius of curvature of culmen from cere.	Height of upper mandible at fore border of cere.	External chord of hind claw.
					mm.	mm.	mm.	mm.	mm.	mm.
101198	Gr. 74	(♂) ad.	Bering Island.....	Feb., 1884	635	310	53	31	28	44
101196	Gr. 77	(♂) jun.	.....do.....	Mar., 1884	650	346	51	30	27	42
92739	St. 1685	jun.	.....do.....	Oct. 15, 1882	715	390	55	34	30	47
101195	Gr.	jun.	.....do.....	Oct., 1883	677	350	54	34	29	47
101197	Gr. 24	(♀) jun.	.....do.....	Oct., 1883	705	380	58	33	31	47
92740	St. 1783	♂ jun.	.....do.....	Dec. 5, 1882	648	332	52	32	29	42
92741	St. 1781	♀ jun.	.....do.....	Dec. 2, 1882	705	370	59	33	31	49
	Grebn.	jun.	.....do.....		680	350	58	35	31	47
	Grebn.	jun.	.....do.....		690	375	57	36	31	47
	Grebn.	jun.	.....do.....		700	370	57	39	31	49
	Grebn.	(♂) ad.	.....do.....		600	310	52	32	28	41

TABLE II.—*Typical H. LEUCOCEPHALUS from the United States.*

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Culmen from cere.	Radius of curvature of culmen from cere.	Height of upper mandible at fore border of cere.	External chord of hind claw.
11986	Drexler...	(♀) ad.	Philadelphia, Pa.....	....., 1857	650	314	54	31	29	42
41595	.....	jun.	Washington, D. C.....	.....	625	315	53	32	29	42
77911	Horan....	(♀) jun.	.....do.....	....., 1879	570	281	50	28	26	38
97398	McDonald	♀ jun.	Virginia.....	Apr. 8, 1884	670	330	54	31	28	45
12017	Drexler.	(♂) ad.	Philadelphia, Pa.....	....., 1857	575	252	47	28	25	38
92501	Ridgway..	♂ ad.	Fairfax County, Vir- ginia.	Nov. 29, 1883	575	255	48	28	25	38
11998	.....	(♀) ad.	Louisiana.....	.....	610	288	49	27	24	38
41237	Drexler..	ad.	Washington, D. C.....	.....	585	287	50	.....	25	37

TABLE III.—*Specimens from Southern Alaska.*

U. S. Nat. Mus. No.	Collector and No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Culmen from cere.	Radius of curvature of culmen from cere.	Height of upper mandible at fore border of cere.	External chord of hind claw.
70093	Pauslin...	(♀) ad.	Kodiak .....	.....	635	313	51	30	27	40
45835	Bishoff...	(♀) ad.	Sitka.....	Feb., 1866	650	302	54	33	29	41
45838	Bishoff...	(♂) ad.	do.....	Jan., 1866	635	296	50	30	27	39
52509	Bishoff ...	ad.	Kodiak .....	.....	645	305	53	32	29	43
45836	Bishoff...	(♂)jun.	Sitka.....	Apr., 1866	615	305	51	30	26	38

It will be seen that the difference between the dimensions of the specimens of Table I and those of Table II is quite considerable, the females of the latter being about the size of the males of the former. A comparison of the specimens furthermore shows, that there is a not less marked difference in color. The adults from Bering Island lack the peculiar chocolate brown characteristic of the southern birds, the brown of the former being rather a smoky brownish black.

So far the two apparent forms seem easily distinguishable, but here the specimens, the dimensions of which are given in Table III come in between, and, in this case especially, the uncertainty in regard to the sex interferes, making it impossible to reach a conclusion. Two specimens are labeled "♂," two others are said to be "♀," but here is evidently an error, for it can hardly be doubted that Nos. 70093 and 45838 are of the same sex, notwithstanding the statement of the collectors to the contrary, and I am strongly inclined to think that all the five birds enumerated in Table III belong to the same sex. But here is where the difficulty comes in, for it depends upon their sex to which of the above forms they are referable; their size is about that of the males from Bering Island and that of the females from the south, so that they belong to the former group if males, to the latter if females. Nor does the color help us out of the difficulty. The Kodiak and Sitka birds are darker than southern specimens, though still perceptibly "chocolate" brown. At present, however, I am inclined to regard these birds as belonging to the southern race.

Finally I submit the "remarks" relating to the specimens collected by me.

No. 92739.—Bill black; lower mandible and cere very dark olive gray, corner of mouth orange, Feet vivid yellow.

No 92740.—Total length, 833<sup>mm</sup>; tail beyond tip of closed wings, 77<sup>mm</sup>; stretch of wings, 2.188<sup>m</sup>. Weight, 10¼ pounds. Stomach empty. Exceedingly fat.

No. 92741.—Total length, 1.010<sup>m</sup>; tail beyond closed wings, 105<sup>mm</sup>; stretch of wings, 2.330<sup>m</sup>. Weight, 14¼ pounds. Bill horny black; towards the base fading into yellowish; cere dark olive; corner of mouth yellowish orange; naked eye-ring yellow. Feet golden yellow. Stomach empty. Exceedingly fat.

The Bald Eagle is not so abundant on Bering Island as it used to be, judging from the numerous deserted nests which are pointed out by the natives, and it is only in the southern and more mountainous part of the island that one is now sure to find it. My researches have proven that this is the eagle of which Steller speaks as inhabiting the island, and not *Thalassoaëtus pelagicus*, as Pallas erroneously supposed. Thinking it of interest to embody all the results of my investigations here, I simply reprint the following from my preliminary report, having no additional evidence to offer:

“Steller, in his description of Bering Island, mentions a sea eagle in the following terms: ‘Von seltnern, an der sibirischen Küste nicht gesehenen Vögeln habe ich dort [Bering Island] einen besondern Seeadler mit weissem Kopf und Schwanz \* \* \* angetroffen \* \* \* jener nistet auf den höchsten Felsen, und sie haben im Anfang des Junius Junge, die ganz mit weisser Wolle bedeckt sind.’ This is the same bird of which he speaks in his ‘Beschreibung von dem Lande Kamtschatka’ (1774), pp. 193–194, as follows: ‘Eine Art unbekannter und sehr schöner Adler, so aber in Kamtschatka viel seltsamer vorkommen als in America und den Inseln im Canal, dabero auch solche bis diese Stunde noch nicht erhalten können. Es ist derselbe so gross als der *Haliæetus*, ganz schwarz, ausgenommen den Kopf, *Uropygium*, schwarze Füsse \* und Schenkel, welche so weiss als Schnee sind. Er macht sein Nest auf hohen Felsen, aus Reisern im Diameter von einen Faden einen Schuh dicke und legt seine Eyer gegen den Anfang des Junii, zwey an der Zahl. Die Jungen sind ganz weiss, ohne einige Flecken; und stiesen die beyde Eltern, da ich auf Bärings Eilande das Nest besahe, dergestalt auf mich zu, dass ich mich kaum ihrer mit dem Stock erwehren konnte. Ohnerachtet ich den *Pullo* keinen Schaden zugefüget, verliesen die Alten dennoch das Nest und baueten sich ein anderes an einen Felsen wohin niemand möglich zu kommen.’

“I think there can be little doubt that the bird thus described is a

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\* This is completely senseless. I conjecture it to be a misprint for “Schwanzedern.”



*Haliaeetus leucocephalus* (Linn.) in spite of the white 'thighs,' which perhaps is only a *lapsus calami* of the person copying the original manuscript, this being, as we know, only a rough draft of Steller's, in common with the 'black feet.' The following are my special reasons: 1. The habitat given by Steller agrees exactly with that of *H. leucocephalus*, while *T. pelagicus* is common in Kamtschatka, and does not occur at all in America; 2. 'White head' can only be said about *leucocephalus* and not of *pelagicus*, which has merely the forehead white; 3. If Steller had intended to describe the *pelagicus* he would not have overlooked the white shoulders, a much more conspicuous feature than the white forehead; 4. Even if Steller's manuscript contained the words 'thighs white' it would be of little importance, as it seems that he did not kill the bird and only made the description from the living animal. In *pelagicus* the whole abdomen is white. The supposition here advanced seems the more plausible, as a pair certainly belonging to this species still breeds in the neighborhood of the place where Steller and his comrades wintered." (Proc. U. S. Nat. Mus., VI, 1883, p. 66.)

95. *Haliaeetus hypoleucus* RIDGWAY.

1883.—*Haliaeetus* sp. STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 67.

1883.—*Haliaeetus hypoleucus* "Stejneger MSS.," RIDGW., Pr. U. S. Nat. Mus., 1883, p. 90.—STEJNEGER, Naturen, 1884, p. 8.

1884.—*Haliaetus albicilla* subsp. *hypoleucus*? GURNEY, List Diurn. B. Prey, p. 58.

The type specimen of the present species is still unique, and its status consequently somewhat doubtful. But, before proceeding to discuss it, the original description by Mr. R. Ridgway may be advantageously reprinted as follows:

"Young ♀ (No. 89127, collector's No. 1055, Bering Island, May 15, 1882). Ground color of pileum, nape, upper back, rump, with lesser and middle wing-coverts dirty white, spotted with grayish brown, the spots of the latter color being chiefly subterminal, but often occupying the tips of the feathers; upper part of rump with white largely predominating; greater wing-coverts and longer scapulars uniform dusky, bordered terminally with mottled dirty grayish white; tertials uniform slate-dusky; upper tail-coverts mottled dusky terminally, mottled white basally; remiges uniform brownish black; rectrices blackish dusky, the inner webs much mottled with pale grayish and buffy white. Side of head with a broad and distinct stripe of nearly uniform brown, occupying the entire orbital and auricular regions. Entire lower parts white, all the feathers with distinct dusky shafts; those of throat streaked

with pale brown, those of jugulum and upper breast with a large terminal spot of dusky, many of the feathers of sides and abdomen with small and usually indistinct brown terminal spots; thighs and crissum dirty white, the feathers with dusky terminal spots, these largest on crissum, and on upper and inner portions of thighs coalesced so as to form the predominating color. Under side of wing white, spotted with dusky." (Proc. U. S. Nat. Mus., VI, 1883, p. 90.)

My remarks on the fresh bird read as follows:

Iris faint yellowish white. Bill horny brown; cere yellow, on culmen shaded with horny brown. Feet vivid golden yellow.

*Dimensions*.—Total length, 890<sup>mm</sup>; stretch of wings, 2,220<sup>m</sup>; wing, 630<sup>mm</sup>; tail-feathers, 322<sup>mm</sup>; culmen from cere, 56<sup>mm</sup>; radius of curvature from cere to tip, 35<sup>mm</sup>; height of upper mandible at fore border of cere, 29<sup>mm</sup>; external chord of hind claw, 44<sup>mm</sup>.

In my preliminary report (Proc. U. S. Mus., VI, 1883, p. 67), when comparing it with the young of *H. leucocephalus*, I stated that "the size is not inconsiderably less than that of the bald eagle, as the specimen in question represents the largest size of its kind, being not larger than an old male of the said species. The bill is fully equal in size to that of a young *leucocephalus*, and the feet likewise; but the body, tail, and wings are smaller."

My friend, Mr. R. Ridgway, on the other hand, thought that it compared better with the adult male of *H. albicilla* "as for size and proportions" (*l. c.*, p. 91, foot-note), at the same time indicating as a possibility that it might be "the eastern representative" of the latter (*l. c.*, p. 90), a statement which has evidently induced Mr. Gurney to reduce it to a subspecies, as *H. albicilla hypoleucus*, though adding a query, it is true. Mr. Ridgway, however, has now reversed his opinion after having seen the enormous eagles which I brought back from Bering Island, the subjects of my comparison, while at the time, when he wrote his remarks, he had only specimens of the much smaller form for comparison. His remarks, that the "bill and feet are much larger than in a specimen of the bald eagle of equal size so far as other measurements are concerned," are therefore in complete harmony with those of mine, that "the size is in some respects inferior to that of the bald eagle, the bill holding fully the size of that of a young *H. leucocephalus*, and the feet likewise, but the body, the wing, and tail being smaller." What we both wished to express and emphasize was the disproportion between the dimensions of the other parts and those of the bill and feet.

In this connection I will call attention to another character of the

specimen under consideration, in which it differs from all the other specimens of both *H. leucocephalus* and *albicilla*, viz, the great length of the culmen of the cere, as also the great breadth of the back of the bill, just between the horny part and the frontal feathering. The former dimension is 20<sup>mm</sup>, and the latter, as measured at the middle, is 13<sup>mm</sup>, figures considerably larger than the maximum dimensions of even the most gigantic specimens at my command.

No satisfactory explanation having as yet been found for the curious concomitancy of the new dark tail-feathers with the yellowish irides and the rather light colored cere, I only reiterate Mr. Ridgway's remarks (*l. c.*, p. 91, foot note):

"The middle rectrices have been moulted, and those of the new dress are just making their appearance. *They are even darker in color than the old ones*, although similarly marked, which would indicate either that the individual in question would not have attained its perfect plumage the next year, or else that the adult does not have a white tail. That the specimen is not in its first year is clearly indicated by the character of the plumage, as well as by the date of its capture (May 15); while that it is probably more than two years old is strongly suggested by the light color of the bill and cere which in *H. albicilla* and *H. leucocephalus* do not become yellowish until the bird begins to assume a portion of its adult livery."

The most striking feature of the bird, however, is the general white color of the plumage, and after having examined the ample material of the National Museum I must still repeat what I said when first calling attention to the bird, viz, that "I have never seen a young *Halicæetus* with the whole lower surface almost white, and the upper side with dark tips and edgings on a whitish bottom, such as my No. 1055." (*L. c.*, p. 67.)

It is but fair to state, however, that I have seen a bird, a young female *leucocephalus*, which was shot in Virginia April 8, 1884, by Col. M. McDonald, which, in regard to general coloration, is intermediate between the average style of *leucocephalus* and my bird. Still there is a considerable distance between the two specimens. They are apparently of about the same age, but the Virginia bird had the usual dark bill and cere, and brown irides, and the proportions, both of body and bill, are normal.

If the present bird is nothing more than a very extraordinary individual variety of *H. leucocephalus*, its true habitat is somewhere outside

of Bering Island, to which island it then comes as an accidental visitor only. It should especially be looked for toward the northern part of Kamtschatka, since in that country there is a vague rumor that white-bellied eagles live on the great Karaginski Island. It must be borne in mind that Kamtschatka is peculiar for the development of the white color in the plumage of its birds, a very interesting instance of which is the pure white *Astur candidissimus* DYB.

The negative fact that I did not procure more than the single specimen is therefore no evidence against the validity of the species. It will be seen that nothing has happened since the establishment of the name that changes its status. The same reasons for supposing it to be distinct then, exist to-day.

*Haliæetus hypoleucus* is therefore retained for further attention and investigation.

96. *Haliæetus albicilla* (LIN.).

1758.—*Falco albicilla* LIN., S. N., 10 ed., I, p. 89.—KITTL., Kupfert., I, p. 4, pl. ii, fig. 2 (1832).—*Id.*, Denkwürd., II, p. 278 (1858).—*Aquila a.* PALLAS, Zoogr. Ross. As., I, p. 347 (1826).—*Haliæetus a.* TEMM. & SCHL., Faun. Jap. Av. (p. 13) (1847).—SCHRENCK, Reis. Amurl., I, p. 223 (1860).—TACZAN., Bull. Soc. Zool. France, 1876, p. 120.—*Id.*, *ibid.*, 1883, p. 329.—BLAKIST. & PRYER, Ibis, 1878, p. 247.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 237.—*Id.*, *ibid.*, X, 1882, p. 180.—BOLAU, J. f. Orn. 1880, p. 114.—BLAKIST., Chrysanthemum, 1882, p. 427.—*Id.*, Amend. List B. Jap., pp. 19, 66 (1884).—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 351.—STEJNEGER, Naturen, 1884, p. 8.

I did not myself succeed in getting a specimen of this species during my sojourn at the islands, and was consequently highly gratified by receiving the following year a specimen from Mr. Grebnitski. This was the more welcome as it was an adult male, so that there cannot be any possible doubt as to the identity of the species. On Bering Island the species is only an occasional visitor from Kamtschatka.

The specimen was particularly acceptable, since I was thereby enabled to ascertain the value of the statement of Kittlitz, that the Kamtschatkan specimens, collected by him, were much paler than European birds. I was the more prepared to suspect the eastern birds of being distinct, since Pallas, in speaking of a Kamtschatkan variety which he considers different, asks: "An species distincta?"

The specimen collected by Mr. Grebnitski contradicts entirely the statements of v. Kittlitz and Schrenck (*l. c.*), it being so far from lighter than average European specimens that the new feathers which are coming out seem to be unusually dark. The remains of the old plumage are very bleached, however, and as v. Kittlitz's specimens prob-



ably were obtained during the latter part of the summer, bleaching may account for their lighter color. (Of that Schrenck's very dark birds were obtained in January and February.) As to the differences pointed out by Pallas (*Z. R. A.*, I, p. 317), who seems chiefly to refer to the form of the tail, I can only state, that I am unable to see them.

A glance at the subjoined dimensions will convince us that the specimen is very small, not exceeding the average of the smaller Central European form. This fact is particularly interesting when we consider that it is in this very region that *H. leucocephalus* obtains its greatest development. The *H. albicilla* from Bering Island looks like a pygmy alongside its gigantic white-headed cousins.

"♂" *ad.*—*U. S. Nat. Mus. No.* 101199; *Grebnitski No.* 61. *Bering Island, November, 1883.*

Wing, 608<sup>mm</sup>; tail-feathers, 258<sup>mm</sup>; culmen from cere, 51<sup>mm</sup>; radius of curvature from cere to tip, 27<sup>mm</sup>; height of upper mandible at fore border of cere, 26<sup>mm</sup>; external chord of hind claw, 39<sup>mm</sup>.

#### 97. *Thalassoaëtus pelagicus* (PALL.).

1826.—*Aquila pelagica* PALL., *Zoogr. Ross. As.*, I, p. 343, pl. I.—KITTL., *Kupfert.*, I, p. 3, tab. ii, fig. 1 (1832).—*Id.*, in Lütke, *Voy. aut. Monde, Atlas, Part. hist.* pl. xiii.—*Id.*, *Denkw.*, I, p. 330; II, pl. ad p. 364 (1858).—MIDDEND., *Sibir. Reis.*, II, 2 (p. 125) (1853).—*Haliæetus p.* TEMM. & SCHLEG., *Faun. Jap. Av.* (p. 11, pl. iv) (1847).—CASSIN, *Illustr. Birds*, p. 31, pl. vi (1854).—SCHRENCK, *Reis. Amurl.*, I, p. 222 (1860).—SCHLEG., *Mus. P. B. Aquilæ*, p. 14 (1862).—SWINHOE, *P. Z. S.*, 1863, p. 260.—*Id. ibid.*, 1871, p. 339.—*Id.*, *Ibis*, 1874, p. 150.—HOMMEYER, *Journ. f. Orn.*, 1868, p. 248.—PRZEWAŁSKI, *Putesch. Ussuri*, *Suppl.* (p. 52) (1870).—FINSCH, *Abh. Brem.*, Ver., III, 1872, p. 24.—DALL, *Avif. Aleut. Isl. west Unal.*, p. 4 (1874).—DAVID & OUST., *Ois. Chine* (p. 13).—TACZAN., *Journ. f. Orn.*, 1876, p. 190.—*Id.*, *Bull. Soc. Zool. France*, 1876, p. 120.—*Id.*, *ibid.*, 1883, p. 329.—*Id.*, *Orn. Faun. Vost. Sibir.*, p. 8 (1877).—BLAKIST. & PRYER, *Tr. As. Soc. Jap.*, VIII, 1880, p. 238.—*Id.*, *ibid.*, X, 1882, p. 180.—BLAKIST., *Chrysanthemum*, April, 1883.—*Id.*, *Amend. List B. Jap.*, p. 66 (1884).—SEEBOHM, *P. Z. S.*, 1884, p. 409.—*Thalassoaëtus p.* STEJNEGER, *Pr. U. S. Nat. Mus.* 1883, p. 65; *Auk*, 1884, p. 82.—*Id.*, *Naturen.* 1884, p. 7, fig.—DYBOWSKI, *Bull. Soc. Zool. France*, 1883, p. 351.

1830.—*Falco leucopterus* TEMMINCK, *Pl. Color.*, I, pl. 489.

1832.—*Falco imperator* KITTLITZ, *Kupfert.*, I, p. 3.

1858.—*Aquila ossifraga* KITTLITZ, *Denkwürd.*, II, pp. 366, 406 (*nee* BRÜNN., 1764).

As I have shown elsewhere (*Pr. U. S. Nat. Mus.*, VI, 1883, p. 66, and this work under *Haliæetus leucocephalus*), Pallas was very much mistaken in giving Bering Island as the true habitat of this bird. This mistake arose from his having misunderstood Steller's description of the bald eagle as referable to *Th. pelagicus*. The habitat is especially the mainland of Kamtschatka, where it is abundant, but also all the countries bordering the Okotsk Sea.

On Bering Island it is only an occasional visitor, being chiefly an inland bird preferring the quiet rivers and lakes surrounded by dense forests. During my sojourn on the islands two individuals were reported as seen, one early in the spring, the other about the 8th of June, 1883. A specimen obtained by Mr. Grebuitski the year previous to my arrival was examined by me, and the measurements are embodied in the following—

Table of dimensions.

U. S. Nat. Mus. No.	Collector's No.	Sex and age.	Locality.	Date.	Total length.	Wing.	Tail-feathers.	Culmen, from cere.	Radius of curvature of bill from cere to tip.	Tarsus.	Middle toe without claw.	Height of bill at fore border of cere.	External chord of hind claw.	Graduation of tail.
92732	2057	♂ ad.	Petropaulski, Kamtschatka.	1883. May 24	mm 962	mm 600	mm 320	mm 63	mm 39	mm 99	mm 74	mm 35	mm 43	mm 110
92733	2043	♂ ad.	do	May 21	954	610	320	65	....	98	....	37	45	108
92731	2062	♀ ad.	do	May 25	1042	648	320	70	44	102	....	40	48	130
92735	2185	ad.	do	June —	....	630	330	67	....	103	82	38	45	99
92736	2309	ad.	do	July —	....	590	315	66	39	....	....	36	43	105
92737	2308	ad.	do	July —	....	585	300	66	41	97	75	37	42	95
92734	2310	ad.	do	July —	....	605	313	67	....	97	67	37	43	85
92738	2311	juv.	do	July —	....	255	65	53	35	....	....	32	37	....
	Greb.	.....	Bering Island.	.....	"910"	630	340	68	41	....	....	37	44	....

No. 92732.—Tail beyond closed wings, 120<sup>mm</sup>; stretch of wings, 2.220<sup>m</sup>. Iris, cream color. Bills, cere, and naked eye-space, as also the feet, intense golden yellow, bill tending to orange, and without trace of dusky. Testes small. Not fat.

No. 92733.—Tail beyond closed wings, 115<sup>mm</sup>; stretch of wings, 2.250<sup>m</sup>. Iris pale cream color. Bill, cere, and naked eye-space orange yellow, slightly dusky at tip of upper mandible. Feet yellow, tarsus somewhat paler; claws horny, bluish gray. Testes small, not swollen. Not fat. Weight, 12 pounds.

No. 92731.—Tail beyond closed wings, 110<sup>mm</sup>; stretch of wings, 2.360<sup>m</sup>. Iris, yellowish cream color. Bill, cere, and naked space of face yellow, the bill somewhat tinged with orange. Feet bright golden yellow; claws horny whitish, blackish only along the back. A naked "breeding patch," 140 by 90<sup>mm</sup>, on the anterior part of the belly. Ova very small, only a few being swollen, and measuring about 5<sup>mm</sup>. Rather fat.

A most interesting specimen is No. 92738, a downy young, just assuming the first plumage, the feathers coming out copiously on head, upper neck, interscapular region, wings, breast, anal region, and tail. The predominant color of the feathers is a dull blackish brown, slightly lighter brownish on the middle of the feathers of the top of the head; the inner webs of the wing-coverts are lighter, some at the base whitish, secondaries and scapulars margined with lighter brown. The tail-feathers, of which only the tips are visible, are white near the end, mottled with blackish further up. The down covering the rest of the body

is of a smoky brownish gray. It will be seen from the table of measurements that the bill is as big as that of a full grown *Haliaeetus leuccephalus*, notwithstanding the fact that the knob at the tip of the upper mandible has not yet disappeared. The lores are naked, with only a few scant bristles.

During the first days of June, 1883, after I had left Petropaulski, one of the natives secured for me the contents of a nest and one of the parents, No. 92735. In the nest were two eggs containing nearly hatched young, and as the hunter accidentally broke one of the eggs, he only sent me the fœtus in alcohol. The down of the latter (No. 92990) is pure silky white all over.

### 98. *Pandion haliaetus* (LIN.).

1758.—*Falco haliaetus* LIN., S. N., 10 ed., I, p. 91.—KITTL., Denkw., II, p. 197 (1858).—*Accipiter h.* PALLAS, Zoogr. Ross. As., I, p. 355 (1826).—*Pandion h.* SCHRENCK, Reis. Amurl., I, p. 227 (1860).—SWINHOE, Ibis, 1860, p. 46.—*Id.*, *ibid.*, 1861, p. 24.—*Id.*, *ibid.*, 1863, p. 209.—*Id.*, *ibid.*, 1865, p. 347.—*Id.*, *ibid.*, 1870, p. 86.—*Id.*, *ibid.*, 1874, p. 426.—*Id.*, P. Z. S., 1863, p. 260.—*Id.*, *ibid.*, 1871, p. 340.—RADDE, Reis. Süd. Ost-Sibir., II (p. 97) (1863).—PRZEW., Putesch. Ussuri (p. 52) (1870).—TACZAN., Journ. f. Orn., 1872, p. 346.—*Id.*, Bull. Soc. Zool. France, 1876, p. 121.—*Id.*, *ibid.*, 1882, p. 384.—*Id.*, Orn. Faun. Vost. Sibir., p. 9 (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 247.—*Id.*, Tr. As. Soc. Jap., VIII, 1880, p. 238.—*Id.*, *ibid.*, X, 1882, p. 181.—BLAKIST., Chrysanthemum, September, 1882, p. 427.—*Id.*, *ibid.*, January, 1883, p. 36.—*Id.*, Amend. List B. Jap., p. 66 (1884).—BOLAU, Journ. f. Orn., 1882, p. 330.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 351.—SEEBOHM, Ibis, 1884, p. 183.

The Osprey, liké the other raptores feeding on salmon, is very abundant in Kamtschatka. To the islands, however, this species only comes as an occasional visitor. A specimen was recorded, as seen on Bering Island, May 24, 1883, during my absence in Petropaulski, where, as will be seen from the list of specimens collected, on the same day I secured two specimens, it being then very numerous at the few open places on the rivers and along the coast.

It will be seen from the measurements given below that the eastern birds are not smaller than European examples. Two Japanese specimens in the collection are still larger, so that the existence of a smaller race, "*orientalis*," in Japan seems to be out of the question, as already remarked by Captain Blakiston.

With the Japanese specimens those collected by me agree very well as to color, the spots on the breast being even darker and larger, if anything, in the latter, and the shafts of the rectrices are brown at the lower end. They are consequently referable to the Old World typical

*halictus*, and very easily distinguishable from the North American *carolinensis*. Third primary in all the specimens is longer than the second.

In my specimens the iris was of a clear yellow without orange. Mr. Ridgway assures me that in the two specimens of the American bird (*carolinensis*) he has collected the irides were scarlet (cf. Hist. North Amer. B., III, p. 184, foot-note). I should like to be informed whether the Old World form at any age has a similarly colored iris.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Culmen from cere.	Tarsus.	Middle toe without claw.	Total length.
					mm.	mm.	mm.	mm.	mm.	mm.
92727	2051	♂ ad.	Petropaulski, Kamtschatka.	May 23, 1883	484	204	30	59	45	543
92728	2075	♂ ad.	..... do .....	May 24, 1883	480	200	30	59	.....	535
92730	2060	ad.	..... do .....	May 24, 1883	465	200	30	57	42	550
92729	2635	♀	Velutschka, Kamtschatka.	Sept. 21, 1883	490	218	34	58	46	.....
101660	.....	ad.	Petropaulski, Kamtschatka.	..... .., 1884	485	202	32	59	44	.....

No. 92727.—Wings beyond tip of tail, 37<sup>mm</sup>. Iris bright yellow. Bill in front of nostrils black; at base, cere, and mouth grayish blue sharply contrasted with the black tip; naked skin above the eye somewhat lighter grayish blue; eye-ring blackish. Feet very light blue with a greenish tinge; anterior border of the distal scales of the toes, as also the claws, blackish.

## Superfamily STRIGOIDEÆ.

### Family STRIGIDÆ.

#### 99. *Asio accipitrinus* (PALL.).

- 1771.—*Stryx accipitrina* PALL. Reise Russ. Reichs, I, p. 455 ( *nec* BECHST.).—*Asio accipitrinus* NEWTON in Yarrell's Brit. Birds, 4 ed., I, p. 163 (1872).—BLAKIST. & PRYER, Ibis, 1878, p. 246.—*Id.*, Trans. As. Soc. Jap., VIII, 1880, p. 236.—*Id. ibid.*, X, 1882, p. 178.—SEEBOHM, Ibis, 1879, p. 41.—NELSON, Cruise Corwin, p. 75 (1883).—BLAKIST., Amend. List B. Jap., pp. 18, 65 (1884).—TURNER, Auk, 1885, p. 157.—MURDOCH, Auk, 1885, p. 201.
- 1772.—*Strix brachyotus* I. R. FORSTER, Phil. Trans., LXII, p. 324.—MIDD., Sibir. Reise., II, 2 (p. 130) (1852).—SCHRENCK, Reise. Amurl., I, p. 246 (1860).—RADDE, Reisen Süd. Ost-Sib., II (p. 122) (1863).—*Otus b.* SWINHOE, Ibis, 1861, pp. 26, 327.—*Id. ibid.*, 1863, p. 89.—*Id.*, P. Z. S., 1863, p. 262.—*Id. ibid.*, 1871, p. 344.—WHITELEY, Ibis, 1867, p. 195.



- 1791.—*Strix palustris* BECHST., Gem. Naturg. Deutschl., II (p. 344).—*Brachyotus* p. DYBOW. & PARVEX, J. f. Orn., 1868, p. 331.—TACZAN., J. f. Orn., 1872, p. 350.—*Id.*, *ibid.*, 1874, p. 334.—*Id.*, Bull. Soc. Zool. France, 1876, p. 132.—*Id.*, Orn. Faun. Vost. Sibir., p. 18 (1877).—DALL., Notes Avif. Aleut. Isl. west Unal., p. 4 (1874).—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 355.
- 1826.—*Stryx agolius* PALL., Zoogr. Ross. As., I, p. 309.
- 1856.—*Brachyotus cassinii* BREWER, Proc. Boston Soc. Nat. Hist., 1856 (p. 321).—DALL & BANNIST., Trans. Chic. Acad., I, 1869, p. 273.—DALL, Notes Avif. Aleut. Isl., Unal. eastw., p. 2 (1873).

This owl seems to be a resident, though not very numerous, and rather rare in winter. It was observed frequently in May and June, 1883, near the village on Bering Island, and the natives of Copper Island informed me that they use to see it in Pestschanij Valley, when, in August, they dig for the roots of the Saranna lily.

List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Sex and age.	Locality.	Date.	Wing.	Tail.	Wings beyond tip of tail.	Total length.
					mm.	mm.	mm.	mm.
92755	1759	♂ ad.	Bering Island.....	Nov. 25, 1882	312	148	.....	363
92754	1831	.....	.....do.....	Dec. 30, 1882	.....	.....	.....	352
92756	2120	♂ ad.	.....do.....	June 3, 1883	320	145	20	387

No. 92755.—Iris light yellow. Bill and cere horny black.

No. 92754.—Iris bright yellow.

No. 92756.—Iris bright yellow. Stomach contained remains of *Arvicola rutila*. Testes large, swollen.

100. *Nyctea nyctea* (LIN.).

- 1758.—*Strix nyctea* LIN., Syst. Nat., 10 ed., I, p. 93.—PALL. Zoogr. Ross. Asiat., I, p. 312 (1826).—MIDDEND., Sibir. Reise, II, 2 (p. 130) (1853).—SCHRENCK, Reise. Amurl., I, p. 247 (1860).—RADDE, Reisen Süden Ost-Sibir., II (p. 124) (1863).—*Surnia n.* PRZEW., Putesch. Ussur. (p. 52) (1870).—*Nyctea n.* LICHT., Nom. Mus. Berol., p. 7 (1854).—TURNER, Auk, 1885, p. 157.
- 1798.—*Strix nivea* THUNB., Sv. Vet. Acad. Förhandl., 1798 (p. 184).—*Nyctea n.*, DYBOW. & PARVEX, J. f. Orn., 1868, p. 331.—TACZAN., J. f. Orn., 1872, p. 349.—*Id.*, *ibid.*, 1874, p. 334.—*Id.*, Bull. Soc. Zool. France, 1876, p. 129.—*Id.*, *ibid.*, 1883, p. 332.—*Id.*, Orn. Fauna. Vost. Sibir., p. 16 (1877).—DALL & BANN., Trans. Chic. Acad., I, 1869 (p. 273).—DALL, Avif. Aleut. Isl. Unal. eastw., p. 2 (1873).—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 355.
- 1872.—*Nyctea scandiaca* NEWT. in Yarr. Brit. Birds, ed. 4, I, p. 187.—BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 235.—*Id.*, *ibid.*, X, 1882, p. 177.—BEAN, Pr. U. S. Nat. Mus., 1883, p. 161.—NELSON, Cruise Corwin, p. 76 (1883).—BLAKIST., Amend List B. Japan, p. 28 (1884).

The snowy owl is only of late getting to be numerous on Bering Island, and was a few years ago regarded as a rather rare bird, although it was

known to breed in the interior, *e. g.*, in the Kamennij Valley. But since the introduction of the two kinds of *Muridæ*, *Mus musculus* and *Arvicola rutila*, especially the latter (see my "Contributions," &c., Pr. U. S. Nat. Mus., 1883, p. 88), with which the whole island now is literally swarming, the numbers of the owl have been gradually increasing, so that during the winter of 1882-'83 they were very common and a conspicuous feature in the landscape. I know of at least twenty-four individuals that were killed in the neighborhood of the village, and still they were as numerous at the end of the winter as when the cold weather set in. They made their first appearance on the hill round the village about the middle of November, and from that time they were a common sight on the pointed tops of the sand-dunes or among the hummocks of the tundra, hunting *Arvicola* in broad sunlight. A specification of the contents of the stomachs examined by me is given below. The birds themselves were excessively fat, caused by the rich and easy supply of food, their entrails being firmly wrapped up in a mass of tallow, while the whole body was covered with a thick layer of firm and whitish fat.

They remained in the neighborhood of the village until the beginning of May, on the 2d day of which three individuals were still to be seen. Most of them then retired to the higher mountains in the interior of the southern part, but a few pair bred not far from the sea shore. Thus, for instance, a pair was seen during the whole summer in the neighborhood of the great seal rookery; and on the 3d of September, 1883, a family of five individuals had taken posts close to the road between the rookery and the village.

On Copper Island, where they only occur occasionally during the cold season, they were as rare during the winter 1882-'83 as ever. On that island no mice are found.

From the above it would seem as if the increase of the *Arvicola* has been the direct cause of the increase of the owl, consequently, that the "increase in the procreative powers is owing to the abundant supply of food," and that it is not "to be traced *rather* to the cause (whatever it be) which renders the small rodents *in that very year* so much more prolific than common" (COLLETT, Orn. Rem., Vid. Selsk. Forh. Christiania, 1872, p. 224, Extr., p. 38; *Id.*, Nyt. Mag. Natur., 1877, p. 169). I may add here that none, even the oldest, of the residents can remember ever to have seen the snowy owl so plentiful as it occurred last winter.

The specimens are all rather heavily barred, even the lightest male being very much so,

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex.	Weight.	Total length.	Tail beyond wings.	Wing.	Tail-feather.
					lbs.	mm.	mm.	mm.	mm.
92742	1742	Bering Island .....	Nov. 22, 1882	♂	.....	568	.....	410	215
92744	1754	.....do .....	Nov. 26, 1882	♂	5½	578	.....	408	210
92745	1857	.....do .....	Jan. 7, 1883	♂	4½	560	54	415	218
92751	1870	.....do .....	Jan. 15, 1883	♂	4½	532	35	435	216
92747	1899	.....do .....	Feb. 5, 1883	♂	4½	557	69	405	204
92746	1928	.....do .....	Feb. 21, 1883	♂	4½	577	65	428	215
92748	1766	.....do .....	Nov. 30, 1882	♀	6	628	.....	468	245
92752	1812	.....do .....	Dec. 21, 1882	♀	5½	609	.....	457	250
92750	1863	.....do .....	Jan. 9, 1883	♀	5½	597	45	450	228
92753	1864	.....do .....	Jan. 9, 1883	♀	5½	590	55	460	233
92749	1865	.....do .....	Jan. 9, 1883	♀	5½	610	41	453	240
92743	1833	.....do .....	Jan. 2, 1883	.....	4½	555	50	417	215

No. 92742.—Iris bright yellow. Bill and claws horny blackish blue. Ear-opening 22 by 13 mm. In stomach six *Arvicola*; no trace of feathers.

No. 92744.—Stomach contained four *Arvicola*; no feathers.

No. 92745.—In stomach two *Arvicola*, and no feathers.

No. 92747.—In stomach two *Arvicola*.

No. 92746.—Stomach contained several *Arvicola*.

No. 92748.—Stomach crammed with *Arvicola*; no feathers.

No. 92752.—Stomach completely empty.

No. 92750.—Stomach contained feathers and a few fragments of bones apparently of an lamelirostral bird.

No. 92753.—In the stomach remains of *Arvicola*.

No. 92749.—Contained one *Arvicola*.

No. 92743.—Had two *Arvicola* in the stomach.

From the above list of the contents of the stomachs, it would seem as if *Arvicola* was almost their only food. But it is but fair to state that I have seen this owl chase sea ducks, especially *Histrionicus histrionicus*, out at the reef, very much in the same manner as does the falcon. On January 7, 1883, I found on the beach the remains of a *Harelda hyemalis*, eaten by a snowy owl. The footprints in the snow were very recognizable from the impression of the feathers of the toes and by the direction of the inner toe at a right angle with the other ones. It may be that even the snowy owl sometimes gets tired of too uniform a diet.

The Russian name by which the snowy owl is known by the natives on the islands is "*Sitsch*," which, according to Pallas, in Russia is applied to *Nyctala tengmalmi*.

## ORDER PICARIÆ.

### Superfamily CUCULOIDEÆ.

#### Family CUCULIDÆ.

##### 101. *Cuculus canorus telephonus* (HEINE).

- 1826.—? *Cuculus borealis* PALL., Zoogr. Ross. As., I, p. 442 (*part*).  
1861.—*Cuculus striatus* SWINH., Ibis, 1861, p. 259 (*part*; *nec* DRAP.).  
1862.—? *Cuculus swinhoi* CAB., Mus. Hein., IV, i, p. 39 (*part, nom. nud.*).  
1863.—*Cuculus telephonus* HEINE, Journ. f. Orn., 1863, p. 352.  
1871.—*Cuculus canorus* SWINH., P. Z. S., 1871, p. 395.—BLAKIST. & PRYER, Ibis, 1878, p. 227.—*Id.*, Trans. As. Soc. Japan, VIII, 1880, p. 205.—*Id.*, *ibid.*, X, 1882, p. 130.  
1872.—? *Cuculus canorinus* CAB., J. f. Orn., 1872, p. 236.—TACZAN., Bull. Soc. Zool. France, 1876, p. 237.  
1875.—*Cuculus canorinus* SWINHOE, Ibis, 1875, p. 451.—STEJNEGER, Naturen, 1882, p. 182.—*Id.*, Pr. U. S. Nat. Mus., 1883, p. 71 (*part*).—TACZAN., Bull. Soc. Zool. France, 1882, p. 395.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 368.

Most of the English writers agree that they have not been able to separate the Eastern Asiatic bird from *Cuculus canorus* of Europe, while Cabanis, *l. c.*, expressly states as his view, that the latter does not occur in Eastern Asia at all.

The birds which I have collected are easily enough distinguishable from European specimens, and it seems to be the rule that the eastern bird has finer and narrower, dark bars on the lower surface; but as intergradation has been satisfactorily proved, the eastern form can only be designated as a race.

I am rather doubtful whether Cabanis's *canorinus* of 1872 (from Baical), and the birds (from Eastern Siberia generally), designated by Taczanowski by the same name, really belong to our race. The latter author (*l. c.*) describes his specimens as differing from the European form "par les bandes des parties inférieures du corps plus fines et *plus nombreuses*, et les taches blanches sur les rectrices *plus petites*, elles manquent complètement sur les médianes, sur les suivantes elles sont à peine distinctes; les subcaudales sont *plus rayées de foncé*." Now it is the



feature of my birds, that, although the dark bars underneath are finer and narrower, they are *by no means more numerous*; the whitish spots on the rectrices are *rather larger*, and are well marked, even on the middle pair, and the subcaudales are not more, but *less, streaked* than in the European specimens. But there is one reason more why I cannot apply the name *canorinus* to the present form, viz, that the bird thus named is apparently different from the species to which Cabanis in 1862 originally applied the name. The *canorinus* of Museum Heineanum (said to be the same as Müller's *C. canoroides*) is described as being somewhat smaller than *canorus*, besides differing from it by "*subalaribus minus crebre fasciolatis mediis fere unicoloribus tanquam fasciam longitudinalinalem albidam formantibus.*" Now Taczanowski expressly states that his birds are of the same size as those from Europe, and does not mention the peculiar coloration of the under wing-coverts. In my birds, at least, these feathers certainly are narrowly and uniformly barred. It would almost seem from the description of Taczanowski, quoted above, that the Siberian bird forms a separate race, the proper name of which would be *Cuculus canorus borealis* (PALL.).\*

As to the name applied by me to the Kamtschatkan bird I have to offer the following remarks: In the Ibis for 1861 Mr. Swinhoe described a *Cuculus* from Talien Bay as *striatus* DRAP., stating at the same time that his birds were larger, and had a weaker bill than the Indian specimens. These birds he afterwards recognized as erroneously identified, referring them then partly to *C. canorus* (Cf. Ibis, 1863, p. 395). In the mean time Cabanis and Heine had proposed the name *C. swinhoei* for the same specimens, under the impression, however, that they belonged to *striatus* proper, or, at least, *striatus* of Jerdon and of Cabanis, as a race. But it seems evident from the synonymy (P. Z. S., 1871, p. 395) that Swinhoe, even in 1871, by *striatus* understood a bird widely different from that of the two authors quoted above, and partly identical with the so-called *C. himalayanus* Jerdon and *C. kelungensis*. Nevertheless, it may be safer to reject the name given by Cabanis and Heine, since it is based upon no description or already described species, and also since it seems that the authors insist upon comparing *C. swinhoei* with *striatus* or *micropterus* (cf. J. f. Orn., 1868, p. 355). The next

\* The only question is, whether it is admissible to restrict Pallas's name thus, as it was only partly given to this bird: "*Per universam Rossiam et Sibiriam, et am in borealibus \* \* \* etiam in Camtschatca adest, \* \* \* Nusquam copiosioreni audivi, quam in Dauria.*"

name in time, Heine's *C. telephonus*, seems perfectly pertinent, as it is based upon a skin from Japan, being "subtus fasciis tenuioribus ac paucioribus quam *C. canori fasciatus*."

The cuckoo is rather numerous in the neighborhood of Petropaulski, where in 1882 I heard its well-known note as late as July 11. In 1883 it had not arrived when I left the town on the 28th of May. Visiting the same place again in the middle of September I found that they had already departed.

I could not detect the slightest difference in the voice or habits from those of the common European form.

On treeless Bering Island this bird only occasionally makes its appearance during the migrations; although apparently especially adapted to live among trees, it is by no means absolutely confined to places where such occur, for I have several times found its western representative, during the latter part of June, on the high plateaus of the Norwegian mountains above the limit of trees, where it could only deposit its eggs in the nests of the ground-breeding *Anthus pratensis* and *Saxicola oenanthe*.

Three exemplars were shot the year before I visited the island, and on June 13, 1882, I got a single male, which was shot at Bolschaja Reschka, on the northern shore, while picking up *Gammaridæ* between the bowlders of the beach. The stomach was found crammed with these crustaceans, a rather strange food for a cuckoo! I had, however, the same experience with a specimen of the next species.

A native of Germany, who had been residing on Copper Island for about ten years, stated that he had heard the cuckoo's voice there once.

*List of specimens.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Exposed culmen.
					mm.	mm.	mm.	mm.
89056	1201	Bolschaja Reschka, Bering Island .....	June 13, 1882	♂ ad.	349	225	175	24
89145	1243	Petropaulski, Kamtschatka.....	June 30, 1882	♂ ad.	350	226	174	24

No. 89056.—Iris yellow. Bill horny black; lower mandible, bluish in the middle, and yellow towards the base; angle of mouth yellow, as also the naked ring round the eye; inside of mouth orange-red. Feet deep yellow.

No. 89145.—In the stomach was found remains of three or four specimens of a *Bombus*.

In order to show that there is no appreciable difference in dimensions between the two forms, except perhaps in the size of the bill, which seems to be larger in the eastern bird, I submit the following

Table of dimensions.

U. S. Nat. Mus. No.	Sex and age.	Locality.	Date.	Wing.	Tail-feathers.	Exposed culmen.	Remarks.
				mm.	mm.	mm.	
9203	♂ ad.	Germany .....	May —, 1851	219	162	20	
56708	♂ ad.	.....do .....		227	162	21	
18933	♂ ad.	France .....		221	176	22	
96532	♂ ad.	England .....		218	169	20	
56709	♀ jun.	Germany .....		204	162	19	
24265		.....do .....		210	164	.....	Hepatic phase.

### 102. *Cuculus peninsulæ* sp. n.

*Diagnosis*.—Allied to *Cuculus kelungensis* SWINH., from Japan, but the gray color much lighter, the under surface, including the under tail-coverts, only very faintly tinged with buff; the under wing-coverts nearly white, with faint and few gray cross-bars, and the inner webs of the primaries with more numerous, broader, white cross-spots, and more white at the base.

*Dimensions*: Total length, 318<sup>mm</sup>; wing, 197<sup>mm</sup>; tail-feathers, 144<sup>mm</sup>.

*Type*: ♀, U. S. Nat. Mus. No. 89123.

*Habitat*: Kantschatka; accidental in the Commander Islands.

*Synonymy*: 1832.—*Cuculus indicus* TACZANOWSKI, Bull. Soc. Zool. France, 1832, p. 395 (nec BLYTH); DYBOWSKI, Bull. Soc. Zool. France, 1833, p. 368.

1853.—*Cuculus canorinus* STEJNEGER, Pt. U. S. Nat. Mus., VI, 1853, p. 182 (part; nec CAB.).

Among the stragglers from the mainland to the Commander Islands I got two female cuckoos, which are quite different from the form described on a previous page as *Cuculus canorus telephonus*. One is in the usual gray plumage, while the other represents the hepatic or rufous phase. In those points in which this form differs from the other allies the two skins agree perfectly, leaving no doubt whatever about their belonging to the same species.

Comparing them with the form mentioned above, I find them to differ in the following points:

1. They are considerably smaller.

2. The under wing-coverts are quite differently marked, the middle and smaller ones being uniform white, without bars, while the inner

and larger arm-coverts are marked with some few and distant cross-bars, against the uniform and narrow barring of *canorus*.

3. Only the six first primaries have white cross-bars on their inner webs, the white bases of the following quills forming a distinct and large white speculum on the under surface of the wing. In the other form eight primaries at least are distinctly barred, the white speculum being much less pronounced. Besides, the white bars are narrower and more numerous than in the bird in question; the bars or spots, *e. g.*, on the inner web of the first primary are only five in the latter, while in the former their number is seven, at least.

4. The dark cross bars of the under surface are more blackish, broader, more distant, and, consequently, fewer.

5. The spots on the tail-feathers are rather larger and more distinct.

The two first points agree with Cabanis's description of *canorinus*, 1862 (the alleged *canoroides* MÜLL.), but his "*subtus fasciis ut in C. canoro crebrioribus angustis*," compared with point 4, as above, prevents them from being united. It may be that they will turn out to be races of the same species, but at present a decision is hardly possible. It must be borne in mind that I consider *C. canorinus* Cabanis of 1862 and *C. canorinus* Cabanis of 1872 to be two different birds.

This is the same species which Taczanowski and Dybowski record from Kamtschatka as "*Cuculus indicus* Cab.," but I need only quote a few words from Cabanis's description (Mus. Hein., IV, i, p. 35), to show that his *indicus* does not belong here, as he describes it as "*subtus fasciis aliquantulum angustioribus seu tenuioribus*," and "*tectricum subalarium fasciolis ut in C. canoro tenuissimis creberrimis*." This is certainly nothing but the Indian *Cuculus canorus*, which, if really separable from the European bird, should stand as *Cuculus canorus indicus*, by which name it was originally designated by Blyth (Jour. As. Soc. Beng., 1846 (p. 19)). In fact, the name *indicus* may perhaps finally be found to belong to the foregoing species (*C. telephonus*), from which it seems to differ chiefly by a somewhat smaller size, and a weaker and shorter bill.

*Cuculus peninsulae* comes nearest to the bird which is recorded from Japan as *C. himalayanus*, but which I think should properly stand as *C. kelungensis* Swinhoe, or perhaps *C. saturatus kelungensis*. The chief differences have been mentioned in the diagnosis, the two forms being easily distinguished by comparing the under side of the wing, which on the whole is much lighter in the Kamtschatkan bird. The difference in the number of white bars on the primaries is apparently not so great, since



in *C. peninsulae* the lower ones are fused together, having entirely swallowed up the intervening black spaces; the white spots, in this form, are much broader than the black separating them, while, in the Japanese birds, the proportion between the white and black is exactly the reverse. In dimensions, in the broad and distant bars on the lower surface, and in the scanty barring on the under wing-coverts, the two forms agree very well.

The rufous specimen (No. 92699) has the bars underneath still broader and blacker; the upper surface is more deeply hazel than the corresponding stage of *C. canorus*, the rump being quite chestnut, strongly and broadly barred with black; the brown color descends on the sides of head and neck, and strongly tinges the throat.

As already stated, two stragglers of this species were shot by me on Copper Island, one in 1882 the other in 1883. Both were met on the eastern shore near the beach, the former at the main village, the latter, which was in the hepatic stage of plumage, a little north of the settlement Karabelnij. No note was heard.

*Dimensions.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Exposed culmen.
					mm.	mm.	mm.	mm.	mm.
89128	1213	Copper Island, main village.....	June 19, 1882	♀ ad.	318	.....	197	144	22
92699	2215	Copper Island, Sabatschi Mys, Karabelnij.	July 1, 1883	♀	319	45	188	141	.....

No. 89128 (Gray plumage).—Iris, outer ring cream colored, inner grayish brown. Naked eye-ring bright yellow. Bill horny black; basal third of upper mandible (except nasal tubes) and two-thirds of the lower are yellowish; angle of mouth, and lower jaw along the chin angle, orange yellow. Inside of mouth pale orange-red. Feet light cadmium yellow. Contents of stomach, *Gammaridae!*

No. 92699 (Hepatic plumage).—Iris light cream colored, inner ring tinged with brownish gray, outer one slightly so with greenish. Bill blackish bluish gray, lighter on lower mandible; tubercle in the middle of nostrils olive-yellow; angle of mouth and base of lower jaw orange-yellow. Interior of mouth delicate orange-red. Naked eye-ring bright golden yellow. Feet orange-yellow, claw of outer toe dusky. Eggs small.

In Petropaulski I was told of a cuckoo said to be distinguishable from the common one especially by its quite different voice. This is the present species, but I never met with it in Kamtschatka, where it has been collected by Dybowski.\*

\* Cf, also KITTLITZ, Denkwürd, II, p. 198: "Das an unsern Wiedehopf erinnernde Geschrei, das man hier dem Kuckuck zuschreibt, und das auch wirklich neben jenem andern [the common cry of the European cuckoo] von ihm herzurühren scheint."

## Superfamily PICOIDEÆ.

## Family PICIDÆ.

103.—*Dryobates purus* STEJNEGER.

1858.—*Picus major* KITTL., Denkw., I, p. 321 (nec LIN.).—TACZAN., Bull. Soc. Zool. France, 1882, p. 395.

1883.—*Picus major kamtschaticus* DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 368 (nec *Picus kamtschatkensis*, BP.)

1884.—*Dendrocopos purus* STEJNEGER, Auk, 1884, p. 35.

This species is closely related to *D. major* (LIN.), but differs in having the breast and upper abdomen very pure white, the white of the lateral rectrices without, or almost without, dark markings, and possessing a white spot on the outer web of each of the longest primaries near the tip.

The greater purity of the white of the lower surface and the greater extent of the same color on the lateral tail-feathers distinguish this species easily from its allies. In the description of *D. cissa* Pallas expressly says that the lateral rectrices are white "nigro transversim variegatæ" and "pectore sordescente." Specimens of *D. major* from Central Europe, the only ones at present accessible to me, have the lateral tail-feathers strongly barred, and lack the white spot near the tips of the outer web of the longest primaries. The markings are, however, also found in *Dryobates japonicus* (Seeb.), but the Japanese bird has a very dark lower surface, and transverse markings on all the lateral tail-feathers; besides, the Kamtschatkan form has a stouter and longer bill.

*Dryobates purus* is especially conspicuous for the uniform white color on the lateral tail-feathers. In two of the specimens are seen some traces of transverse bars on one or both of the two external feathers, but no traces of similar bars or spots are found on the two following pairs.

The dimensions may be seen from the following

## List of specimens obtained.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Tail beyond wings.		Wing.	Tail-feathers.		Exposed culmen.
					mm.	mm.		mm.	mm.	
92702*	2019	Saranna, Bering Island.....	May 8, 1883	♂ ad.	253	45	147	86	.....	
92701*	2024	Ladiginsk, Bering Island.....	May 9, 1883	♂ ad.	241	43	139	86		28
92703*	1700	Severnij, Bering Island.....	Oct. 26, 1882	♀ ad.	251	.....	132	86		30

\*Types of *Dendrocopos purus*.

No. 2019, ♂.—Iris crimson. Bill plumbeous, darker above; lower mandible below at base whitish. Feet gray with an olive tinge, not at all bluish. Rather fat. In the stomach remains of a coleopterous insect.

No. 2024, ♂.—Colors as the foregoing. Not fat.

No. 1700, ♀.—Iris carmin-red. Bill bluish gray. Feet same color, only a little darker. Stomach crammed with the white large larvæ of the flesh-fly. "So fat as a woodpecker can possibly be."

The following table of dimensions is added for comparison with the allied forms:

U. S. Nat. Mus. No.	Names of species.	Locality.	Collector's name.	When collected.	Sex and age.	Tail-feathers.		Exposed culmen:
						Wing.		
						mm.	mm.	mm.
8703	<i>Dryobates japonicus</i> ...	Japan.....	Jouy....	July 4, 1882	♂ ad.	131	76	27
91328	.....do.....	.. do .....	..do....	Nov. 7, 1882	♂ ad.	131	79	26
91329	.....do.....	.. do .....	..do....	Nov. 23, 1882	♂ ad.	133	83	25
91330	.....do.....	.. do .....	..do....	Dec. 4, 1882	♀ ad.	129	81	24
91331	.....do.....	.. do .....	..do....	Dec. 12, 1882	♀ ad.	131	83	23
91332	.....do.....	.. do .....	..do....	Dec. 12, 1882	♀ ad.	132	85	25
18939	<i>D. major</i> .....	France.....	Drouet..	.....	♂ ad.	147	92	25
18940	.....do.....	..do.....	..do....	.....	♀ ad.	141	89	24

My surprise was very great when, on the 26th of October, 1882, I held in my hand the female of this elegant bird, shot on the killing-ground at the northern seal rookery on Bering Island. It had been seen in the neighborhood for about fourteen days feeding on the enormous masses of the white larvæ of the flesh-fly, with which the whole ground swarms at this season for more than a square mile. In spring again I obtained two more specimens, two males, from different places on the northern part of the island. These birds of the forest are, of course, only stragglers from Kamtschatka, where the species is not uncommon. In the latter part of May and again in September, 1883, I observed several individuals in the neighborhood of Petropaulski.

#### 104. *Dryobates immaculatus* STEJNEGER.

1858.—*Picus minor* KITTL., Denkw., I, p. 321 (*see* LINN).

1882.—*Picus kamtschatkensis* TACZAN., Bull. Soc. Zool. France, 1882, p. 396 (*see* BP.).—DYBOW., Bull. Soc. Zool. France, 1883, p. 368.

1883.—*Dendrocopos immaculatus* STEJNEGER, Pr. Biol. Soc. Wash., II, April 10, 1884, p. 98.

On a previous occasion I have briefly indicated that the *Picus kamtschatchensis* BP. is not the Kamtschatkan bird at all. As will be shown more elaborately below, the form named thus by Bonaparte in 1854 is

only the well-known Siberian bird, Pallas's *pipra*, of which the name, given by Bonaparte, is but a synonym.

The type of his species was a bird "tué le 28<sup>e</sup> septembre 1853, aux environs d'Okhotsk, sur le bord de la mer asiatique de ce nom," and the locality, Kamtschatka, is only a guess caused by the very erroneous idea that the birds of the peninsula are identical with those occurring on the other side of the wide Okotsk Sea, the same idea that caused the determination of *Parus baicalensis* as *kamtschatkensis*. The description and plate of Malherbe from the type show furthermore, beyond possibility of doubt, that his bird is identical with the Siberian form, having "transverse cordiform spots of a brownish fuliginous color on the under tail-coverts," and the plate shows distinctly two dark cross-bars on the outer tail-feathers, and one on each of the two following pairs, together with a well-marked black subocular stripe. A comparison with Seebohm's description (Ibis, 1880, p. 181) makes the identity apparent. He says: "The under tail coverts are slightly streaked with black; the outside tail-feathers have two rudimentary cross-bars." It would almost seem as if the type in Malherbe's possession had those features even more distinct than the bird described by Mr. Seebohm. Pallas's words agree in the same manner: "*Crisso punctato*" and "*sub-caudales guttulis cordatis nigricantibus*."

The bird which I procured in Petropaulski has no trace of spots on the crissum or the under tail-coverts. On the outermost pair of rectrices, which are white to the very base, is one single rudimentary and narrow cross-bar near the tip, while the two following pairs have none, a just perceptible spot on the margin of the inner webs indicating the place where the bar is situated in allied forms. The fourth pair has a white tip about 5<sup>mm</sup> broad, beginning on the outer web, about 13<sup>mm</sup> from the tip. From the base of the lower mandible, in a line with the direction of the bill, the feathers have dark gray bases and pure white tips, thereby forming a rather obsolete grayish malar stripe, mottled with white, scarcely connected behind with the large black patch on the side of the neck. The white space behind the brownish ocular patch is so nearly connected with that on the other side as to almost form a continuous white band across the upper neck. Back white, unbarred. The whole lower surface pure white without the slightest trace of stripes or spots. The white cross-bars on the inner secondaries are not particularly broad, being only 4<sup>mm</sup>, and the rounded white spots on the inner



webs of the primaries are quite separate and not confluent along the inner margin of the quill.

This beautiful bird needs no further comparison with the allied forms than is given above. The Japanese form seems to be related to it in a similar way as is *Dryobates minor hortorum* (Brm., 1831) (= *striolatus* MACG., 1840) to the Scandinavian true *D. minor* (Lin.) (= *D. minor borealis* SUNDEV.), and is probably indistinguishable from *D. minor pipra* (Pall.) from Siberia. Should intergradation with the Siberian form really occur, the question will arise whether our new form should stand as *D. minor immaculatus* or *D. pipra immaculatus*. This is a point of the trinominal nomenclature which is not yet decided upon by the leading trinominalists.

v. Kittlitz (*l. c.*) states that "*Picus minor* ist hier [Petropaulski, latter part of September] nicht selten, jedenfalls häufiger als der ebenfalls hier einzeln vorkommende *Picus major*" (= my *P. purus*), which is contrary to my experience, as the specimen which I collected was the only one I saw during my stay in Petropaulski. It was shot on the wooded peninsula sheltering the harbor, where it flew restlessly from one birch (*Betula ermani*) to another.

The dimensions of this specimen are:

♂ *ad.*—*U. S. Nat. Mus.* No. 92700, *L. Stejneger* No. 2757. *Petropaulski*, October 9, 1883.

Total length, 167<sup>mm</sup>; tail beyond wings, 24<sup>mm</sup>; wing, 97<sup>mm</sup>; tail-feathers, 61<sup>mm</sup>; exposed culmen, 18<sup>mm</sup>.

*Remarks.*—Iris bright hazel. Bill pure gray, darker above; a narrow dark stripe along the gonys. Feet gray, with a light greenish tinge.

## ORDER PASSERES.

### Family ALAUDIDÆ.

#### 105. *Alauda blakistoni* STEJNEGER.

- 1826.—*Alauda coelipeta* PALL., Zoogr. Roos. Asiat., I, p. 524 (*part*).  
1858.—*Alauda arvensis* KITTL., Denkw., II, p. 198 (*nec* LIN.).—TACZAN., Bull. Soc. Zool. France, 1882, p. 389.—DYBOW., Bull. Soc. Zool. France, 1883, p. 361.  
1882.—*Alauda cantarella* BLAKIST. & PRYER, Trans. As. Soc. Japan, X, 1882, p. 166 (*nec* BP.).—*Alauda* — ? BLAKIST., Amend. List B. Jap., p. 59 (1884).  
1884.—*Alauda* sp. STEJNEGER, Naturen, 1884, p. 5.  
1884.—*Alauda blakistoni* STEJNEGER, Pr. Biol. Soc. Washingt., II, p. 98.

One needs almost apologize when creating a new species among the Palæartic *Alaudæ*. The group is a most perplexing one, and considerable confusion exists in regard to the East Asiatic forms. But it is thought that the naming of the present bird will tend to clear the confusion which has arisen from the untimely zeal of ornithologists in uniting distinct forms on insufficient evidence. I cannot refer the specimens from Kamtschatka to any form known to me, and I will not be found guilty of applying to them a name which I do not consider properly belonging to them. Taking the name of a form which seems to agree best, but yet not exactly, would only add to the confusion. In this connection it may be proper to remark that the “reducing” and “uniting” of species is often made upon inspection of a single specimen, but this is a proceeding which, in many cases, proves to be even more unsafe than to base a new species on a single type.

In a previous paper (Pr. U. S. Nat. Mus., 1883, p. 68) I called attention to four larks in the first instalment of my collection, forwarded to the United States National Museum in 1882. Since that time more material from Eastern Asia has accumulated, enabling me to make a fair comparison of the allied forms.

The ten specimens collected by me show much less variation in color and dimensions than is usual in larks. Having at hand a series of typical *Alauda japonica* from Japan, and *arvensis* from Europe, besides specimens of *coelivox* from China, *intermedia* SWINH. from Vladivostok, and *cantarella* from Palestine, I have little hesitation in pronouncing the Kamtschatkan form different. Compared with European specimens its average size agrees with the larger ones of the latter, while in color it

comes much nearer to the Japanese species, the rusty tinge of which is rather conspicuous. My birds show, however, two very peculiar features, viz, dark blackish brown scapulars and intercapulars, the lighter edges being conspicuous on the inner webs, and the rusty colored hind neck only dotted with small dark spots, forming a light color between the strongly-marked pileum and the dark color of the upper back; besides, the spots on the fore neck and upper breast are smaller and darker, and, consequently, more distinct. The bill is somewhat longer and stouter than in *japonica*.

The specimens from Vladivostok collected by Mr. Jony and Dr. Dale are paler and smaller, thus being referable to *A. intermedia* SWINH. They seem to occupy the same position to the Kamtschatkan species, as *A. cantarella* BP. (*nec* SWINH., *nec* TACZAN., *quæ intermedia*) does to the typical *arvensis*. The birds from Vladivostok have the dark color of the scapular region more confluent and not so distinctly streaked as *cantarella*. *A. coelivox* is sufficiently distinct by its considerable smaller size.

Lists of measurements of the material examined is added for comparison.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Exposed culmen.
					mm.	mm.	mm.	mm.	mm.
89027	1020	Bering Island .....	May 9, 1882	♂ ad.	186	.....	114	76	12
89026	1117	.....do.....	May 30, 1882	♂ ad.	187	.....	119	74	14
89153	1242	Petropaulski.....	June 30, 1882	♂ ad.	183	.....	112	70	13
89154	1249	.....do.....	July 4, 1882	♂ ad.	173	.....	116	68	13
92658	1995	Bering Island ...	Apr. 19, 1883	♂ ad.	193	.....	115	69	14
92661	2040	Petropaulski .....	May 19, 1883	♂ ad.	197	26	118	73	13
92659	2049	.....do.....	May 19, 1883	♂ ad.	187	24	115	71	12
92657	2079	Bering Island .....	May 13, 1883	(♂) ad.	.....	.....	119	75	13
92662	2041	Petropaulski .....	May 19, 1883	♀ ad.	187	29	107	70	12
92660	2046	.....do.....	May 20, 1883	♀ ad.	185	22	110	69	12
Average measurements of eight males .....					187	.....	116	72	13
Average measurements of two females .....					186	.....	109	70	12

No. 89027.—Iris dark brown. Feet light reddish brown; tarsal joint with a strong tinge of dark gray; toes below livid.

No. 89026.—Iris hazel.

No. 89153.—Bill brownish flesh color; tip, culmen, and sides of upper mandible blackish brown. Feet pale reddish brown; tarsal joint dark grayish; nails blackish gray.

No. 92658.—Iris dark hazel. Bill, upper mandible dark-brownish gray; along tomia and whole lower mandible pale yellowish gray. Testes large, swollen.

No. 92661.—Iris brown. Bill horny blackish brown; tomia and back of lower mandible paler, grayish. Feet reddish gray; joints darker gray; below livid. Testes large, swollen. Stomach containing seeds.

No. 92662.—Iris, bill, and feet as foregoing. Largest egg 2<sup>mm</sup> in diameter.

## Tables of dimensions.

## A.—ALAUDA JAPONICA.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Wing.	Tail-feathers.	Exposed culmen.
						mm.	mm.	mm.
91464	Jouy .....	911	Yokohama.....	Jan. 3, 1883	♂ ad.	106	63	11
91550	do .....	999	Yubuts, Yezo .....	Sept. 15, 1882	♂ ad.	99	64	12
91551	do .....	1000	Sapporo, Yezo .....	June 23, 1882	♂ ad.	104	66	12
91465	do .....	912	Yokohama.....	Jan. 3, 1883	♀ ad.	92	58	13
91466	do .....	913	do .....	Jan. 3, 1883	♀ ad.	93	65	12
91467	do .....	914	do .....	Jan. 3, 1883	♀ ad.	93	58	11
Average measurements of three males .....						103	64	12
Average measurements of three females .....						94	60	12

## B.—ALAUDA INTERMEDIA.

86159	Jouy & Dale..	222	Vladivostok .....	June 15, 1881	♂ ad.	106	67	11
86160	do .....	223	do .....	June 27, 1881	♂ ad.	107	69	12
Average measurements of two males .....						106	68	12

## C.—ALAUDA CÆLIVOX.

37788	Swinhoe .....		Formosa.....	Mar. —, 1862	.....	91	57	14
86112	Jouy & Dale..	175	Hong-Kong.....	Oct. 9, 1881	♂ ad.	92	56	13

## D.—ALAUDA ARVENSIS.

18719	.....		Europe .....	.....	.....	110	72	12
23419	Lazar.....		Hungary, Europe.....	— —, 1860	.....	104	63	11
37766	Tristram .....		Sidon, Syria.....	Dec. 1, 1863	♀	108	64	11

## E.—ALAUDA CANTARELLA †.

37807	Tristram .....	723	Beersheba, Palestine .....	Feb. 4, 1864	♀	107	68	10
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The skylark is one of the first spring arrivals among the migrating birds of Kamtschatka, often making its appearance long before the snow has melted away from the ground. In 1883 the first specimen on Bering Island was shot on the 19th of April, while sitting on the beach picking up small crustaceans, and when in the middle of May I arrived at Petropaulski the larks were plentiful on the few bare spots from whence the males rose on quivering wing, singing their "wild, joyous



notes," fascinating the listener by the cheerfulness if not by the beauty of their music, notwithstanding the 5 to 6 feet depth of snow on the ground.

As already stated, the lark occurs also on Bering Island, where a few may be heard during the summer between the village and Ladiginsk, among the sand dunes covered with a luxuriant growth of *Elymus*.

### Family CORVIDÆ.

#### 106. *Corvus behringianus* (DYB.).

1826.—*Corvus corax* PALL., Zoogr. Ross. As., I, p. 380 (*part*).

1883.—*Corvus corax behringianus* DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 363.

1884.—*Corvus grebnitskii* STEJNEGER, Pr. Biol. Soc. Washingt., II, p. 97.

I have not been able to detect any difference between my specimens and those from Central Europe in respect to dimensions, size, or shape of the bill, size of the nasal bristles, or luster of the plumage.

The only distinction I can see is the different wing formula, which in all specimens examined by me is constant. Going over the literature, besides, I find it unanimously stated that in the European bird the third and the fourth primaries are the longest, the third being decidedly longer than the fifth, while in all my ravens from the Commander Islands the fourth and the fifth are the longest, the latter being a trifle shorter than the former, but considerably longer than the third, the difference in the two forms consequently being very well marked. At the same time the first primary seems to be reduced in length, as it falls between the eighth and the ninth, in one instance even between the ninth and tenth, while I think the rule in the European species is that it falls between the seventh and the eighth.

These differences may have originated in the insular habitat of the present form, but whatever may have been the cause, the difference is now established; and it does not invalidate the distinctness of the form that we are able to point out its probable cause. If the suggested explanation be true, it would be a most remarkable fact, showing the effect of insular isolation even on so powerful a flyer as the raven. As we here have a case of "breeding in and in" within a small stock, it is interesting to observe that it has not had the same influence as on the Fær Islands, where it seems to have produced a race of partial albinos.

A comparison with the large series of skins of *C. corax carnivorus* from North America, especially with those from Alaska, has not been neglected, the result being that the Commander Islands birds are distin-

guished from the American race in the same manner as are the European specimens, besides differing in the wing formula, which is alike in the American and the European forms. In all the specimens examined by me the third primary was equal to or longer than the fifth, and never shorter.

Since the above was written I have learned that Dr. Dybowski has named the bird from Bering Island *Corvus corax behringianus*. As the name given by him has a priority of about two months it must stand, although being rather unfitting, as the bird is more common on Copper Island than on Bering Island. I see no reason for regarding it as only a subspecies, as no intergradation is known, or is likely to occur.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.		Tail beyond wings.	Wing.	Tail-feathers.	Culmen from frontal feathers.	Graduation of tail.
					mm.	mm.					
92757	1736	Bering Island .....	Nov. 15, 1882.	♂ ad.	685	.....	450	252	83	.....	
92759	1799	.....do .....	Dec. 12, 1882.	♂ ad.	715	50	460	255	77	68	
92758	1972	.....do .....	Δ pr. 11, 1883.	♂ ad.	690	35	440	250	81	68	
62760	1817	.....do .....	Dec. 25, 1882.	♀ ad.	660	.....	426	235	75	60	

No. 92757.—Iris dark brown. Bill and feet black; toes below yellowish gray.

No. 92759.—Outstretched toes almost reach tip of wings. Caught in a trap set for foxes.

No. 92758.—Testes swollen. Weight 5 pounds.

No. 92760.—Weight, 4½ pounds.

The raven ("vorón" of the natives) is a resident on both islands, but is not numerous on either, although they are rather common near the killing-grounds of the seal-rookeries during and after the sealing season, but at that time all the ravens of the island are collected on these places. During the summer and autumn they feed almost exclusively upon the numberless carcasses of the slaughtered seals, fighting and quarreling at that time with the stone foxes and the glaucous-winged gulls. During the winter the supply of food is more scanty, and they are, during the hard season, restricted to what the ocean throws upon the beach, although of later years the introduction of *Arvicola rutila* has added a new and welcome dish to their bill of fare.

Early in the spring they commence building their nests in a hole, or a crack of some steep and inaccessible rock, the pairs being either single or in small colonies of three or four.

Being acquainted with Dybowski's statement respecting the crow-like voice of the Siberian raven, I paid special attention to the sounds uttered by our island form. I can most emphatically state that the latter has a voice which in no respect is like that of a crow (*Corvus cornix*), and the common notes "krôh" and "korr" are in fact almost identical with that of the Norwegian *C. corax*, while the bell-like, sonorous "klong, klong" is higher and a little less sounding. It has, however, another very peculiar note, which I have never heard before. It often happened on Copper Island that, when engaged in climbing high up on the steep mountain peaks, I was startled by a sonorous and distinctly articulated "haló, haló!" so like the voice of a human being that I repeatedly looked around to discover the supposed Aleut before raising my eyes to the skies, where the black scavenger amused himself by hallooing to a neighbor on the other side of the valley, who would then answer with a similar "haló!" It was only distinguishable from the human voice by its somewhat more metallic sound.

I need hardly add that the raven here, as in most places where he has been for some time in contact with man, is extremely shy and difficult to get at within shot range.

#### 107. *Corvus corone levaillantii* (LESS.).

1831.—*Corvus levaillantii* LESS., Tr. d'Orn., p. 328.

1846.—*Corvus culminatus* GRAY, Cat. Nep. Hodgs. (p. 102) (*nec* SYKES, 1831).

1858.—*Corvus corone* KITTL., Denkw., I, p. 313, and II, p. 412.—SWINH., Ibis, 1874, p. 159.—BLAKIST. & PRYER, Ibis, 1878, p. 232.—*Ibid.*, Tr. As. Soc. Jap., VIII, 1880, p. 212.—*Ibid.*, X, 1882, p. 141.—BLAKIST., Amend. List B. Jap., p. 14 (1884).

1858.—*Corvus sinensis* MOORE, Cat. B. Mus. E. Ind. Co., II, p. 556.—SWINH., Ibis, 1862, p. 260.—*Id.*, *ibid.*, 1863, pp. 95, 383.—*Id.*, *ibid.*, 1870, p. 348.—*Id.*, P. Z. S., 1863, p. 305.—*Id.*, *ibid.*, 1871, p. 383.

1861.—*Corvus japonicus* SWINH., Ibis, 1861, p. 337 (*nec japonensis* BP.).

1862.—*Corvus japonensis* SWINH., Ibis, 1862, p. 260 (*nec* BP.).

1864.—*Corvus colonorum* SWINH., Ibis, 1864, p. 427.—*Id.*, *ibid.*, 1866, pp. 296, 402.

1875.—*Corvus orientalis* TACZAN., J. f. Orn., 1875, p. 251.—*Id.*, *ibid.*, 1876, p. 198 (*nec* EVERS.M.).—DYBOW., Bull. Soc. Zool. France, 1883, p. 362.

The specimens of the Carrion Crow collected by me at Petropaulski agree in every respect with skins from Japan. The latter has been stated to be the same as the European *C. corone*, but a careful comparison has led me to a different conclusion. While agreeing with the European bird in size the color is quite different. In the true *corone* the gloss all over is most decidedly purplish, while in the Kamtschatkan and Japanese specimens before me the luster is equally decidedly greenish. In fact, the latter come, in this respect, nearer to the big.

billed *C. japonensis*; besides, the Eastern bird seems to have the first primary longer and the tail a trifle more rounded than true *C. corone*.

I have for comparison a skin from India, received from the Government Museum, Madras (U. S. Nat. Mus. No. 60495, ♂, May 8, 1867), which in every particular, in size as well as in color, matches my eastern specimens referred to above. It is marked *C. culminatus*, the identification being made at the Madras Museum, but that it is not the bird so named by Sykes is evident from the size alone, his *culminatus* being a considerably smaller bird. I feel, however, justified in referring this bird to *corone levaillantii* of Sharpe's Catalogue of B. Brit. Mus., III, p. 39,\* a conclusion in which I feel the more confident as I perceive that the same excellent author has identified a pair from Ussuri in the British Museum (collected by Dr. Dybowski) as belonging to the species in question. It is therefore apparent that Taczanowski's *C. orientalis* of 1875 and 1876, as quoted above, belongs to the present form. Whether this name of his earlier publications relates to the same is not clear, as Sharpe has been unable to separate a specimen, which the British Museum received from Dr. Dybowski as *C. orientalis* (Balryna, E. Siberia, May 18, 1872) from the true *corone*. It thus appears as if Taczanowski has not distinguished the two forms.

The occurrence of *levaillantii* in Japan alongside the large-billed *C. japonensis* seems to indicate that they are not geographical races of the same species, but that they belong each to a different stock.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Tail beyond wings.		Wing.	Tail-feathers.	Culmen from frontal feathers.
					Total length.				
					mm.	mm.	mm.	mm.	mm.
92765	2712	Petropaulski .....	Sept. 27, 1883	♂ ad.	500	55	335	200	54
92763	2729	.....do .....	Oct. 1, 1883	♂ ad.	555	45	343	203	56
92764	2746	.....do .....	Oct. 2, 1883	♂ ad.	520	52	330	203	56
92762	2602	.....do .....	Sept. 20, 1883	♀	.....	.....	330	198	53
92761	2760	.....do .....	Oct. 10, 1883	♀	.....	.....	324	195	52
92766	2713	.....do .....	Sept. 27, 1883	♀ jun.	494	45	307	180	47

Iris dark brown. Bill and feet black.

\* By a typographical error the length of the tail of *levaillantii* is given as 9.5 inches, which is half an inch longer than the maximum length of the table of dimensions; the average length of the tail of the twenty-seven specimens is nearly 8.5 inches.



The Carrion Crow is as common in Petropaulski at the present day as it was former'y, according to the narratives of earlier travelers. They perform the same duties in Kamtschatka as do the vultures and turkey-buzzards, of more southern regions, and the more intelligent of the inhabitants, interested in the cleanliness of the town, object when anybody disturbs these public scavengers.

The Black Crow does not occur on the island, except as a rare straggler from the mainland. The cosak on Bering Island, Alexander Selivanoff, who, of course, was very familiar with these birds from his native place, Petropaulski, observed a single crow near the southern seal-rookery early in the spring of 1883.

#### 108. *Pica kamtschatica* STEJNEGER.

1826.—*Corvus pica* PALL., Zoogr. Ross. Asiat., I, p. 389 (*part*).—KITTL., Denkw., II, p. 320 (1858).

1850.—*Pica caudata* BP., Consp. Av., I, p. 382 (*part*).

1858.—*Pica leuconotos* BREHM, J. f. Orn., 1858, p. 173 (*part*).

1876.—*Pica media* BLAKIST., Ibis, 1876, p. 333 (*nee* BLYTH).

1882.—*Pica leucoptera* STEJNEGER, Naturen, 1882, p. 182 (*nee* GOULD).—DYBOW., Bull. Zool. Soc. France, 1883, p. 362.

1884.—*Pica kamtschatica* STEJNEGER, Pr. Biol. Soc. Washingt., II, p. 97.

The Kamtschatkan Magpie is the largest form with which I am acquainted, and exceeds in size even the Central Asiatic *P. leuconotos* BRM.\* Unfortunately I have no Japanese specimens for comparison, but judging from Sharpe's table of dimensions, in his Cat. Birds Brit. Mus., III, p. 64, they do not seem to be larger than the average European bird, and Taczanowski (J. f. Orn. 1875, p. 251) informs us that the specimen from Ussuri (*op. cit.*, 1876, p. 198, identified as *P. japonica*) "is much smaller than Daurian and Baicalian Magpies (*P. leuconotos*)," and that "the wing and the tail are not so lustrous colored, being in that respect superseded even by the European Magpies." As the Kamtschatkan bird, besides its superior size, is one of the most brilliantly colored forms, it would seem improper to unite it with its southern neighbor.

A close comparison of adult specimens with South Chinese and Daurian specimens shows that *P. kamtschatica* differs from both *P. sericea* GOULD and *leuconotos* BRM. by having the feathers of the throat black to their very base, while the two latter forms have them distinctly white on their basal half. From the Chinese birds it is easily distinguished, (1) by having the primaries white to their very tips, while those in *P. sericea* have a rather broad, black edge; (2) by a larger and purer

\*Cab. Journ. f. Orn., 1858, p. 173, = *Pica leucoptera* GOULD. 1832.

white band on the rump; (3) by a more greenish gloss on the wings; (4) by much shorter tarsi, and, on the whole, much weaker and smaller feet; and (5) by the absence of white on the feathers of the throat.

It seems to me that the Chinese bird is a rather well defined form, the distinguishing marks of which are very well pointed out in Gould's original description, the greater extent of the blue gloss on the wing and the remarkable stoutness of the feet being especially characteristic features. It has, besides, a rather long bill. These characters hold good even in the young birds, which differ from the young *P. kamtschatica* in having the rump uniform black, while in the latter it has a broad whitish band.

From *leuconotos* our new bird differs in having a decidedly longer and stouter bill, the white on wing and rump still more developed, and the feathers on the throat entirely black. With the European form it agrees in having the throat-feathers entirely black,\* but differs in the greater amount of white on wing and rump, the larger size, and the longer and stouter bill. In contradistinction to the young eastern bird, the young ones of the European form have the uropygium dark. In Northern and Eastern Europe (Northern Norway and Russia), there occurs a race which has more white on the primaries and on the rump than in the common central European bird, being otherwise undistinguishable. This race should stand as *Pica pica borealis*, while the Spanish race with black rump, which has already been described by Brehm from that country, is entitled to the name *Pica pica melanotos* (BRM., 1858).

Whether the different forms of Magpies mentioned intergrade, and to what degree, I am, at present, unprepared to state. It must not be forgotten, however, that if we accept the theory of hybridization as an explanation of the intergradation in similar cases, the same theory will be very applicable to the present group of birds. In fact, I see very little difference between the case of Magpies, and *e. g.*, that of the Grey Shrikes. In the mean time it does not seem proper to call the present bird *Pica pica camtschatica* until the intergradation is proved.

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\* It is said that sometimes a European bird may be found having those feathers more or less white at the base. This would indicate that the common European form has sprung from an original stock having this feature. Such an individual, showing characters lost a long time ago by the species as a species, is liable to come up even among the best differentiated species, but, of course, they do not prove any intergradation with another allied form, which has still preserved the original feature.

## Tables of dimensions.

## A.—PICA KAMTSCHATICA.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
					mm.	mm.	mm.	mm.	mm.	mm.
89144*	1237	Petropaulski.....	June 29, 1882	♂ ad.	525	217	284	34	42	45
92695	2727	.....do.....	Sept. 30, 1883	♂ ad.	525	185	218	274	35.5	42
92698	2596	.....do.....	Sept. 18, 1883	♀ jun.	458	155	206	229	32.8	43.5
92697	2603	.....do.....	Sept. 20, 1883	♂ juv.	.....	.....	214	253	36	44.5
92695	2755	.....do.....	Oct. 8, 1883	♀ juv.	435	128	206	217	31.7	43

\* Iris dark brown. Bill and feet black.

## B.—PICA SERICEA.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
						mm.	mm.	mm.	mm.
86103	Jouy & Dale.....	166	Hong-Kong.....	Oct. 10, 1881	♀ ad.	209	236	33	48
21102	Captain Rodgers..	222	.....do.....	Mar. —, 1855	.....	199	231	33.3	46.7
85803	Jouy & Dale.....	43	Shanghai.....	Aug. 1, 1881	♀ juv.	201	212	35.6	46.5
85809	.....do.....	44	.....do.....	Aug. 1, 1881	.....	198	206	33.8	49.8

## C.—PICA PICA.

Number of specimens.				Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
				mm.	mm.	mm.	mm.
Average measurements of four male adults from Central Europe.....				186	226	29.3	42.7
Average measurements of four female adults from Central Europe.....				183	220	29.5	42.9

The Magpie is a common resident of Petropaulski.

On the 18th of May, 1883, I examined a nest built on the first branches of a *Salix*, about 9 feet above the ground, which under the tree was covered with 2 feet of snow. The structure which was not yet finished inside, consisted of dry sticks, forming a globular mass, the exterior diameter of which was about 30 inches. The nest, which was exactly like that of *P. pica*, contained no eggs at that time. The owners were shy, leaving the nest when I was still a great distance off.

They breed at least twice during the summer, and I suspect that the young (No. 92695), which I shot as late as the 8th of October, and which still was partly downy, belonged to a third brood.

No difference in the note from that of the European bird could be detected.

It is not known that the Magpie has ever been met with on the islands.

### Family FRINGILLIDÆ.

#### 109. *Hypocentor aureolus* (PALL.).

1773.—*Emberiza aureola* PALL., Reise Russ. Reichs., II, App. (p. 711).—*Id.*, Zoogr. Ross. Asiat., II, p. 52 (1826).—KITTL., Kupfert., p. 17, tf. 22, f. 1 (1833).—*Id.*, Denkwürd., II, p. 197 (1858).—MIDDEND., Sibir. Reise, II, 2 (p. 138) (1853).—SCHRENCK, Reise Amurl., I, p. 277 (1860).—RADDE. Reisen Süden Ost-Sibir. (p. 157 tb. iv, fig. a-h) (1863).—SWINH., Ibis, 1863, p. 378.—*Id.*, *ibid.*, 1870, p. 354.—PRZEW., Putesch. Ussur. (no. 41) (1870).—BLAK. & PRYER, Tr. As. Soc. Japan, VIII, 1880, p. 230.—*Id.*, *ibid.*, X, 1882, p. 170.—BLAKIST., Amend. List B. Jap., p. 17 (1884).—*Euspiza a.* SWINH., Ibis, 1860, p. 62.—*Id.*, *ibid.*, 1861, pp. 45, 334.—*Id.*, *ibid.*, 1875, p. 451.—*Id.*, P. Z. S., 1863, p. 354.—*Id.*, *ibid.*, 1871, p. 387.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 335.—TACZAN., J. f. Orn., 1873, p. 90.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, Orn. Fauna Vost. Sibir., p. 38 (1877).—*Id.*, Bull. Soc. Zool. France, 1876, p. 178.—*Id.*, *ibid.*, 1882, p. 393.—BLAK. & PRYER, Ibis, 1878, p. 243.—BOLAU, J. f. Orn., 1880, p. 127.—*Id.*, *ibid.*, 1881, p. 59.—STEJNEGER, Naturen, 1882, p. 182.—*Id.*, Pr. U. S. Nat. Mus., 1883, p. 71.

This species is commonly given as *Euspiza aureola*, the name *Euspiza* being ascribed to Bonaparte with the date 1838. In his Comp. List, 1838, Bonaparte, however, created the genus name for *Emberiza americana* GM.; but having employed for this species the name *Spiza* as early as 1824 (Obs. Wils., No. 85, in Journ. Phil. Acad., IV, 1, August, 1824), the latter must stand, and *Euspiza* becomes only its synonym. The confusion arose from Bonaparte himself, who, in 1828 (Ann. New York Lye.), used the name *Spiza* for a genus having *E. amœna* for type, this being renamed by Baird (B. N. A., p. 500), and called *Cyanospiza*, as the older appellation of Vieillot, *Passerina* was considered untenable because preoccupied by Linnæus in Botany. In his Consp. Av., I, p. 468, Bonaparte united *E. aureola* with *americana* in the same genus. A careful comparison of the two forms will convince one, however, of their generic distinctness. *Spiza americana* has a much stouter bill, the mandible especially being higher and more denuded at the base; the feet are much stouter and stronger, the tail proportionally shorter, less furcate, and with the single feathers remarkably pointed, a feature not at all indicated in *aureola*. Besides, only the second and third primaries are sinuated on the outer web, while in *Hypocentor* the fourth is also sinuated.



As *E. americana* is the type of *Euspiza*, the next name, *Hypocentor*, proposed by Professor Cabanis, must be adopted. The synonymy of this genus stands as follows:

*Hypocentor* CAB.

<1773.—*Emberiza* PALL., Reise Russ. Reichs., II (p. 711).

<1819.—*Passarina* VIELL., Nouv. Dict. d'Hist. Nat., XXV, p. 1 (× *Passerina* DEGL. & GERBE, Orn. Eur., I, p. 300 (1867).

<1850.—*Euspiza* BONAP., Cons., I, p. 468 (nec 1838, quæ *Spiza*, BR., nec CAB., 1850, quæ *Granatirora* BR.).

=1851.—*Hypocentor* CAB., Mus. Hein., I, p. 131.

The Gold-ammer, as this species might be termed, is only of occasional and rare occurrence on Bering Island during the migration seasons. Thus several specimens were shot during the spring of 1882. Remarkably enough, not a single one was seen during the same season of the following year, although 1883 brought such an abundance of rare stragglers.

Around Petropaulski it is one of the commonest summer birds, but seems to arrive rather late, as in 1883 it had not made its appearance on the 28th of May, and before the middle of September most of them had left their northern summer homes again. A single young bird was shot by me on the last day of the same month.\*

It is especially frequent in the elder groves on the slopes behind the town, alongside with *Carpodacus* and *Calliope*, in comparison with which it is a poor songster, however, its melancholy tune strongly contrasting with the merry concert of the others.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Measurements.			
					Total length.	Tail beyond wings.	Wings.	Tail-feathers.
					mm.	mm.	mm.	mm.
88997	1175	Bering Island.....	June 9, 1882	♂ ad.	162	.....	79	59
88996	1176	.....do.....	June 9, 1882	♂ ad.	163	.....	77	58
88995	1177	.....do.....	June 9, 1882	♂ ad.	155	.....	79	62
88998	1199	.....do.....	June 12, 1882	♂ ad.	149	.....	77	57
92649	2299	Petropaulski.....	July —, 1883	ad.	.....	.....	79	60
92647	2726	.....do.....	Sept. 30, 1883	juv.	146	37	71	55

No. 88997.—Iris dark brown. Bill horny brown, lower mandible flesh colored. Feet pale brown.

No. 92647.—Iris dark brown. Bill dull flesh-colored, above brownish gray. Feet pale brownish gray.

\* I am indebted to Messrs. Sharpe and Blakiston for the identification of this specimen.

110. *Hypocentor rusticus* (PALL.).

1776.—*Emberiza rustica* PALL., Reise Russ. Reichs. (III, App., p. 698).—*Id.*, Zoogr. Ross. Asiat., II, p. 43 (1826).—KITTL., Kupfert., p. 17, tf. 22, fig. 2 (1833).—*Id.*, Denkwürd., I, pp. 314, 330, II, p. 200 (1858).—MIDD., Sibir. Reise, II, 2 (p. 139) (1853).—SCHRENCK, Reise Amurl., I, p. 278 (1860).—BLAKIST., Ibis, 1862, p. 328.—RADDE, Reisen Süden Ost-Sibir., II, (p. 173) (1863).—SWINH., P. Z. S., 1863, p. 301.—*Id.*, *ibid.*, 1871, p. 388.—*Id.*, Ibis, 1874, p. 161.—*Id.*, *ibid.*, 1876, p. 333.—WHITELY, Ibis, 1867, p. 202.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 335.—PRZEW., Putesch. Ussur. (n. 46) (1870).—TACZAN., J. f. Orn., 1873, p. 89.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, Orn. Fauna Vost. Sibir., p. 36 (1877).—*Id.*, Bull. Soc. Zool. France, 1876, p. 175.—*Id.*, *ibid.*, 1882, p. 393.—BLAKIST. & PRYER, Ibis, 1878, p. 243.—*Id.*, Trans. As. Soc. Japan, VIII, 1880, p. 229.—*Id.*, *ibid.*, X, 1882, p. 169.—BOLAU, J. f. Orn., 1880, p. 125.—*Id.*, *ibid.*, 1881, p. 59.—BLAKIST., Amend. List B. Jap., p. 17 (1884).

A male in fine spring plumage was shot on Bering Island during my absence in Petropaulski, May 21, 1883, and was prepared by my native assistant, who also measured the total length and examined the sex. Two weeks later I shot another specimen on the large tundra behind the village of Bering Island, this one being a female.

This beautiful species is only a rare straggler on the island, and its appearance in the spring of 1883 was due to the same meteorological circumstances which at that time brought so many rare birds over to the treeless island from the dense woods of Kamtschatka.

On the peninsula I met it in the fall of the same year. Single individuals were observed in the dense elder and birch thickets round Petropaulski. The birds were then silent and very shy, and kept themselves very quiet near the ground on the lowest branches. None were seen after the 5th of October, when the last one was shot.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.		Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.			
92644	2071	Bering Island .....	May 21, 1883	(♂) ad.	(150)	.....	78	61	
92645	2128	.....do .....	June 6, 1883	♀ ad.	148	31	74	58	
92648	2640	Petropaulski .....	Sept. 25, 1883	.....	152	31	74	60	
92646	2747	.....do .....	Oct. 5, 1883	♂	157	41	75	61	

No. 92645.—Iris dark brown. Upper mandible horny blackish brown, except tip, which, like the lower mandible, are brownish flesh-colored. Feet light and clear grayish brown. Exceedingly fat.

No. 92646.—Bill horny blackish brown at base, and most of lower mandible rose flesh-color. Legs light grayish flesh-color, joints darker.

111. *Hypocentor variabilis* (TEMM.).

- 1835.—*Emberiza variabilis* TEMM., Pl. Color, III, livr. 98, pl. 583, fig. 2.—TEMM. & SCHLEG., Fauna Japon. Aves (pl. 56) (1847).—BLAKIST. & PRYER, Trans. As. Soc., VIII, 1880, p. 230.—*Id. ibid.*, X, 1882, p. 171.—BLAKIST., Amend. List B. Jap., p. 17 (1884).—*Euspiza v.* SWINH., Ibis, 1875, p. 450.—BLAKIST. & PRYER, Ibis, 1878, p. 243.—TACZAN., Bull. Soc. Zool. France, 1879, p. 137.—*Id.*, *ibid.*, 1882, p. 393.—*Id.*, J. f. Orn., 1881, p. 184.
- 1858.—*Zonotrichia musica* KITTL., Denkw., II, p. 201.—HARTL., J. f. Orn., 1859, p. 50.

I refer this species with much doubt to *Hypocentor*, and should, in fact, prefer to see it made the type of a distinct genus. It has a large bill with a remarkably long gonys; the tomia of the upper mandible are very little inflected, the nasal grooves are nearly filled with hairy feathers, and at the base are several rather strong bristles. The wing is rather short and much more rounded, the first primary being intermediate between fourth and fifth. The hind claw is very small.

There can, in my opinion, be no doubt that this is the *Zonotrichia musica* of v. Kittlitz, described by him from Kamtschatka, as he (*l. c.*) gives a very recognizable description of the old male: "It was light bluish-ash colored, only on the lower surface gradually becoming whitish; back and wing feathers black with broad edges of the same beautiful ash color as the rest of the plumage; bill and feet yellowish flesh-colored, the former grayish above; iris dark brown."

The only bird of this species which came within my observation was an adult male, an accidental straggler from Kamtschatka, shot by me in a small ravine close by the village of Bering Island on the 11th of June, 1883.

Although terribly damaged by the shot, and thus making a very poor specimen for the collection, it suffices for the following measurements and remarks:

*U. S. Nat. Mus. No. 92643, L. Stejneger No. 2158.*

♂ ad. Testes very large, swollen. Total length, 168<sup>mm</sup>; tail beyond wings, 38<sup>mm</sup>; wing, 86<sup>mm</sup>; tail-feathers, 74<sup>mm</sup>.

Bill blackish brown, tomia and lower mandible flesh-colored. Feet light brownish flesh-colored; claws pale.

The plumage is similarly colored to that described by v. Kittlitz above, but the black markings on the interscapular region are rather small and nearly obsolete.

This peculiar plumage, so unlike the general style of Old World *Emberizina*, reminds one strongly of some of the forms inhabiting the

western shores of South America.\* In fact, this bird seems really to be not so very distantly related to those groups of the same family which have been considered peculiar to the New World, and v. Kittlitz was not so very far out of the way in his generic determination as he perhaps might seem to be.

### 112. *Plectrophenax nivalis* (LINN.).

1758.—*Emberiza nivalis* LIN., Syst. Nat., 10 ed., 1, p. 176.—PALL., Zoogr. Ross. Asiat., II, p. 32 (1846).—*Plectrophanes n.* MIDD., Sibir. Reise, (II, 2, p. 136) (1853).—SCHRENCK, Reise Amurl., I, p. 275 (1860).—RADDE, Reisen Süden Ost-Sibir. (p. 156) (1863).—SWINH., P. Z. S., 1863, p. 301.—*Id.*, *ibid.*, 1871, p. 389.—*Id.*, Ibis, 1875, p. 451.—DYBOW. & PARVEN, J. f. Orn., 1868, p. 335.—FINSCH, Abh. Nat. Ver. Bremen, III, 1872, p. 54.—TACZAN., J. f. Orn., 1873, p. 86.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, Orn. Fauna Vost. Sibir., p. 35 (1877).—*Id.*, Bull. Soc. Zool. France, 1876, p. 174.—*Id.*, *ibid.*, 1882, p. 393.—COUES in Elliot, Aif. Alaska, p. 176 (1875).—HARTING, Fauna Prybilov, p. 17 (1875).—BLAKIST. & PRYER, Ibis, 1878, p. 244.—*Id.*, Trans. As. Soc. Japan, VIII, 1880, p. 231.—*Id.*, *ibid.*, X, 1882, p. 172.—ADAMS, Ibis, 1878, p. 426.—BOLAU, J. f. Orn., 1881, p. 60.—*Id.*, *ibid.*, 1882, p. 336.—ELLIOTT, Monogr. Seal-Is., p. 128 (1882).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 149.—NELSON, Cruise Corwin, p. 63 (1883).—BLAKIST., Amend. List B. Jap., p. 62 (1884).—*Plectrophenax n.* TURNER, Auk, 1885, p. 157.

The snow-bunting is the “*sniegirok*” (pluv. *sniegirki*) of the natives, and is one of the few passerine birds which are resident on the islands during the whole year. It must at once be remarked, however, that only a few remain during the winter, feeding upon what the beach may offer, contenting themselves for the greater part with *Gammaridae* and other small crustaceans, while the bulk emigrates at the beginning of the cold season. During the whole winter single individuals, or two together, but never even small flocks, were seen at low tide on the sandy beaches close to the water's edge, being at that time just as much a “limicoline” bird as *Actodromas couesi*, both in respect to food and the locality. During this season they were silent, and even more shy, perhaps, than usual, but from the beginning of March the males would commence practicing to find out if they had forgotten the song of the foregoing year. The snow-bunting has a pretty voice, and when I again heard its sweet cadences after the long winter on the storm-beaten

\* I refer here especially to *Phrygilus unicolor* (D'ORBIGN.), the male of which, in general coloration and size, is an almost perfect counterpart of my specimen. In fact, the likeness is so great that a superficial observer might take them for the same or very nearly related species, and any one adopting color as the leading characteristic of the genera would be forced to put *E. variabilis* from Japan into the South American genus *Phrygilus*.



island I fancied it the loveliest of the songsters, carrying my dreams far away to sunnier regions by his soft and unpretentious melody. At this time he only sings when sitting on the ground, preferring some projecting rock or stone, but later, during the breeding season, he will sing when rising into the air on quivering wings like a lark; but how Boie could compare his modest and gentle warbling with the vigorous and intricate trill of the skylark is rather incomprehensible to me.

On the 28th day of March, 1883, a small troop of new arrivals were observed on Bering Island, but they did not become abundant until three weeks later. They never came in large flocks, and soon disbanded. The single pairs then disperse over the island, settling wherever there are steep cliff-walls or rugged bluffs in the interior, or along the coast, far up on the mountains and down below at the beach, but always avoiding the wet tundra or the flat, dreary, mountain plateaus of the northern part. If the season is open and otherwise favorable, the first eggs will be laid shortly after the middle of May; the young will be out in the beginning of June, and in July I have found the fresh eggs of a second brood.

The measurements of the eggs taken are as follows :

U. S. Nat. Mus. No.	Stejneger No.	Diameters.	Date.	Locality.	Remarks.
		<i>Millimeters.</i>			
21812	1230	24 by 17.5 24.5 by 17	June 15, 1882	Copper Island .....	Nest contained five eggs.*
21812 bis	2518	23.5 by 18.5	July 3, 1883	Bering Island.....	.....
21813	1227	24 by 18 24.5 by 18 24.25 by 18 24.75 by 18	June 4, 1882	Copper Island .....	Full clutch.
21814	1229	26 by 17.75 26 by 17.25 27 by 17.5	June 11, 1882	.....do.....	Do.

\* Dimensions of nest : External diameter, 110<sup>mm</sup>; internal diameter, 70<sup>mm</sup>.

## List of specimens collected.

U. S. Nat. Mns. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.
					mm.	mm.	mm.
88999	1033	Bering Island .....	May 10, 1882	♂ ad.	176	110	66
89001	1060	..... do .....	May 19, 1882	♂ ad.	190	120	78
89000	1086	..... do .....	May 24, 1882	♂ ad.	185	113	72
92650	1693	..... do .....	Oct. 23, 1882	♂	198	113	78
92651	1778	..... do .....	Dec. 13, 1882	.....	187	112	72
92652	2220	Copper Island .....	July 2, 1883	juv.	.....	98	63
92653	2217	..... do .....	July 1, 1883	juv.	144	83	40

No. 89001.—Iris dark brown. Bill black, corner of mouth yellow. Feet brownish black.

No. 92650.—Bill yellow, tip and culmen blackish. Feet brownish black.

No. 92653.—Iris dark brown. Bill light brownish yellow, dusky on culmen, and with a greenish tinge in front of nostrils; angle of mouth pale yellow. Feet gray, with a purplish tinge above and yellowish below.

No. 92652.—Differed from the foregoing only in having the more dusky on the upper mandible.

113. *Calcarius lapponicus* (LIN.).

1758.—*Fringilla lapponica* LIN., Syst. Nat., 10 ed., I, p. 180.—*Plectrophanes l.* SWAINS. & RICH., Faun. Bor. Am., II, p. 245, pl. xlviii (1831).—MIDD., Sibir. Reise, II, 2, (p. 136) (1853).—SCHRENCK, Reise Amurl., I, p. 276 (1860).—SWINH., Ibis, 1861, p. 334.—*Id.*, P. Z. S., 1871, p. 389.—RADDE, Reisen Süden Ost-Sibir. (p. 156) (1863).—PRZEW., Putesch. Ussur. (n. 40) (1870).—FINSCH, Abh. Nat. Ver. Bremen, III, 1872, p. 54.—TACZAN., J. f. Orn., 1873, p. 86.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, Ornith. Fauna Vost. Sibir., p. 35 (1877).—*Id.*, Bull. Soc. Zool. France, 1882, p. 393.—COUES in Elliott's *At. Alaska*, p. 177 (1875).—HARTING, Fauna Prybil., p. 17 (1875).—ADAMS, Ibis, 1878, p. 425.—H. W. ELLIOTT, Monogr. Seal Isl., p. 128 (1882).—*Centrophanes l.* SWINH., P. Z. S., 1863, p. 301.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 150.—NELSON, Cruise Corwin, p. 69 (1883).—*Calcarius l.* TURNER, Auk, 1885, p. 157.

1773.—*Fringilla calcarata* PALL., Reise Russ. Reichs., II, App., p. 710.—*Passer calcaratus* *Id.*, Zoogr. Ross. Asiat., II, p. 18, (1826).—*Plectrophanes calcaratus* KITTLE., Denkw., I, p. 337.

The "*Tschelutschjék*," as this bird is called by the natives, is one of the commonest of the land birds on the Commander Islands, and certainly the commonest on Bering Island, being pretty evenly distributed over all the lower parts of the country. Its monotonous and melancholy chirp is in many places the only sound heard besides the howling of the wind and the murmur of the distant breakers, making the fog-clad tundras still more desolate and gloomy. But the Longspur is also found among the earth-huts and the houses of the village, where he represents the house sparrow, and I have seen him on the

snow-fields as well as on the outmost stones of the surf-washed reef, and found their snug nests both in the dampest place of the large swamp and on the dry, sunny bluffs of the sand-hills or on the lichen-covered slopes of the mountains. In the interior, and higher up in the mountains, the Snow-ammer takes his place, however.

About its occurrence in Kamtschatka I can only say that I met a single, exceedingly shy individual at the graveyard of Petropaulski during the first half of October.

They had already commenced their breeding business when I arrived at the islands, in May, 1882, and it was, in fact, the first bird of my collection. When the autumn storms commenced, the families gathered together in small flocks and left our inhospitable islands for milder regions, and in the latter part of October only some few solitary birds were seen, but these also soon disappeared. Not a single one remained on its native island during the winter, and not before the 21st of April did we hear the well-known chirping of the few first arrivals. It was not until after the lapse of several days that the bulk of them landed, and the flocks very soon dissolved into pairs eager to begin the old story of love and parental happiness and sorrows. There were enough of enemies bringing on the latter, among them the collector of the National Museum. The eggs taken measure as follows:

U. S. Nat. Mus. No.	Stejneger No.	Diameters.	Date.	Locality.	Remarks.
21776	1197	<i>Millimeters.</i> 22.5 by 17 23 by 16.25 22 by 17	June 11, 1882	Bering Island.....	Full clutch.
21775	1183	23 by 15 22.5 by 16 22 by 15.5	June 9, 1882	.....do .....	Do.
21774	1160	22 by 16	June 6, 1882	.....do .....	Nest contained two eggs.
21817	2197	.....	June 6, 1883	.....do .....	Clutch of four eggs.
		20.5 by 15.25 21 by 15 20 by 15			
21815	2111	22 by 17 21.75 by 16.25 21.75 by 17	May 23, 1883	.....do .....	Full clutch.
21816	2112	22 by 15.5 23 by 15 23 by 15.5	May 30, 1883	.....do .....	Do.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.		Tail-feathers.
					mm.	mm.	
89167	1002	Copper Island.....	May 6, 1882	♂ ad.	174	98	64
89168	1003	.....do.....	May 6, 1882	♂ ad.	170	99	68
89169	1004	.....do.....	May 6, 1882	♂ ad.	167	97	67
89005	1013	Bering Island.....	May 9, 1882	♂ ad.	165	95	66
89004	1018	.....do.....	May 9, 1882	♂ ad.	156	97	66
89002	1011	.....do.....	May 9, 1882	♀ ad.	162	90	60
89003	1019	.....do.....	May 9, 1882	♀ ad.	159	94	62
89131	1216	Copper Island.....	June 21, 1882	♀ ad.	155	90	61
92655	1704	Bering Island.....	Oct. 31, 1882	♂ ad.	172	96	65
92654	1687	.....do.....	Oct. 16, 1882	♂ jun.	161	90	65
92656	1699	.....do.....	Oct. 26, 1882	♀ jun.	162	86	62
89015	1262	.....do.....	July 15, 1882	♂ juv.	157	87	58
89016	1264	.....do.....	July 18, 1882	♂ juv.	108	57	20

No. 89004.—Iris dark brown. Feet brownish black.

No. 89131.—Bill brownish yellow with blackish tip. Feet dark brown.

No. 92654.—Iris dark hazel. Bill reddish gray, black at tip of upper mandible. Feet dark brownish gray.

No. 92656.—Bill light brownish gray, tip blackish. Feet blackish brown.

No. 89015.—Iris dark brown. Bill brownish gray with a yellow spot along the middle of upper tomium. Feet reddish pearl gray.

No. 89016.—Bill dark gray, tomium of upper mandible, angle of mouth, and tip of mandibles whitish. Feet brownish flesh-color, tarsus behind and toes below yellowish.

The specimens from the Commander Islands are very bright-colored, the chestnut, black, and white being of greater purity than is perhaps usual. This is, however, the only difference which can be detected in a large series, and individuals just as bright are not unfrequent from other localities.

114. *Acanthis\* linaria* (LIN.).

1758.—*Fringilla linaria* LIN., Syst. Nat., 10 ed., I, p. 182.—KITTL., Denkw., I, p. 321 (1858).—*Passer l.* PALL., Zoogr. Ross. As., II, p. 25 (1826).—*Ægiothus l.* SWINH., P. Z. L., 1863, p. 299.—*Acanthis l.* DYBOW. & PARVEX, J. f. Orn., 1863, p. 335.—TACZAN., J. f. Orn., 1873, p. 92.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *Ibid.*, 1876, p. 200.—*Id.*, Bull. Soc. Zool. France, 1876, p. 180.—*Id.*, *Ibid.*, 1882, p. 394.—*Id.*, Orn. Fauna Vost. Sibir., p. 39 (1877).—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 365.—*Ægiothus l.* BLAKIST. & PRYER, Ibis, 1878, p. 245.—BOLAU, J. f. Orn., 1880, p. 127.—*Id.*, *ibid.*, 1882, p. 335.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 149.—NELSON, Cruise Corwin, p. 68 (1883).—RIDGW., Pr. U. S. Nat. Mus., 1883, p. 371.

1880.—*Linota rufescens* (?) BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 233 (*æc* VIEILL.).—*Id.*, *ibid.*, X, 1882, p. 174.

1883.—*Acanthis innominatus* DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 366.

This form seems to be the common breeding bird on the mainland of Kamtschatka, where I got a very young specimen near Petropaulski on the 4th of July, 1882.

\* About the generic term see "Notes on the genus *Acanthis*," in "The Auk," 1884, p. 145.



I do not think that it breeds on the islands, however, as it was not met with from the end of May until the beginning of November. Between the 21st and the 28th of May, 1882, I met a few small troops, consisting of three to five individuals, but their behavior convinced me that they were not thinking of breeding; they were probably on their way westward. During the winter, from November till March, this race was the most common of the three forms occurring on the island, although never met with in flocks of more than six individuals. They were always moving rapidly and distinguished themselves by a remarkable shyness.

Having discussed the affinities of the birds in question further on under the heading of *A. exilipes*, as also in a previous paper (Auk, 1884, p. 148), I content myself here by only giving some comparative measurements of birds from different parts of the circumpolar realm. Among these are several specimens marked *L. ordinaria*, *parvirostris*, or *betularum* in Sundevall's own handwriting. It will be seen that only such specimens have been selected for measurement, the locality, date, and sex of which were stated by the collector. Five specimens collected by myself, the sex of which I was unable to determine, are kept separate in the list of specimens collected. It is too often the fault of authors pretending to give the results of "careful comparisons" that they mix birds of different sex and age, and from different seasons, together, without stating the known particulars pertaining to every single specimen, thus depriving the public of the means by which an intelligent judgment respecting the value of the conclusion arrived at, can be formed.

List of specimens collected (sex determined).

a.—SUMMER SPECIMENS.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Bill from nostrils.	Wing.	Tail-feathers.	Furcation of tail.
					mm.	mm.	mm.	mm.	mm.
89006	1065	Bering Island .....	May 21, 1882	♂ ad.	126	7.5	73	59	11
89012	1111	.....do.....	May 28, 1882	♂	127	7	72	.....	.....
		Average .....			126.5	7.2	72.5	.....	.....
89013	1066	Bering Island .....	May 21, 1882	♀	122	8	70	55	9
89010	1067	.....do.....	May 21, 1882	♀	124	7	75	58	10
89011	1082	.....do.....	May 25, 1882	♀	122	7	70	55	11
89014	1112	.....do.....	May 28, 1882	♀	.....	7	68	55	.....
		Average .....			122.7	7.2	70.7	55.7	10

## List of specimens collected—Continued.

## b.—WINTER SPECIMENS.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Bill from nostrils.	Wing.	Tail-feathers.	Furcation of tail.
					mm.	mm.	mm.	mm.	mm.
92594	1793	Bering Island .....	Dec. 13, 1882	♂ ad.	133	7	75	58	11
92604	1859	.....do.....	Jan. 8, 1883	♂ ad.	128	7	75	61	10
92589*	1941	.....do.....	Mar. 7, 1883	♂ ad.	122	7.5	70	54	10
92602	1960	.....do.....	Mar. 22, 1883	♂ ad.	131	7.5	73	58	10
92610	1861	.....do.....	Jan. 8, 1883	♂	.....	7	73	56	11
92618	1912	.....do.....	Feb. 21, 1883	♂	133	7	74	61	13
92615	1913	.....do.....	Feb. 21, 1883	♂	132	7.5	74	61	11
92623	1951	.....do.....	Mar. 12, 1883	♂	129	8	71	54	9
		Average .....			130	7.5	73	58	11
92595	1714	Bering Island .....	Nov. 8, 1882	♀	130	7.5	71	57	11
92587	1787	.....do.....	Dec. 10, 1882	♀	120	7.5	71	55	11
92588	1788	.....do.....	Dec. 10, 1882	♀	120	7	71	56	13
92586	1789	.....do.....	Dec. 10, 1882	♀	125	7	70	56	9
92605	1786	.....do.....	Dec. 10, 1882	♀	126	7	71	55	9
92607	1796	.....do.....	Dec. 13, 1882	♀	132	7	72	58	11
92616	1860	.....do.....	Jan. 8, 1883	♀	126	6.5	70	55	10
92590	1898	.....do.....	Feb. 5, 1883	♀	128	8	71	55	8
92612	1918	.....do.....	Feb. 24, 1883	♀	126	7	69	55	.....
92608	1937	.....do.....	Mar. 4, 1883	♀	126	7	71	55	10
92611	1936	.....do.....	Mar. 4, 1883	♀	128	7.5	74	58	9
92593	1956	.....do.....	Mar. 18, 1883	♀	128	7	72	57	.....
92591	1957	.....do.....	Mar. 21, 1883	♀	122	7	70	53	9
		Average .....			125.9	7.2	71	55.8	10

\*Hybrid (?).

## List of specimens collected (sex undetermined).

89009	1091	Bering Island.....	May 25, 1882	.....	125	7	70	57	9
92598	1713	.....do.....	Nov. 8, 1882	.....	128	7.5	71	54	10
92585	1729	.....do.....	Nov. 13, 1882	.....	123	7	70	56	12
92613	1785	.....do.....	Dec. 10, 1882	.....	127	7.5	71	56	10
92606	1844	.....do.....	Jan. 2, 1883	.....	129	8	73	58	.....
89161	1246	Petropaulski.....	July 4, 1882	juv.	129	6	67	55	.....

## Tables of dimensions.

1.—PALEARCTIC SPECIMENS (*BETULARUM*).

## A.—WINTER SPECIMENS.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Measurements			
						Bill from nostrils.	Wing.	Tail-feathers.	Furcation of tail.
						mm.	mm.	mm.	mm.
52436	Sundevall...	11	Stockholm .....	Mar. 22, 1864	♂ ad.	7	75	57	9
52437	...do .....	10	...do .....	Jan. 22, 1859	♂	8	74	57	12
34135	...do .....	9	...do .....	Oct. —, 1853	♂	8	73	57	11
Average .....						7.7	74	57	10.7
34139	...do .....	2	...do .....	Dec. —, 1841	♀	7	69	57	12
34142	...do .....	7	...do .....	Mar. 24, 1863	♀	7.5	73	56	8
Average .....						7.2	71	56.5	10

## B.—SUMMER SPECIMEN.

34138	Sundevall...	.....	Sweden, 62° latitude.....	June 3, 1857	♂ ad.	7.5	75	55	10
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## 2.—NEARCTIC SPECIMENS.

## A.—WINTER SPECIMENS.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Measurements			
						Bill from nostrils.	Wing.	Tail-feathers.	Furcation of tail.
						mm	mm.	mm.	mm.
39364	B. R. Ross ...	823	Fort Simpson .....	Apr. 26, 1860	♂ ad.	7.5	77	59	10
60970	Schmidt .....	1129	Green River, Wyo .....	Oct. 10, 1870	♂ ad.	...	72	55	11
83404	Merrill .....	430	Fort Shaw .....	Jan. 3, 1880	♂ ad.	7.5	75	59	9
86903	Rosevelt .....	441	Garrison, N. Y .....	Jan. 16, 1875	♂ ad.	8	74	58	9
88050	Shufeldt .....	287	Fort Laramie, Wyo .....	Nov. 6, 1878	♂ ad.	8	75	59	9
Average .....						7.8	74.8	58	9.6
73303	Turner .....	1490	Fort Yukon, Alaska .....	Apr. 15, 1877	♀ ad.	7.5	68	56	11
63645	Bean .....	.....	Fort Runyon, Va .....	Feb. 19, 1875	♀ ad.	8	74	60	.....
83397	Boardman .....	.....	New Brunswick .....	Jan. —, 1879	♀ ad.	8	76	62	12
88399	Nelson.....	1036	Rhode Island .....	Mar. —, 1875	♀ ad.	7	68	58	12
Average .....						7.6	71.5	59	11.7

## 2.—NEARCTIC SPECIMENS—Continued.

B.—SUMMER SPECIMENS (*fuscescens* COUES).

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Bill from nostrils.		Tail-feathers.	Furcation of tail.
						mm.	mm.		
18002*	Coues.....	.....	Groswater Bay, Labrador.....	July 23, 1860	♂ ad.	7.5	73	58	10
18098*	.. do.....	.....	..... do.....	July 24, 1860	♂ ad.	7.5	72	56	9
18100	.. do.....	1454	..... do.....	July 17, 1860	♀ ad.	7	72	55	9
51914	McFarlane.....	3479	Rendezvous Lake, Arct. Am..	June —, 1865	♂ ad.	7.5	73	.....	.....
58428	Bischoff.....	.....	Fort Kenay, Alaska.....	May 28, 1869	♂ ad.	7.5	70	56	9
73304	Turner.....	1615	Fort Yukon, Alaska.....	May 3, 1877	♂ ad.	8	73	57	8
86526	McKay.....	4	Nushagak, Alaska.....	June 21, 1881	♂ ad.	7.5	70	55	10
			Average.....			7.5	71.9	56.3	9.2
	Kennicott.....	685	Fort Resolution, Arct. Am.....	June 13 —	♀ ad.	7.5	69	53	8
18097†	Coues.....	.....	Groswater Bay Labrador.....	July 17, 1860	♀ ad.	6	67	54	10
27446	Lockhart.....	195	Fort Yukon, Alaska.....	June 30 —	♀ ad.	7.5	70	58	8
43318	McFarlane.....	1600	Fort Anderson, Arct. Am.....	June 8, 1864	♀ ad.	7.5	69	55	10
81367	Bean.....	3339	Chugachik Bay, Alaska.....	July 1, 1880	♀ ad.	7	71	58	11
			Average.....			7.1	69.2	55.6	9.4

\* Type!

† Bill very worn.

115. *Acanthis linaria holboellii* (BREHM).1826.—*Passer linaria* PALL., Zoogr. Ross. As., II, p. 25 (*part*).1831.—*Linaria holboellii* BREHM, Handb. Vög. Deutschl., p. 280.—*Acanthis h.* TACZAN., J. f. Orn., 1874, p. 324.—*Id.*, Bull. Soc. Zool. France, 1876, p. 180.—*Id.*, Orn. Faun. Vost. Sibir., p. 40 (1877).—DYBOW., Bull. Soc. Zool. France, 1883, p. 365.1883.—*Acanthis intermedius* DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 365.

The long and slender-billed Red Poll is a resident of Bering Island, and is probably the only form which remains there during the summer. It may be, however, that it leaves the island late in winter, as I did not get a single specimen between the 2d of January and the middle of April, although every Red Poll which came within shot range was brought down for identification.

A careful comparison with American specimens (cf. my memoir in The Auk, 1884, p. 148) and with typical specimens of Sundevall's *magnirostris* shows no tangible difference. They are rather typical both in size and color, and represent the distinctive characters from the *linaria vera* pretty well.

Below I give, besides a list of the specimens obtained by me and their dimensions, a table of measurements taken from Scandinavian specimens, three of which are marked "*magnirostris*" in Sundevall's own handwriting.



*List of specimens obtained.*

## A.—SUMMER SPECIMENS.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wing.	Bill from nostrils.	Wing.	Tail-feathers.	Furcation of tail.
					mm.	mm.	mm.	mm.	mm.	mm.
89008	1090	Bering Island.....	May 28, 1882	♂	134	.....	9	70	55	11
92609	2168	.....do.....	June 13, 1883	♂	137	25	9	75	58	12
89007	1076	.....do.....	May 23, 1882	♀	136	.....	9	72	61	14

## B.—WINTER SPECIMENS.

92592	1701	Bering Island.....	Oct. 27, 1882	♂ ad.	139	.....	9	74	57	10
92597	1702	.....do.....	Oct. 28, 1882	♂ ad.	135	.....	8.5	75	60	10
92596	1728	.....do.....	Nov. 13, 1882	♂ ad.	132	.....	8.5	75	58	11
92600	1794	.....do.....	Dec. 13, 1882	♂ ad.	136	.....	9	78	60	11
92599	1845	.....do.....	Jan. 2, 1883	♂	133	.....	9	76	60	12
92601	1846	.....do.....	Jan. 2, 1883	♂	132	.....	8	76	59	12
92603	1792	.....do.....	Dec. 13, 1882	♂ ad.	137	.....	9	74	58	11
92625	1777	.....do.....	Dec. 4, 1882	♀	133	.....	9	73	57	11

No. 92609.—Iris dark brown. Bill horny brownish black; tomia and base of lower mandible below yellowish gray; angle of mouth yellow. Feet blackish brown.

No. 92592.—Bill orange yellow; culmen and anterior half of gonyms horny brown.

*Table of dimensions of Scandinavian specimens.*

## A.—WINTER SPECIMENS.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Bill from nostrils.	Wing.	Tail-feathers.	Furcation of tail.
						mm.	mm.	mm.	mm.
34141	Sundevall.....	11	Stockholm.....	Mar. 20, 1863	♂ ad.	9	77	58	8
34133	.....do.....	7	.....do.....	Oct. 30, 1853	♀	9	71	56	12
34134	.....do.....	8	.....do.....	Oct. 14, 1855	♀	9	72	57	11

## B.—SUMMER SPECIMENS.

Stejneger.....	116	Western Norway.....	July 30, 1873	♂ ad.	8	75	55	7
.....do.....	171	.....do.....	July 21, 1875	♂ ad.	8	75	56	10

116. *Acanthis hornemannii exilipes* (COUES).

- 1860.—*Fringilla (Acanthis) linaria* var. *canescens* SCHRENCK, Reise Amurl., I, p. 296.  
 1861.—*Cannabina canescens* SWINH., Ibis, 1861, p. 335 (*nec* GOULD).—*Ægiothus c. Id.*, P. Z. S., 1863, p. 299.—*Acanthis c.* DYBOW. & PARVEX, J. f. Orn., 1868, p. 335.—TACZAN., J. f. Orn., 1873, p. 92.—*Id.*, *ibid.*, 1874, p. 336—*Id.*, Bull. Soc. Zool. France, 1876, p. 189.—*Id.*, Orn. Fauna Vost. Sibir., p. 40 (1877).—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 366.  
 1861.—*Ægiothus exilipes* COUES, Pr. Phil. Acad., 1861 (p. 385).  
 1872.—*Ægiothus linaria* var. *exilipes* COUES, Key, p. 131 (1872).  
 1874.—*Ægiothus canescens exilipes* RIDGW., Ann. Lyc. Nat. Hist. New York, X, 1874, p. 372.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 149.—NELSON, Cruise Corwin, p. 67 (1883).  
 1871.—*Ægiothus borealis* SWINH., P. Z. S., 1871, p. 386 (*nec* VIEILL.).—*Id.*, Ibis, 1874, p. 160.  
 1880.—*Linota linaria* BLAKIST. & PRYER, Trans. As. Soc., VIII, 1880, p. 233.—*Id.*, *ibid.*, X, 1882, p. 174.

The smaller white-rumped Red Poll is only a winter visitor to Bering Island from more northern regions. They were found in very limited numbers from November to March, flitting hastily from one dry stem of *Archangelica*, on the seeds of which they mostly feed, to another.

Though connected with the large Greenland form *hornemannii* HOLB. (*canescens* auct. *nec* GOULD), which it very closely resembles in coloration by intermediate forms, it is sufficiently distinct to be designated by a separate name. *A. hornemannii* proper is restricted as a breeding bird to Greenland, from whence it in winter visits the most northern parts of Eastern America. It is by far a larger bird, as the following comparison shows: The wings of the five males from Bering Island average (cfr. the table below) 72<sup>mm</sup>, the tails 57.6<sup>mm</sup>, and the bills 6.4<sup>mm</sup>, while the average dimensions of six males in winter plumage of the Greenland form, give 85.3 (average of 86, 86, 82, 86, 87, 85) <sup>mm</sup> for the wing, 66.3 (66, 64, 66, 69, 67, and 66) <sup>mm</sup> for the tail, and 8<sup>mm</sup> (the bills in all six being equal) for the bill. This gives a difference of 13.3<sup>mm</sup> in the wing, 8.7<sup>mm</sup> in the tail and 1.6<sup>mm</sup> in the bill, differences which are quite considerable in so small birds. It will be observed, however, from the tables given below, that the American specimens of *exilipes* are a trifle larger, and even some larger examples from Eastern America might have been added to the list had it not been that I restricted the table to specimens, the locality, date, and sex of which was marked down on the label by the collector. Nevertheless, the difference between the two forms is so great that I have been somewhat doubtful whether they might not be regarded as fairly established species.

The present form occurs in the eastern part of Asia, having been found

in winter as far south as North China and Japan, and is usually quoted by authors treating of the birds of these regions as *A. canescens*.

Its chief habitat seems, however, to be the Arctic portions of North America, where it has been found in abundance from Alaska to the Atlantic coast. By some authors it has been suggested that, the true *exilipes* also occurs through the whole of Siberia and Northern Russia to Finmarken, in Northern Norway, but, as far as I can judge, it has been confounded with a pale northern form of *linaria*, the *A. linaria pallescens* (HOMEY.). (Cf. a paper of mine in "The Auk," 1884, p. 147, "Notes on the genus *Acanthis*.") In fact, it is almost easier to confound *exilipes* with the non-conspecific *linaria* than with the Greenland form with which it is here considered to rank only as a subspecies; but this statement only relates to the young and immature specimens, and perhaps a few hybrids from places where both species breed in the vicinity of each other, but never to the adults which are easily distinguished by the color of the rump, this being, in *exilipes*, unstriped, pure white, or suffused with a delicate rosy tinge. The size of both species is essentially the same, except that *exilipes* has a much shorter and differently shaped bill, so that pure-bred young may easily be distinguished by a somewhat careful observer. I have, for the preparation of these remarks and of the memoir in "The Auk," quoted above, handled about two hundred and twenty specimens of both forms (not including *kolboellii* and *rostrata*), and among the whole lot there was hardly more than one specimen the identification of which gave any *serious* trouble, that being an adult male with red breast, and showing intermediate features suggesting its probable hybrid origin. For more particulars I refer to the tables of dimensions under the next foregoing species.

I can detect no difference in the intensity of the red color of the breast in Asiatic and in American specimens, as I have specimens from both regions, which are colored rather richly, while others show only the faintest possible trace. In fact, I can match all my Bering Island skins with their counterparts from the other side of the Pacific Ocean.

## List of specimens obtained.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Bill from nostrils.		Wing.	Tail-feathers.	Furcation of tail-feathers.
						mm.	mm.			
92621	1751	Bering Island .....	Nov. 27, 1882	♂ ad.	128	6.5	71	55	9	
92619	1942	.....do.....	Mar. 8, 1883	♂ ad.	123	7	71	57	10	
92620	1917	.....do.....	Feb. 24, 1883	♂	122	6	73	59	12	
92624	1961	.....do.....	Mar. 22, 1883	♂	132	6.5	71	55	10	
92614	1935	.....do.....	Mar. 4, 1883	♂	129	6	74	62	13	
Average of five males .....					127	6.4	72	57.6	10.8	
9262	1962	Bering Island .....	Mar. 22, 1883	♀	122	7	69	55	11	
92617	1911	.....do.....	Feb. 18, 1883	♀	126	6.5	71	55	12	
Average of two females.....					124	6.8	70	55	11.5	

No. 92621.—Iris dark brown. Bill orange-yellow, culmen and tip of gony blackish. Feet blackish brown.

No. 92619.—Extremely fat. Testes swollen. Bill yellow, culmen and gony horny brownish gray.

No. 92624.—Bill yellow, culmen and anterior half of gony horny brown.

No. 92617.—Bill pale orange-yellow, culmen, tomsia, and gony dark brownish.

Table of dimensions of specimens of *A. exilipes* from America.

## A.—TYPICAL SPECIMENS FROM THEMACKENZIE RIVER.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Bill from nostrils.		Wing.	Tail-feathers.	Furcation.
						mm.	mm.			
19686*	B. R. Ross.	171	Fort Simpson, Mackenzie River.	Apr. 30, 1860	♂	6.5	75	61	10	
19700†	.....do.....	156	.....do.....	Apr. 28, 1860	♀	6	71	59	11	
19684	.....do.....	168	.....do.....	Apr. 28, 1860	♀	6.5	73	59	10	
93502	.....do.....	768	.....do.....	Feb. 14, 1861	♀	7	71	56	9	

## B.—WINTER BIRDS FROM ALASKA.

50000	W. H. Dall.	628	Nulato .....	Feb. 10, 1867	♂ ad.	6.5	75	61	9
50021	.....do.....	602	.....do.....	Feb. 5, 1867	♂ ad.	6.5	74	50	8
73315	Turner....	1610	Fort Yukon .....	Apr. 8, 1877	♂ ad.	6.3	75	59	10
76840	.....do.....	1061	Saint Michael's.....	Apr. 19, 1876	♂ ad.	6.5	73	55	9
76846	.....do.....	1059	.....do.....	Apr. 19, 1876	♂ ad.	7	76	65	10
Average .....						6.5	75	60	9
50004	W. H. Dall.	.....	Nulato .....	Feb. 11, 1867	♀ ad.	7	73	59	11
70838	Turner....	1049	.....do.....	Mar. 8, 1876	♀ ad.	7	72	58	8
73310	.....do.....	.....	Fort Yukon .....	Mar. 3, 1877	♀ ad.	7	70	60	10
Average .....						7	72	59	10

\* Male type.

† Female type.



Table of dimensions of specimens of *A. exilipes* from America—Continued.

## C.—SUMMER BIRDS FROM ALASKA.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Bill from nostrils.	Wing.	Tail-feathers.	Furcation.
						mm.	mm.	mm.	mm.
67816	Turner...	55	Saint Michael's.....	July 7, 1874	♂ ad.	7	73	59	10
70847	...do .....		.....do .....	June 1, 1876	♂ ad.	7	75	60	10
81362	Bean .....	3752	Chamisso Island .....	Aug. 31, 1880	♂ ad.	7	72	58	8
86525	McKay .....		Nushagak .....	June 7, 1881	♂ ad.	6.5	72	59	8
88747	Murdoch..	402	Point Barrow .....	June 16, 1882	♂ ad.	7	71	56	11
88745	...do .....	486	.....do .....	July 3, 1882	♂ ad.	7	71	58	10
			Average .....			6.9	72.3	58.3	10
70848	Turner...		Fort Yukon .....	May 9, 1876	♀ ad.	7	70	58	11
88746	Murdoch..	390	Point Barrow .....	June 13, 1882	♀ ad.	7	73	55	9
			Average .....			7	71.5	56.5	10

117. *Leucosticte griseonucha* (BRANDT).

- 1826.—*Passer arctous* var.  $\gamma$  PALL., Zoogr. Ross. As., I, p. 23.
- 1841.—*Fringilla* (*Linaria*) *griseonucha* BRANDT, Bull. Acad. St. Petersb., X, 1841, No. 16, p. 19.—KITTL., Denkw., I, p. 278 (1858).
- 18—.—? *Montifringilla pustulata* CAB. in Ersch. & Grub. Enc., L. (p. 215).—*Fringilla* p. KITTL., Denkw., I, p. 278 (1858).
- 1850.—*Montifringilla griseinucha* BP. & SCHLEG., Mon. Lox., p. 35, pl. 41.—FINSCH, Abh. Nat. Bremen, III, 1872, p. 57.—*Leucosticte g.* BP., Consp. Av., I, p. 537 (1850).—CAB., Mus. Hein., I, p. 154 (1851).—BAIRD. B. N. Amer., p. 430.—*Id.*, Trans. Chic. Ac. Sc., I, 1869 (p. 317, pl. xxviii, f. 2).—*Id.*, in Coop. Birds Calif., I, p. 161 (1871).—DALL & BANN., Trans. Chic. Ac. Sc., I, 1869 (p. 282).—DALL, Avif. Al. I. eastw., p. 3, (1873).—*Id.*, Avif. Al. I. west, p. 4 (1874).—RIDGW., Buř. Geol. and Geogr. Surv. Terr., 1875, p. 77.—*Id.*, Nomencl. N. A. B., p. 21 (1881).—BEAN, Pr. U. S. Nat. Mus., 1882, p. 148.—TACZAN., Bull. Soc. Zool. France, 1882, p. 393.—NELSON, Cruise Corwin, p. 67 (1883).—DYBOW., Bull. Soc. Zool. France, 1883, p. 364.—STEJNEGER, Auk, 1884, p. 82.—*Id.*, Naturen, 1884, p. 34.—TURNER, Auk, 1885, p. 157.
- 1872.—? *Montifringilla speciosa* FINSCH, Abh. Nat. Ver. Bremen, III, 1872, p. 60.
- 1872.—*Leucosticte tephrocotis* var. *griseinucha* COUES, Key, p. 130.—*Id.*, Birds N. West, p. 111 (1874).—*Id.* in Elliott's Af. Alaska, p. 174 (1875).—B. B. & RIDGW., Hist. N. Am. B., I, p. 508 (1874).—H. W. ELLIOTT, Monogr. Seal Isl., p. 127 (1882).
- 1875.—*Leucosticte tephrocotis* HARTING, Fauna Prybilov, p. 16 (1875).
- 1843.—*Leucosticte griseogenys* GOULD, P. Z. S., 1843, p. 104.
- 1883.—*Leucosticte brunneinucha* STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71 (*nec* BRANDT, (cf. "The Auk," 1884, p. 82)).

Compared with skins from the other Aleutian Islands and from the Prybiloff Islands, my specimens show very little difference. There seems to be a tendency to a darker shade of the brownish and a clearer

tint of the gray colors, especially noticeable in the winter specimen, but some summer birds are easily matched by those from the Prybiloff Islands. The bill is, in my birds, just a little larger than usual in the other ones, but the difference is too trifling to be taken into account. I have not mentioned that the birds from the Commander Islands apparently have the rosy color of the rump extending less far on the back, as this difference possibly may originate from a different make of the skins.

This is one of the few true American forms of birds occurring on the Commander Islands, being in Kamtschatka replaced by the entirely different *Leucosticte brunneonucha* (BRANDT), a species I never met with on the island, and which I do not believe occurs there.\*

On Bering Island it cannot be said to be numerous, except, perhaps, in a few places where the localities are very favorable, for instance, at a rugged rock, called Kasarna, a little south of Poludjonnaja Seal-rookery. Other places where they have been met with are Kitovaja Nepropusk, about 6 miles northwest of the village, at the steep cliffs near the fishing place Saranna, at Tolstoj Mys, on the southeastern end of the island, and a few similar localities. During winter they were seldom seen, although I do not believe that they had left the island.

Copper Island, being one mass of rugged and cracked rocks and cliffs, with steep, often quite perpendicular, walls jutting up straight out of the ocean, is the favorite haunt of these stone-loving birds, which may be said to be fairly common on that island, occurring in pairs around the whole isle during the breeding season.

In the latter half of June I found the parents feeding their young, and on the 7th of July I shot three full-fledged young at one shot, while they were sitting high up on a rocky shelf, almost invisible on account of their resemblance in color to the stones, crying piteously for food. The nature of the latter may be seen from the contents of the gullets, as stated below under remarks, annexed to the list of specimens obtained. The females had very large "breeding patches," No. 92637 having almost the whole abdomen and breast destitute of feathers.

The "Aleutian Rosy Finch" delights especially in steep and high rocks,

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\* In my preliminary report of 1882 (Pr. U. S. Nat. Mus., 1883, p. 71), the bird of the islands was erroneously given as *L. brunneonucha*, caused by an oral communication from Dr. Dybowski, that the latter species was the common form, he having in four years only once obtained a single specimen of *griseonucha*, which was a bird mounted for a parlor decoration, in the possession of the company's agent, on Bering Island. Not having my specimens at hand when writing my report, I referred them as above, wrongly enumerating the species of *Leucosticte* as an Old World form.

especially close to the sea and inaccessible to any other beings than those provided with wings. In fact, I do not think that a single pair breeds in the interior of the islands, but after the young are out, the whole family will often move inland, following the rivulets up to the backbone of the mountains in the search for insects. Thus I met a small troop on the 10th of July, 1883, on Copper Island, pretty near midway between the two shores. The call-note of the young birds was deeper and lower than that of the adults, being almost thrush-like.

Many pairs, perhaps most of them, produce two broods in the year, and in the beginning of July, when they had finished the first one, I found several pairs in hot pursuit of their love affairs.

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.			Tail-feathers.
					mm.	mm.	mm.	
92634	1858	Bering Island .....	Jan. 8, 1883	♂ ad.	205	40	122	85
89129	1226	Copper Island .....	June 23, 1882	♂ ad.	204	.....	123	85
92635	2096	Bering Island .....	May 21, 1883	(♂) ad.	(197)	.....	120	84
92641	2207	Copper Island .....	June 29, 1883	♂ ad.	214	38	122	88
92640	2228	.....do .....	July 5, 1883	♂ ad.	213	30	123	88
92637	2205	.....do .....	June 28, 1883	♀ ad.	196	35	111	77
92639	2208	.....do .....	June 29, 1883	♀ ad.	210	34	119	84
92638	2212	.....do .....	June 30, 1883	♀ ad.	200	34	114	79
89130	1473	.....do .....	Ju'y —, 1882	ad.	.....	.....	124	83
92636	2517	.....do .....	July 11, 1883	ad.	.....	.....	112	80
92642	2232	.....do .....	July 7, 1883	juv.	209	31	116	85

No. 92634.—Iris dark hazel. Bill orange-yellow, tip of both mandibles blackish. Feet black, both above and below. Stomach filled with coarse sand mixed with a few seeds. Tip of wings reaches tip of outer toe of the legs stretched backwards.

No. 89129.—Iris hazel. Bill brownish black. Feet black, under side of toes with a yellowish tinge. In the stomach small black seeds.

No. 92641.—Bill black; a small faint yellowish spot at base of the tomia of the upper mandible, and another near the base of the gonys.

No. 92637.—Bill horny blackish brown, lower mandible lighter, especially at base tinged with yellowish; angle of mouth and adjoining parts of mandibles pale yellow. Feet black. On abdomen and breast a large, naked patch. Gullet crammed with an enormous mass of food, consisting of (1) several dozens of a Coleopterous insect, and (2) a similar number of larvæ, &c., (3) besides leaves and buds of *Cochlearia*, and (4) some seeds.

No. 92638.—Bill at base of culmen, tomia, and gonys yellowish, the remaining parts olive blackish brown. Gullet filled with leaves of some Ericaceous plant; no trace of insects.

No. 92642.—Iris dark hazel. Bill ochraceous yellow, dusky towards the tip; angle of mouth lighter and brighter yellow. Feet very dark grayish brown.

118. *Fringilla montifringilla* LIN.

1758.—*Fringilla montifringilla* LIN., Syst. Nat., 10 ed., I, p. 179.—TEMM. & SCHLEG., Fauna Japon. Aves (p. 87) (1847).—MIDD., Sibir. Reise, II, 2 (p. 153) (1853).—KITTL, Denkw., I, p. 321 (1858).—SCHRENCK, Reis. Amurl., I, p. 299 (1860).—SWINH., Ibis, 1861, p. 335.—*Id.*, *ibid.*, 1864, p. 423.—*Id.*, *ibid.*, 1874, p. 160.—*Id.*, P. Z. S., 1862, p. 318.—*Id.*, *ibid.*, 1863, p. 298.—*Id.*, *ibid.*, 1871, p. 385.—RADDE, Reisen Süden Ost-Sibir., II (p. 192) (1863).—WHITELY, Ibis, 1867, p. 201.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 335.—PRZEW., Putesch. Ussur. (n. 62) (1870).—FINSCH, Verh. Zool. Bot. Ges. Wien, 1872, p. 261.—TACZAN., J. f. Orn., 1873, p. 91.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *ibid.*, 1876, p. 199.—*Id.*, Orn. Fauna Vost. Sibir., p. 39 (1877).—*Id.*, Bull. Soc. Zool. France, 1876, p. 179.—*Id.*, *ibid.*, 1879, p. 138.—*Id.*, *ibid.*, 1882, p. 393.—BLAKIST. & PRYER, Ibis, 1878, p. 244.—*Id.*, Trans. As. Soc. Japan, VIII, 1880, p. 281.—*Id.*, *ibid.*, X, 1882, p. 172.—BOLAU, J. f. Orn., 1880, p. 125.—*Id.*, *ibid.*, 1882, p. 334.—STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 364.—BLAKIST., Amend. List B. Jap., p. 17 (1884).—*Passer m.* PALL., Zoogr. Ross. Asiat., II, p. 18 (1826).

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.		Wing.	Tail-feathers.
					mm.	mm.		mm.
89018	1043	Bering Island .....	May 11, 1882	♂ ad.	156	92		67
92631	1666	..... do.....	Nov. 24, 1882	♂ ad.	162	87		63
92628	2106	..... do.....	May 22, 1883	♂ ad.	(156)	89		63
92630	2107	..... do.....	May 25, 1883	♂ ad.	(162)	90		63
92627	2108	..... do.....	May 25, 1883	♂ ad.	(163)	91		65
92632	2109	..... do.....	May 25, 1883	♀ ad.	(153)	84		59
92629	2110	..... do.....	May 25, 1883	♀ ad.	(149)	85		59

No. 92631.—Iris hazel. Bill orange yellow, bluish black at the tip. Feet clear brown.

The Brambling is a regular visitor to Bering Island during the migration in spring and fall, but is never numerous. The few individuals observed mostly kept company with the Longspurs. During the spring of 1883 they were more common and remained longer than usual, on account of the snow covering Kamtschatka, three being shot on the 1st of June.

In size they agree completely with specimens from Western Europe, being perhaps a trifle brighter in color.



119. *Chloris kawarahiba* (TEMM.).

1826.—*Coccothraustes chloris* PALL., Zoogr. Ross. As., II, p. 13 (part).

1836.—*Fringilla kawarahiba* TEMM., Pl. Col., III, livr. 99, pl. 588, fig. 1.—TEMM. & SCHLEG., Fauna Japon. Aves (p. 89, pl. 49) (1847).—*Chlorospiza k.* WHITELEY, Ibis, 1867, p. 202.—SWINH., Ibis, 1874, p. 160.—BLAKIST. & PRYER, Ibis, 1878, p. 244.—*Id.*, Trans. As. Soc. Japan, VIII, 1880, p. 232.—*Id.*, *ibid.*, X, 1882, p. 173.—TACZAN., J. f. Orn., 1881, p. 185.—*Id.*, Bull. Soc. Zool. France, 1882, p. 394.—DYBOW., Bull. Soc. Zool. France, 1883, p. 366.—BLAKIST., Amend. List B. Jap., p. 62 (1884).

1850.—*Chlorospiza kawariba* BR., Consp. Av., I, p. 514.—*Ligurinus k.* CAB., Mus. Hein., I, p. 158 (1851).—*Fringilla k.* KITTL., Denkw., II, p. 196 (1858).—*Carduelis k.* HOMEYER, J. f. Orn., 1879, p. 174.

The Japanese Greenfinch may occasionally be found on Bering Island as an accidental straggler. A fine male was caught on board the steamer while at sea, between Kamtschatka and the island mentioned, on the 13th of June, 1882.

Another specimen, in a very faded and worn plumage, shot in the beginning of July, 1883, was sent me from Petropaulski, where it is said not to be uncommon, although I never met it there.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.
					mm.	mm.	mm.
89017	1203	At sea between Bering Island and Kamtschatka.	June 13, 1882	♂ ad.	151	88	56
92626	2302	Petropaulski.....	July —, 1883	ad.	.....	88	55

No. 89017.—Iris dark brown. Bill flesh-colored with the tip faintly tinged with blue. Feet brownish flesh-color.

120. *Carpodacus erythrinus grebnitskii* subsp. nov.

1770.—*Loxia erythrina* PALL., Nov. Comm. Petrop., XIV (p. 587, tb. 23, fig. 1) (part).—*Pyrrhula e.* *Id.*, Zoogr. Ross. Asiat., II, p. 8 (1826).—KITTL., Denkw., II, p. 197 (1858) (cf. BOLLE, J. f. Orn., 1859, p. 47).—MIDD., Sibir. Reise, II, 2 (p. 150) (1853).—SCHRENCK, Reise Amurl., I, p. 294 (1860).—RADDE, Reisen Süden Ost-Sibir., II (p. 185).—PRZEW., Putesch. Ussur. (n. 55) (1870).—*Fringilla e.* KITTL., Kupfertaf., p. 23, tb. 32, fig. 1 (1833).—*Carpodacus e.* BR., & SCHLEG., Mon. Lox., p. 12 (1850).—SWINH., P. Z. S., 1862, p. 318.—*Id.*, *ibid.*, 1863, p. 299.—*Id.*, *ibid.*, 1871, p. 387.—*Id.*, Ibis, 1863, p. 95.—TACZAN., J. f. Orn., 1873, p. 93.—*Id.*, *ibid.*, 1874, p. 336.—*Id.*, *ibid.*, 1881, p. 185.—*Id.*, Bull. Soc. Zool. France, 1876, p. 181.—*Id.*, *ibid.*, 1879, p. 138.—*Id.*, *ibid.*, 1882, p. 394.—*Id.*, Orn. Fauna Vost. Sibir., p. 41 (1877).—DAVID & OUSR., Ois. Chine (p. 350) (1877).—STEJNEGER, Naturen, 1882, p. 181.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 366.

1868.—*Carpodacus erythreus* DYB. & PARVEX, J. f. Orn., 1868, p. 335.

I have been obliged to separate this bird as a subspecies, it being distinguishable chiefly by the much brighter red which suffuses the plumage of the red males all over. In brightly colored specimens, for instance the type, the whole upper surface is of a rather bright pomegranate red, being only slightly duller in the scapular region, while the wings and the whole under surface are more or less suffused with rose color, throat and breast being intensely rose red.

The type is U. S. Nat. Mus. No. 89162.

In regard to the above synonymy it must be remarked, that I regard most of the Siberian references as only doubtfully relating to this form. Comparison of material in European collections may decide which references should be eliminated.

There can be no doubt that males of this species breed in the gray plumage. I found these breeding gray males almost as common in Petropaulski as the red ones, their conduct and song being exactly the same as that of the latter, and dissection showed that the genital organs were well developed and fully mature. It seems to be a question whether these mature gray birds will ever assume the red plumage, and I should be most inclined to believe that we have here to do with a kind of dichromatism. The two males here alluded to are very gray and pale, much less tinged with ochraceous olive than a female from India, and they are completely destitute even of the slightest trace of a reddish suffusion anywhere. No. 89164 has among the old bleached and abraded rectrices a new one, unabraded, deeply colored, but of full length, and not so young as to show any trace of the outer follicle from which it sprung. This feather is probably grown out to replace an accidental loss; but if the bird at the following moult was going to assume the red plumage, this feather, I think, would have shown the character of the latter. It is, however, exteriorly edged with greenish yellow without a trace of red.

The same individual shows another peculiarity in the coloring of the tail, as all the old rectrices have the tips decidedly darker, in strong contrast to the remaining part of the feathers, thus forming a well marked terminal band, the more distinct as there is a faint indication of a subapical lighter one. In none of the other specimens is there any similar pattern, nor is it indicated on the new rectrix of the same bird, mentioned above.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Remarks.
					mm.	mm.	mm.	
92633	2303	Petropaulski.....	July —, 1883	ad.	.....	82	59	Red.
89162	1239	.....do.....	June 6, 1882	♂ ad.	.....	81	57	Do.
89163	1244	.....do.....	June 30, 1882	♂	145	84	56	Gray.
89164	1250	.....do.....	July 5, 1882	♂	152	79	56	Do.

No. 89162.—Iris dark hazel. Bill brownish gray; lower mandible light. Feet brownish gray.

No. 89163.—Iris, bill, and feet as foregoing. Testes large, swollen, size of a pea.

No. 89164.—Testes large, well developed.

The Scarlet Rose Finch is one of the commonest summer birds in the vicinity of Petropaulski, where it makes itself conspicuous by its sweet and pleasant song.

In 1883 I did not meet it there at all, as it had not arrived when I left Kamtschatka in the spring, and had already departed when, in the autumn, I once more landed in Petropaulski.

It did not occur on the island during my stay, and no instance of its capture there has been recorded.

## Family HIRUNDINIDÆ.

121. *Clivicola riparia* (LIN.).

- 1758.—*Hirundoriparia* LIN., Nat. Syst., 10 ed., I, p. 192.—PALL., Zoogr. Ross. As., I, p. 535 (1826).—MIDD., Sibir. Reise, II, 2 (p. 189) (1853).—SCHRENCK, Reise Amurl., I, p. 389 (1860).—RADDE, Reisen Süden Ost-Sibir. (p. 281) (1863).—*Cotyle r.* SWINH., Ibis, 1861, p. 328.—*Id.*, *ibid.*, 1863, p. 89.—*Id.*, P. Z. S., 1863, p. 287.—*Id.*, *ibid.*, 1871, p. 346.—TACZAN., J. f. Orn., 1872, p. 353.—*Id.*, *ibid.*, 1874, p. 334.—*Id.*, Orn. Fauna Vost. Sibir., p. 20 (1877).—*Id.*, Bull. Soc. Zool. France, 1876, p. 134.—*Id.*, *ibid.*, 1882, p. 385.—BLAKIST. & PRYER, Ibis, 1878, p. 231.—*Id.*, Trans. As. Soc. Japan, VIII, 1880, p. 211.—*Id.*, *ibid.*, X, 1882, p. 139.—SEEBOHM., Ibis, 1879, p. 30.—BLAKIST., Amend. List B. Jap., p. 21 (1884).

The Kamtschatkan specimens collected by me agree very well with birds from Western Europe, although being a shade darker. They also agree with them in the extent of the furcation of the tail, the distance between the tips of the longest and shortest tail-feathers being as great as the length of the hind toe *with* claw. In all the American specimens examined by me (sixteen) the same distance is hardly longer than the hind

toe *without* claw, this being the case even in specimens from Alaska. It will therefore be well not to unite the two races, the American form being *Clivicola riparia cinerea* (VIEILL.).

*List of specimens obtained.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Wing.	Tail feathers.
92692	2304	Petropaulski.....	July —, 1883	ad.	mm. 104	mm. 54
92691	2305	.....do.....	July —, 1883	ad.	102	55

It occurs in the vicinity of Petropaulski, but is not, as it would seem, very common. It has been said to visit the island of Bering occasionally, but I have doubts as to the correctness of the statement, as no specimens seem to have been obtained. It is certain that it was not seen there during my sojourn.

Three sets of eggs were obtained, measuring as follows :

U. S. Nat. Mus. No.	Stejneger No.	Diameters.
		<i>Millimeters.</i>
21801	2280	18.25 by 12
		17 by 12.5
		16.75 by 12.75
		17 by 12
		19 by 12.25
21802	2281	17.75 by 12.25
	2282	17.25 by 12.25
21773	2279	18 by 12.5
		17.5 by 12.5
		16.75 by 12.5
		17 by 12.5
		18 by 12.25
		16.25 by 12

All the eggs were very evenly and regularly speckled with minute, black dots. These could be washed away completely from the fresh eggs, while now, a year afterwards, they are difficult to remove, if it can be done at all.



122. *Chelidon tytleri* (JERD.).

- 1826.—*Hirundo domestica* var. PALL., Zoogr. Ross. Asiat., I, p. 530 (*part*).  
 1853.—*Hirundo rustica* var. *rufa* MIDDEND., Sibir. Reise, II, 2 (p. 188) (*nec* GMEL.).  
 1858.—*Hirundo rufa* KITTLITZ, Denkwürd., II, p. 196 (*nec* GMEL.).  
 1862.—*Hirundo rustica* RADDE, Reise Süden Ost-Sibir. (p. 273) (*nec* LIN.).  
 1864.—*Hirundo tytleri* JERDON, Birds of India, III, p. 870.  
 1876.—*Hirundo americana* BLAKIST., Ibis, 1876, p. 331.—BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 211 (*nec* WILSON).  
 1882.—*Hirundo erythrogastra* BLAKIST & PRYER, Trans. As. Soc. Japan, X, p. 139 (*nec* BODD.)—BLAKIST., Amend. List B. Jap., p. 47 (1884).—*Chelidon erythrogastra* STEJNEGER, Pr. U. S. Nat. Mus., VI, 1883, p. 72.  
 1882.—*Hirundo gutturalis* TACZAN., Bull. Soc. Zool. France, 1882, p. 385 (*nec* SCOP.)—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 357.  
 1883.—*Hirundo saturata* "Stejneger MSS.," RIDGW., Pr. U. S. Nat. Mus., VI, 1883, p. 95.  
 1885.—*Hirundo rustica* subsp. *tytleri* SHARPE, Cat. B. Brit. Mus., X, p. 140.

A careful comparison with a large series of American specimens of *Ch. erythrogastra* shows the following differences:

1. As will be seen from the tables below, the dimensions agree pretty well, except that the lateral rectrices, although subject to great individual variation, are, on the average, considerably shorter in the American species, while the middle ones are of the same length.

2. The darkest American male is perceptibly paler than even the females of the Kamtschatkan form. In the latter species the color of the chin and throat is as deep as in the most richly colored specimens of the true European *rustica*, and the difference between the color of these parts and that of the breast and abdomen is very slight, and much less abrupt than in *Ch. erythrogastra*, and the trace of the black breast-band is more strongly indicated than in the latter. In *tytleri* the brown of the forehead reaches considerably higher up on the head, and the feathers of the tibia are whitish, strongly contrasted with the rich chestnut-rufous of the abdomen, while in *erythrogastra* they are hardly paler than those of the surrounding parts.

There seems thus to be little need of confounding these two birds, which may be considered distinct species, as no intergradation is known to occur. Nor is it likely that any will be found.

As to the Asiatic relatives of the Kamtschatkan species it may be remarked that Taczanowski describes two different forms, one darker, from Dauria and the Baical, and the other, a paler form, from Amur, Ussuri, and China. From the descriptions given by v. Schrenck, and especially by Taczanowski in J. f. Orn., 1875, p. 244, I have little hesitation in referring the latter to a form very closely allied to the Japanese true

*Ch. gutturalis*, with which they probably are even identical. I have before me two skins collected by Swinhoe at Amoy, China, in April, 1861, which agree pretty well with the description given by Taczanowski, and on the other hand only differ slightly from Japanese specimens in having the pectoral black band perhaps a little more developed, the chestnut color only forming a patch on the middle of it, not interrupting it. The upper surface has, besides, a faint greenish tinge, only seen in young specimens of the Japanese form (*cf.* Taczanowski: "Der rostliche Fleck auf dem schwarzen Brustbande," and "der schmale grüne Schiller der oberen Theile des Körpers"). The measurements are given below.

Birds from Dauria and Baical, or specimens of Jerdon's *tytleri* (Birds of India, III, p. 870, 1864) never came under my inspection, and the descriptions are extremely meager. The probability is, however, that they are identical with the Kamtschatkan bird. It is difficult to make out from the scanty information if they differ from the latter, but it seems as if they, like the Egyptian *savignii*, have the spots on the rectrices rufous-colored, and a more conspicuous black breast-band. Pallas describes a variety from Eastern Siberia as having "*arcus dilatatus juguli chalybeato-ater, includens aream testaceam ovalem,*" and "*macula omnium rectricum, præter 2 medias, interioris vexilli rhombea, magna, ferrugineo alba.*" This is most probably the Daurian and Baicalian bird, as Taczanowski, in speaking of the lighter colored form (*gutturalis*, see above), says that the latter has "not even a trace of rusty color on the pure white spots of the rectrices," wherefrom we may infer that the specimens of the dark form had such a tinge on those feathers. He also adds that in the light colored form, "the rusty patch on the black breast-band is *as large as* in the Siberian swallows from the above-mentioned localities" (Dauria and Baical). Furthermore, Mr. Blyth, when speaking of *tytleri* (Ibis, 1866, p. 336), compares it with *Ch. cahirica* (= *savignii*), giving as the distinctive character that it "has much less of the black gorget," not mentioning any difference in the color of the spots on the rectrices. The gorget is therefore smaller, but it is evidently there, and this can hardly be said of the Kamtschatkan birds, in which it is barely indicated.\*

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\* Mr. R. Bowdler Sharpe, after the above was written, has examined the types of *H. saturata*, pronouncing them to be *tytleri*. The reason why I now accept this view as correct is that the National Museum has lately received from Captain Blakiston's collection a specimen obtained at Petropaulski which has the white spots on the tail decidedly tinged with rufous. See also further on under "Conclusions."

## Tables of dimensions.

## Aa.—CHELIDON ERYTHROGASTRA ♂.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Longest tail-feather.	Shortest tail-feather.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
6019	Heerman.....		Sacramento, Cal.....		♂ ad.	.....	128	107	42
11008	Drexler.....	378	Fort Bridger, Utah.....	May 19, 1858	♂ ad.	.....	126	95	43
45932	Bishoff.....		Sitka, Alaska.....	June —, 1866	♂ ad.	.....	119	77	40
54440	Dall.....	1741	Kutlut, Alaska.....	June 22, 1868	♂ ad.	.....	122	94	43
65481	Herendeen..	42	Unalashka, Alaska.....	June 9, 1873	♂ ad.	.....	123	100	44
Average measurements of five males.....						.....	124	95	42

## b.—CHELIDON ERYTHROGASTRA ♀.

2191	Baird.....	2191	Carlisle, Pa.....	May 1, 1845	♀ ad.	.....	121	71	42
65482	Herendeen..	28	Unalashka, Alaska.....	June 7, 1873	♀ ad.	.....	118	78	41
77185	Smith.....	158	Cook County, Illinois.....	May 13, 1870	♀ ad.	.....	113	81	40
70879	Turner.....		Saint Michael's, Alaska...	June 22, 1876	♀ ad.	.....	119	79	40
88329	Wells.....		Grenada, W. I.....	Apr. 3, 1882	♀ ad.	.....	112	70	39
Average measurements of five females.....						.....	117	76	40

## B.—CHELIDON GUTTURALIS.

37749	Swinhoe.....		Amoy, China.....	Apr. —, 1867	.....	.....	114	88	40
37834	.....do.....		.....do.....	Apr. —, 1867	.....	.....	117	96	41

## C.—CHELIDON TYTLERI.\*

89165†	Stejneger...	1234	Petropaulski, Kantschatka.	June 28, 1882	♂ ad.	192	118	102	38
89166†	.....do.....	1235	.....do.....	June 28, 1882	♀ ad.	175	116	87	41
92694	.....do.....	2296	.....do.....	Aug. —, 1883	(♂) ad.	.....	124	116	41
92693	.....do.....	2297	.....do.....	Aug. —, 1883	(♀) ad.	.....	119	82	44
Average measurements of two males.....						.....	121	109	40
Average measurements of two females.....						.....	118	84	42

\*In most cases the right lateral tail-feather is longer than the corresponding rectrix on the left side. Here the measurements of the longest one is invariably given, as also in the tables above.

The Brown-bellied Swallow breeds abundantly in and about Petropaulski, where I met it during the months of June and July, 1882. When, in 1883, I left the town, on one of the latter days of May, they had not yet arrived from the south, and at my arrival there again in the middle of September the last one had already disappeared, so that

their whole sojourn lasts less than three months. Mr. Joseph Lugebil has kindly informed me that the swallows arrived on June 3, and disappeared August 19.

During the migration in spring a few stragglers sometimes pay a flying visit to Bering Island. Thus two were reported from the North Rookery on June 19, 1883, and another was observed at Ladigiensk three days later.

A single egg left in the nest was procured in the fall. It was white, heavily spotted with lilac and sepia brown, resembling those of *Ch. erythgastra* and *rustica*. The dimensions are 18 by 13.5<sup>mm</sup>.

### Family MUSCICAPIDÆ.

#### 123. *Butalis sibirica* (GMEL.).

- 1788.—*Muscicapa sibirica* GMEL., Syst. Nat., I, 2, p. 936.—SCHRENCK, Reise Amurl., I, p. 377 (1860).—RADDE., Reisen Süden Ost-Sibir. (p. 271), (1863).—*Hemichelidon* s. SWINH., P. Z. S., 1863, p. 288.—*Id.*, *ibid.*, 1870, p. 244.—BOLAU, J. f. Orn., 1880, p. 122.—*Butalis* s. SWINH. P. Z. S., 1871, p. 379.—TACZAN., J. f. Orn., 1872, p. 446.—*Id.*, *ibid.*, 1875, p. 249.—*Id.*, Bull. Soc. Zool. France, 1876, p. 168.—*Id.*, Orn. Fauna Vost. Sibir., p. 31 *ter.* (1877).—(?) BLAKIST. & PRYER, Ibis, 1878, p. 234.—*Id.*, Trans. As. Soc. Japan, X, 1882, p. 148.—DYBOWSKI, Bull. Soc. Zool., France, 1883, p. 362.—SEEB., Ibis, 1884, p. 37.—BLAKIST. Amend. List B. Jap. p. 50 (1884).
- 1826.—*Muscicapa fuscedula* PALL., Zoogr. Ross. As., I, p. 462.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 333.
- 1853.—*Muscicapa pondiceriana* MIDD., Sibir. Reise, II, 2 (p. 188).
- 1858.—*Muscicapa infusciata* KITTL. Denkw., II, p. 197 (*nec* HARTL.) (*cf.* J. f. Orn., 1859, pp. 48 and 51).
- 1867.—*Muscicapa cinereoalba* WHITELY, Ibis, 1867, p. 199 (*nec* TEMM. & SCHLEG.).

The great "bird-wave" of the spring of 1883 caused one morning the whole northern part of Bering Island to swarm with these inhabitants of the mosquito-suffering Kamtschatka. During two weeks they could be met with everywhere, but especially in deep ravines or between the sand dunes, in fact, in all places sheltered from the chilling "norther." Always in movement, flitting from one dry stalk of the large *Archangelica officinalis* to another, or from cluster to cluster of the yellow flowers of the lovely *Rhododendron chrysanthum*, their small parties of four to six individuals gave the otherwise uninviting places a new attraction. Not only was their 'st, 'st, and *chē-rrek tek, tek!* heard in the immediate neighborhood of the village, but all over the northern portion. A few extracts of my journal will give an idea of this phenomenon, which, during the spring of 1883, made Bering Island a sort of Heligoland from an ornithological point of view. Under June 8, I find: "A large number of



gray Fly-catchers must have arrived yesterday or last night, as six specimens were shot to-day and at least ten or twelve observed. Yesterday the wind was south, changing during the night to east, variable in force from very light to fresh." The following day I saw at least nine and shot five. The 10th two were shot and several seen. Counted more than twenty on the 11th; shot but four. And thus some were observed almost every day until the 21st, when the last was seen and shot. It may be, however, that several lingered around the shores of the island for a still longer time, as a few days afterward I left Bering Island in order to visit Copper Island.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
92543	2140	Bering Island.....	June 8, 1883	♂ ad.	140	17	85	55
92545	2142	.....do.....	June 8, 1883	♂ ad.	138	17	83	54
92538	2150	.....do.....	June 9, 1883	♂ ad.	133	18	79	54
92546	2154	.....do.....	June 10, 1883	♂ ad.	138	17	82	54
92542	2161	.....do.....	June 11, 1883	♂ ad.	137	20	82	52
92547	2169	.....do.....	June 12, 1883	♂ ad.	141	21	84	57
92540	2135	.....do.....	June 8, 1883	♀ ad.	131	15	82	51
92537	2139	.....do.....	June 8, 1883	♀ ad.	137	20	80	54
92536	2138	.....do.....	June 8, 1883	♀ ad.	135	17	82	54
92541	2144	.....do.....	June 8, 1883	♀ ad.	136	19	79	51
92539	2145	.....do.....	June 9, 1883	♀ ad.	136	21	82	54
92544	2155	.....do.....	June 10, 1883	♀ ad.	133	16	79	52
92535	2180	.....do.....	June 7, 1883	♀ ad.	133	16	83	51
Average measurements of six males.....					138	18	82	54
Average measurements of seven females.....					134	18	81	52

No. 92543.—Iris dark brown. Bill horny brownish black, below at base yellowish gray; angle of mouth yellow. Feet dark grayish brown; toes below yellow. Testes large, swollen.

No. 92545.—Colors similar. Testes large, swollen.

No. 92541.—Ova small, not swollen.

No. 92535.—Eggs small.

From the table above it will be seen that the difference in size between the two sexes amounts almost to nothing. The difference in color is also very inconspicuous, the females, on the average, being a shade darker than the males.

**124. *Erythrostera albicilla* (PALL.).**

1826.—*Muscicapa albicilla* PALL., Zoogr. Ross. As., I, p. 462, th.—*Erythrostera albicilla* SWINH., P. Z. S., 1862, p. 317.—*Id. ibid.*, 1871, p. 380.—DAVID & OUST., Ois. Chine (p. 120, pl. 79) (1877).

- 1837.—*Muscicapa leucura* SWAINS., Nat. Hist. Flycatch., p. 253 (nec GMEL.).—*Erythrosterna l.* SWINH., Ibis, 1860, p. 357.—*Id., ibid.*, 1863, p. 92.—*Id., ibid.*, 1870, p. 247.—*Id.*, P. Z. S., 1863, p. 290.—*Id., ibid.*, 1871, p. 380.—TACZAN., J. f. Orn., 1872, p. 448.—*Id., ibid.*, 1874, p. 335.—*Id.*, Orn. Fauna Vost. Sibir., p. 31, ter. (1877).—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 362.
- 1858.—*Muscicapa parva* KITTL., Denkv., II, p. 308 (nec BECHST.) (cf. HARTL., J. f. Orn., 1859, p. 50).—SCHRENCK, Reise Amurl., I, p. 374 (1860).—RADDE, Reisen Süden Ost-Sibir, II, (p. 267) (1863).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 333.
- 1860.—*Thamnobla niveiventris* SWINH., Ibis., 1860, p. 54.
- 1861.—*Erythrosterna mugimaki* SWINH., Ibis, 1861, p. 330 (nec TEMM. & SCHLEG.).
- 1881.—*Muscicapa lutcola* BOLAU, J. f. Orn., 1881, p. 56 (nec PALL.).

The White-tailed Flycatcher was not seen by me in the vicinity of Petropaulski, but occurs, without being very common, however, in the woods farther in the interior.

When, in the spring of 1882, I returned to Bering Island from a short trip to Petropaulski, on the steamer Alexander II, a fine male of this bird was caught alive on board, 50 miles off the shore of Kamtschatka. Curious enough, a female of the same species was shot on Bering Island at Ladiginisk that same morning, and brought to me upon my arrival. It is the only one from the island, where, of course, it is but a casual visitor.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
92548	2064	Fifty miles off Kamtschatka.....	May 29, 1883.	♂ ad.	135	26	69	52
92549	2065	Bering Island.....	May 20, 1883.	♀ ad.	124	.....	64	47

Iris dark brown. Bill and feet black.

Family MOTACILLIDÆ.

125. *Anthus gustavi* SWINH.

- 1860.—*Anthus arboreus* var. G. R. GRAY, P. Z. S., 1860, p. 350.
- 1863.—*Anthus gustavi* SWINHOE, P. Z. S., 1863, p. 90.—*Id.*, Ibis, 1874, p. 442.—SEEB., Ibis, 1877, p. 129.—*Id., ibid.*, 1878, p. 341.—TWEED., Ibis, 1877, p. 258.—SHARPE, Ibis, 1879, p. 262.—BLAKIST. & PRYER, Trans. As. Soc. Japan, X, 1882, p. 153.—*A. (Agrodroma) g.* SWINH., P. Z. S., 1863, p. 273.—*Corydalla g.* *Id., ibid.*, 1871, p. 366.—TACZAN., Orn. Fauna Vost. Sibir., p. 28 bis (1877).—*Id.*, Bull. Soc. Zool. France, 1882, p. 389.—*Id.*, Ibis, 1883, p. 575.
- 1869.—*Anthus batchianensis* G. R. GRAY, Handl., I, p. 251.
- 1873.—*Anthus cervinus* TACZAN., J. f. Orn., 1873, p. 112.
- 1875.—*Anthus seebohmi* DRESSER, Birds of Eur. (pt. xlv).—FINSCH, Ibis, 1878, p. 58.

1883.—*Anthus* sp. STEJNEGER, Pr. U. S. Nat. Mus., 1883, p. 71.

1883.—*Anthus japonicus* (?) RIDGW., Pr. U. S. Nat. Mus., 1883, p. 95, (*nec* TEMM. & SCHLEG.).

1883.—*Anthus stejnegeri* RIDGW., Pr. U. S. Nat. Mus., 1883, p. 95.—*Id.*, *ibid.*, p. 369.

1883.—*Pipastes agilis* DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 361 (*nec* SYKES, *nec* SWINH.!).

*Anthus stejnegeri* shares the fate of *Anthus seebohmi*. As the gentleman in honor of whom the latter name was given was compelled to reduce it to a synonym of *Anthus gustavi*, so will I have to reduce the name given in honor of me to a synonym of the same species. Well, it is a funeral, but it is for the benefit of all concerned, and therefore we are not very sorry for it. But these and many other funerals could have been avoided, if the first describers of a species had used such terms for the colors they intended to indicate, as would enable other people to recognize the bird from their description. It very often happens that in a diagnosis the author says chestnut where he ought to have used rusty, buff, or some similar term. Is it too much to ask that a man who introduces a new name into science should know the names of the colors? As the earlier descriptions of this species are more or less defective, and especially so the original description of Swinhoe, I think it advisable to reprint here Mr. Ridgway's careful and detailed description (Pr. U. S. Nat. Mus., 1883, p. 95), from specimens collected by me on Bering Island.

*Adult, summer plumage:* Above light raw-umber brown, very distinctly streaked with black, these markings broadest on the back, the exterior feathers of which have the inner webs chiefly dull whitish, producing, when the feathers lie in natural position, a distinct stripe on each side of the interscapular region; scapulars much less distinctly streaked with dusky, and without light edgings; middle wing coverts dusky, broadly and very distinctly streaked with brownish white; greater coverts more narrowly tipped with brownish white or very pale buff, and edged with light brown; remiges dusky, edged with light brown; middle rectrices similar, but others dusky, the outer pair mostly dull brownish white, or pale dull buff, with a dull brownish dusky space along edge of basal half of inner web; next feather with the outer web pale dull brownish buff, and the inner web with the terminal portion and stripe along shaft, nearly to the base, of the same color. Lower parts buffy white, the whole jugulum yellowish buff, of varying intensity, and distinctly, though not always sharply, streaked with dull black; superciliary stripe and side of head generally pale buff, the auriculars more brownish, especially along upper margin, where sometimes streaked with dusky; a small dusky spot immediately in front of eye, and throat sometimes bordered along each side by an interrupted series of narrow blackish streaks (these usually, however, nearly or quite obsolete); sides and flanks steaked with blackish, and longer lower tail-coverts also sometimes streaked. First, second, and third quills longest, and nearly equal (first, however, usually longest), fourth decidedly (.15 of an inch or more) shorter.

The most characteristic feature of this bird, and especially strongly marked in the living bird, the feathers of which are not out of their proper

places as in the skinned specimens, are the two distinct stripes on each shoulder, the outer one black, the inner yellowish white, caused by one row of feathers on the shoulder having the outer and inner webs thus differently colored. Equally well marked is a round black spot on each side of the neck, which in the skin is dissolved into a cluster of smaller dark spots, but which in the living bird run together into a solid patch.

To the remarks of Mr. Ridgway I have nothing to add, except that the individual variation is still larger in the series collected during the second summer. No. 92666 is especially conspicuous for the rich deep buff of the under tail-coverts and the outer rectrices. In none of the specimens, however, occurs a color which, even approximately, can be called "chestnut."

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Measurements.			
					Total length.	Tail beyond wings.	Wing.*	Tail-feathers.
					mm.	mm.	mm.	mm.
88990*	1118	Bering Island.....	May 30, 1882	♂ ad.	166	.....	85	59
88991*	1119	..... do .....	May 30, 1882	♂ ad.	165	.....	83	60
88989*	1174	..... do .....	June 6, 1882	♂ ad.	162	.....	85	58
89134*	1211	Copper Island.....	June 18, 1882	♂ ad.	172	.....	85	60
92666	2121	Bering Island.....	June 4, 1883	♂ ad.	164	33	86	61
92668	2126	..... do .....	June 4, 1883	♂ ad.	163	34	85	59
92673	2131	..... do .....	June 7, 1883	♂ ad.	157	31	81	57
92671	2151	..... do .....	June 9, 1883	♂ ad.	161	27	84	57
92672	2160	..... do .....	June 11, 1883	♂ ad.	169	33	85	58
92669	2171	..... do .....	June 14, 1883	♂ ad.	157	28	82	57
92670	2177	..... do .....	June 15, 1883	♂ ad.	170	34	84	59
92665	2221	Copper Island.....	July 7, 1883	♂ ad.	160	.....	83	55
89135*	1231	..... do .....	June 24, 1882	♀ ad.	.....	.....	79	53
92667	2125	Bering Island.....	June 4, 1882	♀ ad.	162	32	82	56

\* Types of *Anthus stejnegeri* RIDGW.

No. 88990.—Iris dark brown. Bill flesh-color; culmen and tip horny brown. Feet brownish flesh-color.

No. 89134.—Bill blackish brown; basal half of the lower mandible flesh-colored.

Schlegel's Titlark is one of the commonest land birds on the Commander Island,\* and may, during the summer months, be found every-

\* Dr. Dybowski has committed a curious and most serious blunder by confounding this bird with the Tree-pipit. He states that the latter (*P. agilis*) occurs on the islands, while of *A. gustavi* he says, "cette espèce se rencontre seulement à Kamtschatka, et n'a pas été trouvée sur les îles." (Bull. Soc. Zool. France, 1883, p. 361.) The fact is quite the reverse.



where in the lower places where grass grows abundantly, whether the ground is the swampy tundra or the dry sand dunes; but also on the sloping hillsides, sometimes even on the more elevated *Empetrum* and *Rhododendron* tundra is the "*Inkatschugi*"\* of the Copper Islanders to be met with, but never higher up on the mountains.

Rather shy, but always in movement and cheerful, the Titlark makes itself a conspicuous feature, especially on the few sunny days, when, rising high in the air, it trills its very well-meant but rather monotonous and unmelodious song (if this wooden-sounding chirping really can be called a song) while on the wing. Besides this, it has another short song, somewhat like *tsirrrrrr*, *tsip*, *tsip*, *tsip*, and the call-note is a short *tsip*, *tsip*! The warning-cry is similar, but louder and harsher.

The arrival at the islands in spring takes place in the latter part of May, and the pairs soon select their homes and commence the breeding business, and the first eggs in 1883 were obtained as early as the 30th of May; on Copper Island, I met fully-fledged young on the 9th of July, 1883. They do not content themselves with one brood, however, the eggs of the second laying being frequently found in July. The nest which I took on Copper Island, on July 13, had not yet received the full number, as it only contained two fresh eggs.

The nests consist of dry grasses exclusively, and never contained a single feather, in that respect constantly differing from those of *Calcarius lapponicus* and *Plectrophenax nivalis*. The dimensions of the nests average: External diameter, 90<sup>mm</sup>; internal diameter, 45<sup>mm</sup>.

The eggs are very much like those of *Anthus ludovicianus*, with the usual great variation, the general coloration showing all shades between olive gray and violet gray. In Nos. 21768 and 21767 the mottlings are evenly distributed all over the egg, while, in 21818 they run together into a ring around the thick end. One egg of the latter set is curiously long and narrow.

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\* An Aleut name, as they have no Russian appellation for this bird. On Bering Island, where the Longspur is more conspicuous, the Titlark is simply called "another kind of *tschelutschék*" for distinction.

## Dimensions of the eggs.

U. S. Nat. Mus. No.	L. Stejneger No.	Locality.	Date.	Diameters.
				<i>Millimeters.</i>
21767	2259	Glinka, Copper Island .....	July 13, 1883	20 by 15
21768	2222	Karabelnij, Copper Island .....	June -, 1883	20 by 15
				19.75 by 15
21818	1391	Severnij, Bering Island .....	July -, 1882	20 by 15
				21 by 15
				26 by 14
				20 by 14.75

126. *Pipastes maculatus* (HODGS.).

- 1844.—*Anthus maculatus* HODGS., Gray's Zool. Misc. (p. 83).—BROOKS, Ibis, 1876, pp. 499 and 504.—SEEBOHM, Ibis, 1879, p. 34.—BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 219.—*Id.*, *ibid.*, X, 1882, p. 153.—STEJNEGER, Naturen, 1884, p. 6.—BLAKIST., Amend. List B. Jap., p. 52 (1884).
- 1847.—*Anthus arboreus* var. TEMM. & SCHLEG., Fauna Japon. Aves (p. —, pl. 23).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 334.—BOLAU, J. f. Orn., 1881, p. 56.—*Anthus arboreus* MIDDEND., Sibir. Reise II, 2 (p. 163) (1853).—KITTL., Denkw., I, p. 335 (1858).—SCHRENCK, Reise Amurl., I, p. 335 (1860).—RADDE, Reisen Süden Ost-Sibir. (p. 223) (1863).—PRZEW., Putesch. Ussur. (p. 37) (1870).
- 1860.—*Anthus agilis* SWINH., Ibis, 1860, p. 55 (*nec* SYKES qui *A. trivialis* L.).—*Id.*, *ibid.*, 1861, pp. 36, 333.—*Id.*, *ibid.*, P. 1863, p. 310.—*Id.*, P. Z. S., 1863, p. 273.—STEJNEGER, Naturen, 1882, p. 182.—*Pipastes a.* SWINH., Ibis, 1870, p. 347.—*Id.*, *ibid.*, 1871, p. 366.—*Id.*, *ibid.*, 1877, p. 144.—TACZAN., J. f. Orn., 1873, p. 84.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *ibid.*, 1875, p. 194.—*Id.*, *ibid.*, 1881, p. 183.—*Id.*, Bull. Soc. Zool. France, 1876 p. 159.—*Id.*, *ibid.*, 1878, p. 136.—*Id.*, *ibid.*, 1882, p. 389.—*Id.*, Orn. Faun. Vost. Sibir., p. 29 bis (1877).—DAVID & OUST., Ois. Chine (p. 308) (1877).—SEEB., Ibis, 1879, p. 34.
- 1883.—*Anthus gustavi* DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 361 (*nec* SWINH.).

The Tree-pipit is one of the commonest summer birds on the birch-clad heights surrounding Petropaulski. Its chirping note is heard everywhere. This noisy fellow is a great annoyance to the ornithologist, who cautiously creeps along the shrubberies and bushes, as its anxious cry warns the nobler game he watchfully pursues, like the gulls on the sea-shore, who often frustrate the prettiest scheme of the gunner by their malicious outcry.

In 1883 I noted its arrival at, and departure from Petropaulski. The first birds arrived during the 23d of May. Next morning they were already heard singing in several places, and some specimens were se-

cured. In the autumn the last one was seen on one of the last days of September.

None were seen on the islands.

As a good and detailed description of this bird in summer plumage is difficult to find in the literature, I have thought it useful to present the following one, originally prepared by Mr. Robert Ridgway :

♂ ad., summer plumage, *U. S. Nat. Mus. No. 89152*; *L. Stejneger, No. 1238. Petropaulski, Kam., June 29, 1882.*

Pileum grayish brown (more fulvous anteriorly), distinctly streaked with black, the series of streaks along each side of crown much the broadest; nape, back, scapulars, rump, upper tail-coverts and middle pair of tail-feathers uniform brownish gray; the feathers of the back, also the longer upper tail-coverts, with very indistinct darker shaft-streaks, the rump tinged with light olive green; wings brownish gray, but decidedly tinged with yellowish olive, especially on outer edges of primaries and their coverts; middle coverts blackish dusky (in distinct contrast with prevailing color of wing), broadly margined terminally with dull whitish; greater coverts also blackish centrally, but this mostly concealed, and the tips of the feathers somewhat lighter than their edges, but not sufficiently so to produce a distinct bar. A distinct superciliary stripe of dull buffy whitish, bordered below by a dusky loreal and postocular line; a broad and continuous malar stripe reaching to side of neck, with whole chin and throat absolutely immaculate buff, the throat bordered on each side by a submalar black streak, broken posteriorly into rather sparse specks; jugulum fainter buff, but this soon fading into dull white on breast and other lower parts; entire jugulum and upper breast very heavily spotted with brownish black, their markings beginning very abruptly (with a concave outline) and continued backward along the sides, but becoming gradually narrower, until on the flanks they form narrow and rather indistinct streaks; whole belly, anal region, and crissum absolutely immaculate. Rectrices (except middle pair) brownish dusky, the outer pair with most of the outer web and a considerable portion of the inner web (extending along shaft for about 32<sup>mm</sup>), the next with a terminal spot only about 10<sup>mm</sup> long, the other rectrices without whitish on inner webs; outer webs of all strongly tinged with olive yellow toward bases.

First, second, third, and fourth quills longest, and very nearly equal, and reaching about 10<sup>mm</sup> beyond tips of tertials.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Tail beyond wings.			
					Total length.	Wing.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
89152	1238	Petropaulski .....	June 29, 1882	♂ ad.	162	.....	84	64
92663	2054	.....do.....	May 24, 1883	♂ ad.	167	30	87	62
92664	2298	.....do.....	July —, 1883	ad.	.....	.....	86	65

No. 89152.—Iris dark brown. Bill horny brown, lower mandible at base, and angle of mouth, flesh-colored. Feet brownish flesh-color.

No. 92663.—Iris dark brown. Upper mandible and tip of lower mandible horny blackish brown, basal part of the latter flesh-colored. Feet light grayish flesh-color, joints a little darker. Testes large, swollen

It will be seen that the above measurements do not differ from those of *P. trivialis* (LIN.).

127. *Budytes flavus leucostratus* (HOM.).

- 1826.—*Motacilla flaveola* PALL., Zoogr. Ross. As., I, p. 501 (*part*).  
 1853.—*Motacilla flava* MIDD., Sibir. Reise, II, 2 (p. 168).—SCHRENCK, Reise Amurl., I, p. 345 (1860).—RADDE, Reisen Süden Ost-Sibir., II (p. 229) (1863).—ADAMS, Ibis, 1878, p. 423.—BOLAU, J. f. Orn., 1880, p. 120.—*Id.*, *ibid.*, 1882, p. 333.—*Budytes f.* SWINH., Ibis, 1861, p. 411.—*Id.*, *ibid.*, 1862, p. 260.—*Id.*, P. Z. S., 1863, p. 274 (*part*).—*Id.*, *ibid.*, 1871, p. 364.—BAIRD, Trans. Chic. Acad., I, I, 1869 (p. 312, pl. xxx, fig. 1).—DALL & BANN., *ibid.*, I, 1869, p. 227.—FINSCH, Abh. Brem. Nat. Ver., III, 1872, p. 37.—TACZAN., J. f. Orn., 1875, p. 252.—*Id.*, Bull. Soc. Zool. France, 1876, p. 150.—*Id.*, *ibid.*, 1882, p. 389.—*Id.*, Orn. Fauna Vost. Sibir., p. 34.—FINSCH, Verh. Zool. Bot. Ges. Wien, 1872, p. 257.—BEAN, Pr. U. S. Nat. Mus., 1882, p. 147.—STEJNEGER, Naturen, 1882, p. 182.—*Id.*, Pr. U. S. Nat. Mus., 1883, p. 72.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 360.—NELSON, Cruise Corwin, p. 62 (1883).—TURNER, Auk, 1885, p. 157.  
 1878.—*Budytes leucostratus* HOMEY., J. f. Orn., 1878, p. 128.—TACZAN., Bull. Soc. Zool. France, 1878, p. 128.  
 1882.—“*Budytes leucostrata* HOM.,” TACZAN., Bull. Soc. Zool. France, 1882, p. 389.

E. v. Homeyer, in 1878 (J. f. Orn., p. 128), described a specimen from Baikal as *B. leucostratus*, of which he said that “it is the largest of all the *Budytes*” (ulna 3'' 3''' = 84<sup>mm</sup> and tarsus 11''' = 28<sup>mm</sup>). But although these measurements are considerably larger than those of my birds, and though the latter on the whole in many respects differ from his description, I hesitate very little in referring them to this form. Homeyer made up his diagnosis from one specimen only (unfortunately he does not state in what season the bird was collected), and the individual variation among the *Budytes* are so great as to easily account for the differences. I, therefore, think that Taczanowski from whom v. Homeyer received his type specimen is right in referring all the Eastern Asiatic *Budytes* with white superciliary streak to this form to which he also has referred the Kamtschatkan bird.

Looking at the tables below we will find that the dimensions of the specimens collected by me are somewhat inferior to those given by v. Homeyer, but that they agree pretty well with two splendid specimens of the true *flavus* from Germany in the National Museum's collection, except that the bills and toes of the former are considerably larger.

As to the color, it may be remarked that my specimens, in the intensity of the yellow color, come very close to those from Germany, but that the tint of the yellow is somewhat different, being in the latter, especially in one of the specimens, of a rather orange tinge, while in the former the yellow is of a more greenish character, the sides especially being



marked with olive. The gray of the upper head is less clear in the Kamtschatkan bird, and the white on the chin is, perhaps, on the whole, of a greater extent; but in this respect there is great variation, specimens of both forms being found quite alike. The character, however, which to me seems worth most consideration, is the decided blackish color of the eye-streak and the ear-patch, these parts being only brownish gray in the European specimen before me.

I have also compared my specimens with a fine series of the Alaskan bird, most of which were collected by Mr. Lucien M. Turner, at Saint Michaels. These are of the same size, having bills and toes somewhat intermediate between the European and the Kamtschatkan examples. In color they are rather duller, especially showing a universal tendency to olivaceous dusky spots on the breast, and although the eye-streak and the ear-patch, on the whole, are as dark as in my birds, still a few show this character less pronounced. It is proper to add that I have seen European specimens which were almost as dull colored as those from Alaska.

While it in some instances might not be safe to refer a specimen to one or the other form without having a series of both forms at hand, or without knowing the locality, still there is enough difference to warrant their subspecific separation. It may, besides, be well to bear in mind the seeming difference of the Kamtschatkan specimens, especially in regard to the longer bill. It is a question well worthy the attention of later investigators and collectors.

*List of specimens collected and their dimensions.*

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
						mm.	mm.	mm.	mm.	mm.	mm.
89148	Stejn.	1253	Petropaulski .....	July 11, 1882	♂ ad.	173	.....	80	69	13	25
89149	..do ..	1247	..do.....	July 4, 1882	♂ ad.	166	.....	77	71	13	25
92674	..do ...	2072	Bering Island ....	May 23, 1883	(♂ ad.)	(162)	.....	79	70	12	25
92677	..do ...	2099	..do.....	May 24, 1883	(♂ ad.)	(170)	.....	81	71	13	25
89150	..do ...	1254	Petropaulski .....	July 11, 1882	♀ ad.	158	.....	75	65	13	24
92675	..do ...	2098	Bering Island ....	May 22, 1883	(♀ ad.)	(164)	.....	76	66	13	25
92678	..do ...	2118	..do.....	June 3, 1883	♀ ad.	155	39	76	62	13	24
92676	..do ...	2156	..do.....	June 10, 1883	♀ ad.	170	49	76	66	12	25
Average measurements of four males .....						.....	.....	79	70	13	25
Average measurements of four females .....						.....	.....	76	65	13	24

*Dimensions of BUDYTES FLAVUS LEUCOSTRIATUS, from Alaska.*

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
						mm.	mm.	mm.	mm.	mm.
67821	Turner . . . . .	50	Saint Michael's, Alaska.	July 7, 1874	♂ ad.	(173)	78	69	11	25
70163	.. do .....	..	.. do .....	..	♂ ad.	..	78	66	11	24
70787	.. do .....	1139	.. do .....	June 12, 1876	♂ ad.	..	79	67	11	24
73231	.. do .....	1877	.. do .....	June 1, 1877	♂ ad.	..	79	67	11	24
70788	.. do .....	1140	.. do .....	June 2, 1876	♀ ad.	(165)	76	69	11	23
73175	.. do .....	..	.. do .....	..	♀ ad.	..	75	63	12	23
86522	McKay . . . . .	28	Nushagak, Alaska.	June 20, 1881	♀ ad.	..	72	61	11	24
92078	.. do .....	..	.. do .....	June 28, 1882	♀ ad.	..	73	63	12	26
Average measurements of four males .....							78	67	11	24
Average measurements of four females .....							74	64	12	24

*Dimensions of BUDYTES FLAVUS.*

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
						mm.	mm.	mm.	mm.	mm.
88500	v. Berlepsch.	3461	Knrhesse, Germany.	Apr. 18, 1878	♂ ad.	(168)	76	67	11	23
88501	.. do .....	2205	Hanover, Germany.	June 16, 1876	♂ ad.	(172)	80	73	11	23
Average measurements of two males .....							78	70	11	23

*Budytes leucostriatus* is a common breeding bird in the environs of Petropaulski, being found during the months of June and July everywhere on the low marshy grounds surrounding the lakes, fresh-water ponds, and brackish lagoons of the vicinity.

On Bering Island their appearance is only occasional during the spring migration, notwithstanding Dr. Dybowski's statement that they breed there. None were seen in 1882, but in 1883, about the 20th of May, a small flock arrived, of which several were shot for me. It is to be remarked that they had not arrived at Petropaulski on the 27th, in which place the ground was still covered with deep snow, though being situated much more southerly than the island. On Bering Island I now and then saw single individuals until June 10, when I observed two and shot one, at which time all the rest seemed to have left.

The birds shot on the island agree perfectly with those collected on the mainland of Kamtschatka. The Alaskan tribe is not known to migrate southward along the American coast. The probability therefore is that they travel over to the Asiatic side, thus following, in their migration to and from the summer haunts, the route by which they at an earlier date have invaded the nearetic regions. I have evidence at hand that a migration route from the Tschuktschi Peninsula crosses the mainland from Anadyr to the Siberian coast of the Okotsk Sea, thus completely avoiding Kamtschatka. The Alaskan *Budytes* probably follow this route, thus being separated from the Kamtschatkan stock, which probably takes another route. This would account for the difference between the examples as shown above. If this really be the case (and that can only be decided by specimens collected during the migration seasons on the Okotsk coast) the Kamtschatkan bird will have to be recognized as a separate race, as the theory here advanced rests upon the supposition of the Alaskan bird being identical with the form of the Northeastern Siberia.

We have here before us a plain case demonstrating the necessity of recognizing the finest differences between the related forms, if the aim of collecting specimens and studying them is to find out the laws ruling the living nature. If the ornithological system and the ornithological science has for object only the convenience of the museum director in determining the names to be put on the label, then it may be proper and convenient to ignore the finer characters, and throw different forms into the same pot, because it is difficult to trace a sharp line between them, or because there are individuals which the perplexed director does not know how to enter upon the register. But it is time that such an ornithology should be done away with. The birds are not there for the sake of the museums, but the museums for the birds.

### 128. *Motacilla melanope* PALL.

- 1776.—*Motacilla melanope* PALL., Reise Russ. Reich., III, p. 696.—*Id.*, Zoogr. Ross. Asiat., I, p. 500 (1826).—TWEED., Ibis, 1877, p. 310.—BLAKIST. & PRYER, Ibis, 1878, p. 237.—SEEBOHM, Ibis, 1879, p. 35.—STEJNEGER, Naturen, 1882, p. 182.—*Calobates m.* SWINH., P. Z. S., 1871, p. 364.—TWEED., P. Z. S., 1877, p. 546.—*C. melanops* SWINH., Ibis, 1874, p. 157.
- 1884.—*Motacilla sulphurea* var. *melanope* SEEB., Ibis, 1884, p. 39.
- 1788.—*Motacilla tschuktschensis* GMEL., Syst. Nat., I, p. 962.
- 1850.—*Pallenura javensis* BP., Consp., I, p. 250.
- 1853.—*Motacilla sulphurea* MIDDEND., Sibir. Reise, II (p. 168).—SCHRENCK, Reise Amurl., I, p. 344 (1860).—RADDE, Reisen Süden Ost-Sibir., II (p. 227), (1863).—*Pallenura s.* TACZ., J. f. Orn., 1873, p. 82.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, Ornith. Fauna Vost. Sibir., p. 34 (1877).

- 1847.—*Motacilla boarula* TEMM. & SCHLEG., Faun. Japan, Aves (p. 59) (*nec* SCOP., 1769).—KITTL., Denkw., I, p. 321, 1858.—SWINH., Ibis, 1860, p. 55.—*Id.*, *ibid.*, 1861, pp. 35 and 333.—*Id.*, *ibid.*, 1863, p. 309.—*Id.*, *ibid.*, 1866, p. 138.—*Id.*, P. Z. S., 1863, pp. 274 and 334.—BLAKIST., Amend. List B. Jap., p. 55 (1884).—BLAKIST., Ibis, 1862, p. 318.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 334.—BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 220.—*Id.*, *ibid.*, X, 1882, p. 155.—BOLAU, J. f. Orn., 1880, p. 120.—*Id.*, *ibid.*, 1881, p. 55.
- 1855.—*Paltenura robusta* BREHM, Naumannia, 1855, p. 280.—*Id.*, J. f. Orn., 1857, p. 32.
- 1875.—*Budytes novæ-guinæ* A. B. MEYER, Isis, Sitzungsber., April, 1875 (*fide* Salvadori).

Not having sufficient material for determining whether the eastern and the western bird really are separable as races, or not, I leave the name and the synonymy as above, without further remarks, as, in that case, it would be the European bird, to which a trinominal appellation, viz, *M. melanope grisea* (MÜLL.), should be applied.

The Gray Wagtail is a common summer bird round Petropaulski, where it may be met with along all the small creeks and rivulets. They had not made their appearance in 1883 when I left on one of the last days of May, but a few birds were still observed during the first days of October of the same year.

Occasionally this species occurs on Bering Island during the migratory season, and, on account of the extraordinary spring of 1883, they were comparatively numerous during the second week of June. It is even possible that a few of them stopped to breed at some creek in the interior of the southern part, as a young bird was taken on board the steamer Aleksander on the 14th of September when about 20 miles southwest of the island.

They were rather shy and difficult to shoot.

*List of specimens.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Remarks.
					mm.	mm.	
89147	1248	Petropaulski..	July 4, 1882	♂ ad.	178	.....	Iris dark brown.
92679	2146	Bering Island.	June 9, 1883	♀ ad.	178	63	Iris dark brown. Feet grayish brown.
92680	2147	....do .....	June 9, 1883	♀ ad.	191	65	Feet a little lighter. Eggs swollen.

129. *Motacilla ocularis* SWINH.

- 1853.—*Motacilla alba* var. *lugens* MIDD., Sibir. Reise, II, 2 (p. 166) (*nec* KITTL., *nec* SCHRENCK, *nec* TEMM. & SCHLEG.).



- 1860.—*Motacilla ocularis* SWINH., Ibis, 1860, p. 55.—*Id.*, *ibid.*, 1863, pp. 94, 309.—*Id.*, P. Z. S., 1863, p. 275.—*Id.*, *ibid.*, 1871, p. 364.—TACZAN., J. f. Orn., 1873, p. 82.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *ibid.*, 1875, p. 252.—*Id.*, Bull. Soc. Zool. France, 1876, p. 150.—*Id.*, *ibid.*, 1882, p. 389.—*Id.*, Orn. Fauna Vost Sibir., p. 33 (1876).—SEEBOHM, Ibis, 1878, p. 345.—*Id.*, *ibid.*, 1883, p. 92.—*Id.*, *ibid.*, 1884, p. 39.—RIDGW., Pr. U. S. Nat. Mus., 1881, p. 414.—*Id.*, *ibid.*, 1883, p. 145 (*part*).—BEAN, *ibid.*, 1882, p. 147.—NELSON, Cruise Corwin, p. 62, pl. (1883).—STEJNEGER, Naturen, 1884, p. 5.—BLAKIST., Amend. List B. Jap., p. 54 (1884).
- 1871.—*Motacilla baicalensis* var. *temporalis* SWINH., P. Z. S., 1871, p. 363.

On the 10<sup>th</sup> of June, 1882, I obtained on Bering Island a Gray-backed Wagtail, the sex of which could not be determined, and which at the time was referred to the same species as the other Wagtails (*lugens*), the last of which, in 1883, were observed just a month previous.

This late appearance led to a careful comparison, after my return to Washington, the result of which was that I now consider it to belong to *ocularis*.

As I have only one specimen of the latter species in good summer plumage, it must be admitted that my material has been rather scanty,\* but as it agrees pretty closely with my Bering Island bird, not only in size but also in all the other points in which the former differs from typical summer specimens from Kamtschatka, it is thought that the conclusions arrived at are correct. It is next to be remarked that the difference of time between the date of the two birds is only sixteen days, and that the specimens from Kamtschatka selected for the comparison are the gray-backed females; one of which was killed only sixteen days earlier in the season than the Bering Island bird, and furthermore that the specimen of *ocularis* was collected by E. W. Nelson at Plover Bay, on the Tschuktschi Peninsula, and designated as a male† (U. S. Nat. Mus. No. 89676).

As already stated, the specimens from Bering Island and Plover Bay agree completely as to size and coloration,‡ so that any detailed comparison between them is superfluous. In these two specimens the back is "absolutely uniform plumbeous-gray." But placed alongside the Kamtschatkan specimens a brownish tinge is quite perceptible, while in the latter the color is purer bluish and occasionally clouded with blackish,

\* I have since had the opportunity of comparing large series and find my conclusions, as set forth in the following, fully substantiated.

† As both sexes of *ocularis* have the back gray in summer, there is no reason for supposing that the determination of the sex of the present specimen is erroneous (*cf.* Ridgw., Pr. U. S. Nat. Mus., 1883, p. 146).

‡ *Cf.* also Ridgway's statement (*l. c.*) that No. 89676 "agrees minutely with No. 88988 in coloration."

especially on the anterior part of the back, of which black clouding the two supposed *ocularis* have not the slightest trace. A further comparison convinces us that in the latter the black cap is confined to the posterior half of the head and part of the nape, while in the females of *lugens* it occupies also the upper neck. The black of the upper tail-coverts in the latter is likewise not only more extended, but also more intensive in color. Considering the great variation in these birds in the amount of the white on the wing, it would be rather useless to undertake a detailed description of the differences. But it may be stated, however, that, on the whole, the two *ocularis* seem to have the white less developed than is the case in those birds with which they have been compared.

The dimensions, as given in the tables below, show that our two birds in question are somewhat intermediate in size between the males and females of *lugens*, as represented by the average measurements on page 291, the tail being perhaps a little longer in proportion to the wing, and it is noteworthy that we find the same relations between the measurements of the two forms as given by Taczanowski (Bull. Soc. Zool. France, 1882, p. 389). It may finally be stated that the bills of the two *ocularis* are somewhat smaller, being on an average 1<sup>mm</sup> shorter than in the males, and 0.5<sup>mm</sup> shorter than in the females of the true *lugens*.

These differences, together with the unusual late appearance of the bird, make me believe that I am justified in identifying No. 88988 as belonging to *ocularis*, and not to *lugens*, and it is altogether probable that the differences pointed out above are really diagnostic for separating examples of the former from females of the latter species.\*

*Dimensions of the specimen collected.*

U. S. Nat. Mus. No.	Collector's No.	Collector's name.	Locality.	When collected.	Sex and age.	Wing.	Tail-feathers.
						mm.	mm.
88988	1477	Stejneger ...	Bering Island .....	June 10, 1882	? ad.	90	92

\* A straggler was shot at La Paz, in Lower California, by Mr. Belding, on the 9th of January, 1882, and identified by Mr. Ridgway (Pr. U. S. Nat. Mus., IV, p. 414) as *M. ocularis*, a determination which, in my opinion, is undoubtedly correct. I have compared it with fall specimens from Kamtschatka and find it differing in the same manner as above, viz, the back has a much more decided wash of brownish and the bill is absolutely smaller.

*Dimensions of M. OCULARIS.*

U. S. Nat. Mus. No.	Collector's No.	Collector's name.	Locality.	When collected.	Sex and age.	Wing.	Tail-feathers.
						mm.	mm.
21181	γ206	.....	China .....	.....	jun.	94	91
37729	....	Swinhoe	Amoy .....	.....	.....	85	.....
57977	356	Scammon	Plover Bay, Siberia .....	— —, 1861	.....	87	92
89676	1984	Nelson	do .....	June 26, 1881	♂ ad.	90	94

Only one lonely straggler was procured on Bering Island, a full month after the last *M. lugens* had been observed. Neither Kamtschatka nor the islands seem to be in the regular route of this species, as but one specimen is reported from the peninsula by Taczanowski. I myself did not meet it there. See also further on under "Conclusions."

**130. *Motacilla lugens* KITTL.**

- 1826.—*Motacilla albeola* var. PALL., Zoogr. Ross. As., I, p. 507.  
 1833.—*Motacilla lugens* KITTL., Kupfert., p. 16, tb. 21, fig. 1 (nec TEMM. & SCHLEG., Fauna Japon., 1847).—*Id.*, Denkwürd, II, p. 199, and p. 371 (1858).—"ILLIGER" GLOGER, Abänd. Vög., p. 148 (1833).—SEEBOHM, Ibis, 1878, p. 347 (in part only).  
 1833.—*Motacilla lugubris* GLOGER, Abänd. Vög., p. 148 (nec TEMM., 1820).—KEYS. & BLAS., Wirb. Eur., I, p. xlix (1840).—SCHLEG., Rev. Crit., p. 68 (1844) (part).—CABAN., Mus. Hein., I, p. 12 (1850).  
 1844.—"*Motacilla albeola* var. *camtschatica* PALL.," SCHLEG., Rev. Crit., p. 68.—ZANDER, Naumannia, 1858, p. 241.  
 1850.—"*Motacilla albeola* var. *camtschatica* PALL.," BONAP., Consp., I, p. 250 (nec SWINH., 1863, P. Z. S., p. 275, quæ *M. ocularis*).—SCHRENCK, Reise Amurl., I, p. 338 (1860).  
 1851.—*Motacilla alba lugens* ZANDER, Naumannia, 1851, IV, p. 13.—SCHRENCK, Reise Amurl., I, p. 338 (nec MIDDEND.).  
 1851.—*Motacilla leucoptera* "BREHM," ZANDER, Naumannia, 1851, IV, p. 14.  
 1863.—*Motacilla ocularis* SWINH., P. Z. S., 1863, p. 275 (part).—RIDGW., Pr. U. S. Nat. Mus., VI, 1883, p. 144.  
 1876.—*Motacilla japonica* BLAKIST., Ibis, 1876, p. 333 (nec SWINH.).—BOLAU, J. f. Orn., 1880, p. 119.  
 1878.—*Motacilla amurensis* SEEB., Ibis, 1878, p. 345, pl. ix.—*Id.*, *ibid.*, 1883, p. 91.—*Id.*, *ibid.*, 1884, p. 39.—BOLAU, J. f. Orn., 1881, p. 55.—*Id.*, *ibid.*, 1882, p. 333.—BLAKIST. & PRYER, Trans. As. Soc. Japan, X, 1882, p. 155.—BLAKIST., Amend. List B. Jap., p. 13 (1884).  
 1882.—*Motacilla kamtschatica* STEJNEGER, Naturen, 1882, p. 182.—*Id.*, *ibid.*, 1884, p. 5.—*Id.*, Pr. U. S. Nat. Mus., 1883, p. 71.—TACZAN., Bull. Soc. Zool. France, 1882, p. 388.  
 1883.—*Motacilla blakistoni* SEEB., Ibis, 1883, p. 91.—*Id.*, *ibid.*, 1884, p. 38.

Both v. Kittlitz, 1833, and Temminek, 1840, give Pallas as the au-

thority for the name *Motacilla lugens*, which, by later writers, has been ascribed to Illiger; but, as far as I can detect, neither Pallas nor Illiger have ever published such an appellation, which, probably, is a museum name only.\* It will, however, stand on v. Kittlitz's authority, as it is unmistakably based upon the typical Kamtschatkan bird, and both the description and the figure are equally conclusive. That Temminck *afterward* confounded *lugens* with the Japanese species cannot make the name untenable for the species to which it clearly belongs.

It cannot be too often repeated that *M. lugens* TEMM. & SCHLEG. is inapplicable to the Japanese species, as it was given by v. Kittlitz to the quite distinct Kamtschatkan bird fourteen years earlier, and that Swinhoe's name *japonica* must stand for the former.

Various authors have considered the Black-backed Kamtschatkan Wag-tail identical with the Japanese species, while others, *e. g.*, Robert Ridgway, referred it to *Motacilla ocularis* SWINH. It is, however, a distinct form, easily distinguishable in the male summer plumage, although the females and the winter plumage are very difficult to separate from those of *ocularis*.

Little need be said as to its difference from *M. japonica*. The latter species has well-marked black cheeks, white chin, and both males and females have the back black.

On the other hand, it is the unanimous assertion of those who have met *ocularis* in the interior of Siberia and on the Tschuktschi Peninsula, that the males of the latter, even in summer, have a gray back like that of the females, and that they never met a black-backed one. Dr. Dybowski informed me that he has collected numerous specimens of this species in all plumages, but never a male which was not gray, and that he has examined a series of about twenty summer birds, collected in Tschuktschi Land, by the Russian Expedition for observing the Transit of Venus, all of which, both males and females, were uniform gray on the back. It is furthermore stated that the true *ocularis* is a somewhat smaller bird than the Kamtschatkan form, the males being hardly larger than the females of the latter.

The adult males of these three forms, in summer plumage, may, therefore, be distinguished thus :

\* Cf. also Seebohm's "Rat-hunting" in *Ibis*, 1878, p. 349. Seebohm "lost the scent (of *M. lugens* ILLIGER) altogether in Middendorff's 'Sibirische Reise,' p. 166 (1851)." It may, however, be traced back to the same year as "*M. lugens* PALL.," viz, to 1833, when it occurs in Gloger's "Abänd. Vögel," as cited above.



- a<sup>1</sup>. Cheeks and ear-coverts black. Back black; black of throat not reaching base of bill.....1, *japonica*.  
 a<sup>2</sup>. Cheeks and ear-coverts white.  
 b<sup>1</sup>. Back black; black of throat reaches base of bill.....2, *lugens*.  
 b<sup>2</sup>. Back gray; black of throat reaches base of bill.....3, *ocularis*.

This difference in the color corresponds with the difference in their geographical distribution. From what can be learned from the literature, their occurrence in the summer plumage is about as follows:

1. *M. japonica* in Japan and the neighboring tracts of the mainland.
2. *M. lugens* in Kamtschatka and the adjacent islands; Japan.
3. *M. ocularis*, Baikal, Dauria, and the Tschuktschi Peninsula.

As to the probable differences between the females of *lugens* and the males of *ocularis*, I refer to what is said under the head of the latter species (p. 286), proposing here to give a description of the different plumages of *lugens*:

Old ♂.—*U. S. Nat. Mus. No. 92685; L. Stejneger No. 2037. Petropaulski, May 17, 1883.*

Iris blackish brown. Bill and feet black. Second and third primaries equal and longest, first very little shorter, considerably longer than fourth.

Posterior half of head, upper neck, back, and upper tail-coverts glossy black with a bluish tinge, on the left half of uropygium a gray patch, caused by feathers of the winter plumage not yet moulted; the lateral upper tail-coverts with broad white margins on their outer webs. A line through the eye, behind connected with the black of the upper neck, chin (the white at the base of the feather shining through, however,) throat, jugulum, and præpectus are, likewise, black with bluish gloss. Forehead and anterior half of crown, on the sides extended backward into a broad stripe behind and above the eye, further, the malar, subocular, and auricular regions as also the sides of the neck, and finally the lower surface, behind the præpectus, and the flanks pure snowy white, the latter suffused with gray. The wings are remarkable for the great extent of the white color, the four first primaries being wholly white, except for the terminal 25<sup>mm</sup>, which, together with a narrow stripe on the outer web along the shaft, are black, so that more than the basal two-thirds of the inner webs are white from margin to shaft. On the following primaries the black increases on the inner web, while the white edging of the outer one is getting broader. The large arm-coverts, as also the middle-coverts, are pure white, while the primary coverts have a black stripe on the outer web for the basal two-thirds. The lesser wing-coverts are dull black with the exterior edges shaded with gray; under wing-coverts and axillaries pure white. Tibial feathers blackish, the upper ones broadly tipped with white. The three middle pairs of rectrices are deep black, the interior one with a pure white edging on the outer web tapering towards the tip; the two lateral pairs are white with a black edging on the inner webs falling short of the tip, in the external pair by one-third of the feathers' length, in the following by one-sixth.

This is the most developed plumage of the old male, described by Mr. Seebohm as *M. blakistoni*.\* The evidence is another male (No. 92684),

\* Mr. Seebohm has added two synonyms to the species in question, describing the middle state as *M. anurensis*, the very old as *M. blakistoni*. When describing the first one he remarks that "in the present condition of ornithological literature, loaded with synonyms, any one who adds a name to the almost exhaustless list is guilty of a crime." We cannot agree with him there. It would have been a much greater

shot on the same day, out of the same flock, being intermediate in color between that described and the "*amurensis*" state, as it has much less white on the primaries, a little less on the primary coverts, while the arm-coverts and middle ones are fully as white; the lesser ones are blackish with broader and more distinct gray edges.

Old ♀.—*U. S. Nat. Mus. No. 92688; L. Stejneger No. 2058. Petropaulski, May 24, 1883.*

Iris very dark brown. Bill and feet black. Primaries exactly as in the male. Ova small.

Differs from the old male, described above, in having the back, including scapulars, plumbeous gray, strongly mottled with black, and more whitish on the chin. The wing-feathers are quite similarly colored, only that the first primary on the basal half of the inner web has some faint dusky mottlings; the wing-coverts are also similar, except the lesser ones, which are gray. The lateral pair of tail-feathers is pure white without black, and the following has the black margin of the same extent as in the lateral pair of the male; the third pair has a small terminal white streak on both sides of the shaft.

This would be the female *M. blakistoni*.

The following plumage is that most commonly met with. I have nothing to add to Mr. Robert Ridgway's descriptions of the specimens brought home by me, which are therefore only reprinted from his article.

Adult ♂.—*U. S. Nat. Mus. No. 88986; L. Stejneger No. 1034. Bering Island, May 11, 1882.*

Posterior half of crown, with occiput, glossy blue black; back, scapulars, and upper tail-coverts, duller black, the rump mixed black and plumbeous gray; lesser wing-coverts, uniform ash gray. Forehead, anterior half of crown, and broad superciliary stripe, pure white; beneath this, a distinct black line, confluent with the black of the occiput, and extending thence forward along upper edge of auriculars to the eye, and from the latter across lores to the bill, but loreal-stripe rather indistinct anteriorly; side of head below this black line, pure white; chin also white, but more or less mixed with blackish; throat and jugulum, uniform blue black, with a strongly convex posterior outline; rest of lower parts, pure white, but tinged laterally with bluish gray. Lateral upper tail-coverts with outer webs very broadly edged with white; middle rectrices black, the outer webs distinctly edged with pure white; next three rectrices, on each side, uniform brownish black; two outer rectrices (on each side) pure white, the inner web of the first with or without a very narrow edging of blackish along the middle portion, that of the second with a broader and more extended blackish edging. Exposed portion of middle and greater wing-coverts and outer web

crime if he had united these birds with other forms, for instance, *japonica* or *ocularis*. As it is he has attracted special attention to these birds, and furthermore, we have his elaborate descriptions and a good plate. I venture to say that on the contrary it has been to the benefit of science, against which the load of the easily-located synonyms is a trifle. It is not this kind of synonyms which is troublesome, but those like *Motacilla lugens* TEMM., *see* KITTL., *see* ILLIG., *see* and so forth, which make gray hairs for the ornithologist. It may here be remarked that the phase "*blakistoni*" has already, in 1859, been described by Zander as *leucoptera* BREHM, "aus Japan. \* \* \* Halsseiten weiss \* \* \* durch die Augen ein schwarzer Streif. \* \* \* Die kleinen Deckfedern der Flügel schwarz, die mittleren und grossen ganz weiss, von den letzteren bloss die erste am Schafte etwas grau," &c. See, however, under "Conclusions," about the possibility of *M. amurensis* being distinct.

of tertials (except first), pure white, appearing as a continuous, unbroken, elongated patch on the closed wing; inner webs of tertials, blackish; secondaries, grayish brown, the outer webs edged with white, but inner webs with no trace of white edging toward ends; primaries and their coverts, with alulae, also grayish brown (or brownish gray) edged with white. Bill, uniform deep black. Feet duller black. Iris dark brown.

*Adult ♀.*—*U. S. Nat. Mus. No. 88987; L. Stejneger No. 2031. Bering Island, May 11, 1882.*

Similar to the adult ♂ as described above, but nape, back, and scapulars, uniform plumbeous gray, instead of black; chin black.

*Specimens in autumnal plumage.*—♂.—*U. S. Nat. Mus. No. 92689; L. Stejneger No. 2597. Petropaulski, September 18, 1883.*

Iris dark brown. Bill black, yellowish gray on basal half of lower mandible. Feet black.

Differs from the male in summer plumage in having the posterior half of the head and the back gray, the former with a slight yellowish wash and mottled with black; the white parts on the head are also suffused slightly with yellowish; the mentum is white, and the black feathers of the throat narrowly edged with whitish. Remiges and rectrices edged more conspicuously with white.

The female (*U. S. Nat. Mus. No. 92690*) killed on Staritskof Island, at the entrance of Avatscha Bay, Kamtschatka, September 23, 1883, by *L. Stejneger*, is similar, but has the yellowish tinge extended over the back, throat, and inner wing-feathers. The black on the throat is still more restricted.

*List of specimens collected.*

A.—DURING THE MONTHS OF MAY AND JUNE.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Tail beyond wings.			
						Total length.	Wing.	Wing.	Tail-feathers.
						mm.	mm.	mm.	mm.
88986	Stejneger.	1034	Bering Island .....	May 11, 1882	♂ ad.	203	.....	94	98
88985	.....do.....	1010	.....do.....	May 9, 1882	♂ ad.	196	.....	95	91
89146	.....do.....	1233	Petropaulski .....	June 27, 1882	♂ ad.	207	.....	91	90
92682	.....do.....	2010	Bering Island .....	May 5, 1883	♂ ad.	202	.....	94	97
92683	.....do.....	2030	Petropaulski .....	May 15, 1883	♂ ad.	208	.....	95	97
92684	.....do.....	2036	.....do.....	May 17, 1883	♂ ad.	.....	.....	97	97
92685	.....do.....	2037	.....do.....	May 17, 1883	♂ ad.	215	70	97	101
88987	.....do.....	1035	Bering Island .....	May 11, 1882	♀ ad.	189	.....	89	92
92686	.....do.....	2032	Petropaulski .....	May 15, 1883	♀ ad.	195	63	87	91
92687	.....do.....	2031	.....do.....	May 15, 1883	♀ ad.	192	.....	89	88
92688	.....do.....	2058	.....do.....	May 24, 1883	♀ ad.	198	.....	90	86
92681	.....do.....	2105	.....do.....	May 22, 1883	♂ ad.	(200)	.....	93	94
Average measurements of 7 males .....						205	.....	95	96
Average measurements of 4 females .....						193	.....	89	84

B.—DURING THE MONTH OF SEPTEMBER.

92689	Stejneger.	2597	Petropaulski .....	Sept. 18, 1883	♂ ad.	212	66	96	97
92690	.....do.....	2641	Staritskof Island, Kamtschatka .....	Sept. 23, 1883	♀	.....	.....	93	97

The Black backed Kamtschatkan Wagtail is regularly seen on Bering Island during the migration season, usually making its first appearance in the early part of May, disappearing, however, towards the end of the month. They are only seen single, or a few together, and although convenient breeding places and plenty of food might be easily found, still they never remain to rear their young on the stony beaches of the Commander Islands.

Around Petropaulski they are numerous. In 1883 they arrived in the neighborhood later than usual, on account of the deep snow, which covered the country down to the very water's line. The first were seen in that year on the 15th of May, when I shot three out of a small flock of six. But I had already observed the first Wagtail on the much more northerly Bering Island eleven days before. In the autumn of the same year the last one was seen at Petropaulski about the first of October, but most of them had already left more than a week before that time.

In habits and voice it resembles very much the European *M. alba*, but seems to prefer the sea-shore to the banks of the creeks and rivulets which are the favorite resorts of its coquettish cousin, *M. melanope*.

### Family TROGLODYTIDÆ.

#### 131. *Troglodytes pallescens* (RIDGW.).

1882.—*Troglodytes fumigatus*? TACZAN., Bull. Soc. Zool. France, 1882, p. 386 (*nee* TEMM.).

1883.—*Anorthura pallescens* "Stejneger, MSS.," RIDGW., Pr. U. S. Nat. Mus., 1883, p. 93.—*Troglodytes* p. STEJNEGER, Zeitschr. Ges. Orn., I, 1884, p. 11.

1883.—*Troglodytes* n. sp. DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 357.

♂ ad.—U. S. Nat. Mus. No. 88994; L. Stejneger No. 1644. Bering Island, September 20, 1882.

Above dull smoky brown (far less rusty than in *A. alasensis*), uniform on pileum, nape, and upper back, but lower back and rump barred with dusky, the wing-coverts and upper tail-coverts still more distinctly barred with the same; middle wing-coverts tipped with a small deltoid spot of pure white; outer webs of five outer primaries spotted with brownish white, the remaining quills with outer webs plain dull brown. Tail brown, crossed by six or seven rather wide bands of blackish, the last three or four rendered more distinct by a decided lightening of the brown against their posterior edge; on the middle rectrices, however, the bars much less distinct and more irregular. Lores and indistinct superciliary stripe, malar region, chin, throat, jugulum, and sides of breast dull light-brownish buff (much paler and duller than in *A. alasensis*), the middle of breast and upper part of belly much paler, or inclining to brownish white; sides, flanks, and crissum brownish white, broadly and distinctly barred with dusky, the sides more tinged with brown. Auriculars dusky brown, streaked with the color of the throat. Bill brownish black, more brown on lower basal portion of mandible. "Iris dark brown." Legs and feet dark brown. (RIDGW., l. c.)



♀ ad.—*U. S. Nat. Mus.* No. 92532; *L. Stejneger* No. 1703. *Bering Island, October 31, 1882.*

Indistinguishable from the male described above, except by being a trifle smaller.

*Juv.*—*U. S. Nat. Mus.*, No. 92523; *L. Stejneger* No. 2229. *Copper Island, July 5, 1883.*

Head above dark gray with a brownish tinge; loreal space blackish; superciliary stripe only recognizable behind the eye; ear-coverts suffused with blackish. Back and rump a shade more rusty than in the adult, the black bars less distinct. Ground color of the lower surface similar to that of the adults, but as the dusky edges of each feather are much broader, the young seems dusky below with spots of pale buff, the throat being almost uniformly suffused with dusky; besides, the flanks and abdomen are more brownish. Wings and tails mostly like those of the adults, the longest tertial having the inner web uniform blackish-brown edged with brownish buff and without cross-marking; the white spots on the smaller wing-coverts less pure.

*Troglodytes pallescens* needs no comparison with *Troglodytes neglectus* BROOKS, from Cashmere, which has "the entire back from the mantle downwards distinctly barred with dusky blackish, remains of some of these bars even occurring on the hind neck," which has "about twelve bars distinguishable on the centre tail-feathers," and "the throat and chest dusky brown, with blackish cross-bars."

Nor should any comparison with *Troglodytes fumigatus* TEMM. from Japan be necessary. But as the *Troglodyte* from the Pacific coasts have been sorely confounded by prominent writers, and especially of late by Mr. Taczanowski\* it may not be out of place to indicate the differences:

1. *T. fumigatus* is decidedly smaller, with, both absolutely and proportionately, much smaller bill.

2. The general color of *fumigatus* is much darker and richer, both above and below, being in fact one of the deepest colored species of the group, while *pallescens* ranks among the palest and dullest.

3. In *fumigatus* the dusky cross-bars are more distinct and reach further forward, both on the upper and the lower surface, forming very distinct spots on the chest and in some species even on the throat. The bars on the tail are more numerous, and the longest tertiary has the inner web of the same color as the outer web, and is also distinctly barred

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\* Since this article was written Mr. H. Seebohm (*Ibis*, 1884, p. 41) has made a rather curious statement in regard to the forms here mentioned. He said: "To distinguish it [*T. parvulus* var. *fumigatus*] even as a variety from *T. alascensis* and *T. pacificus* can only be regarded as hair-splitting, the extremes in a series of any one variety overlapping the extremes of the nearest allied varieties." Not half a year before Mr. Seebohm committed the same "hair-splitting" (*Hist. Brit. Birds*, I, p. 506), and he does not state how great the additional material is upon which his new discovery is founded. The series of specimens from both sides of the Pacific I have had the opportunity of examining amounts to about sixty, and in view of these Mr. Seebohm's opinion is inexplicable to me. (Cf. what is said below about the intergradation. See also Ridgway's very important article in *Pr. U. S. Nat. Mus.*, 1883, p. 370, on the same subject.)

with blackish dusky. The light spots on the sides of the neck are very pronounced, while only the ear-coverts are perceptibly light spotted in *pallescens*.

It might reasonably have been expected that the Wren occurring on the two westernmost islands of the Aleutian chain should belong to the same species as those inhabiting the other ones, viz, *T. alascensis*. As my friend, Robert Ridgway, however, has already given (*l. e.*) a careful comparison of the two forms, I shall here only repeat the most striking differences between the adults, viz, that *pallescens* has the posterior half of both surfaces distinctly barred with dusky, while in the brighter rusty colored *alascensis* the whole upper surface is quite uniform, *without any trace of bars*, having, besides, a still longer bill.\*

The most interesting feature of the two species is perhaps, however, the fact that the young are even more widely distinct than the adults. The young of *alascensis* are of the same general bright rusty color as the adults, with the dusky edgings of the feathers on the lower surface very pale and indistinct, and the crown of the head is not differently colored from the back.

It might be thought impossible that the short-billed, dark-colored *fumigatus* with the very distinct blackish bars should ever have been confounded with the long-billed, bright-colored *alascensis*, which has no cross-bars whatever on the upper surface, but, nevertheless, we often see the latter quoted as a mere synonym of the former, and Taczanowski, in 1881, still maintains that *fumigatus* breeds yearly on the Aleutian Islands (*J. f. Orn.*, 1881, p. 180). For completeness's sake I have therefore appended a second table of dimensions containing the measurements of specimens from the American Aleutians and from Alaska.

It may be stated here that, although I have examined a series of more than forty specimens, I failed to detect any individual presenting intermediate characters. The complete isolation of the habitats of the three forms make their intergradation, *a priori*, more than improbable.

In order to give a true idea of the general color of *pallescens* it may finally be said that it comes very near to pale specimens of *T. troglodytes* from Central Europe, from which it is distinguished by the pattern of the longest tertiary, the markings on the back, the indistinctness of the

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\* Cf. FINSCH, Abhandl. Nat. Ver. Bremen, III, 1872, p. 31, where he states the reverse. It is to be remarked, however, that his specimen, from Kodiak, is *T. pacificus*, and NOT *T. alascensis*, as he determined it.

superciliary stripe, the well-defined light spots on the auriculars, &c., not to speak of differences in the proportions; and from the barred race from Western Norway, which I have called *Troglodytes troglodytes bergensis*, it is, besides, distinguished by its duller color.

I have in another place (Naturen, 1884, p. 34), made the statement that, besides *T. pallescens*, I had obtained a specimen of another *Troglodytes*, which I suspected might be *fumigatus*, referring to what is No. 92534 of the following list. My reason for so thinking was that the bill was differently shaped from that of the other specimens which I had seen, being strongly curved at the tip. The other differences which I indicated vanish upon a close examination, and the curvature of the bill is easily explained by the fact that the tip of the lower mandible is broken off. It certainly belongs to the species here in question.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
					<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>	<i>mm.</i>
88994	1644	Bering Island.....	Sept. 20, 1882	♂ ad.	114	.....	53	36	13	19
92534	1807	.....do.....	Dec. 12, 1882	♂ ad.	118	.....	54	35	14	19
92519	2213	Copper Island .....	June 30, 1883	♂ ad.	115	25	52	35	14	19.5
92520	2214	.....do.....	July 1, 1883	♂ ad.	117	23	52	34	13.7	18.3
		Average.....			116	24	52.7	35	13.7	18.7
92532	1703	Bering Island.....	Oct. 31, 1882	♀ ad.	106	.....	51	35	13	18
92533	1914	.....do.....	Feb. 21, 1883	♀ ad.	114	.....	50	34	.....	19
92531	2015	.....do.....	May 8, 1883	♀ ad.	113	.....	49	35	.....	19
92521	2204	Copper Island .....	June 28, 1883	♀ ad.	113	23	49	34	13	18.5
		Average.....			111.5	23	49.7	34.5	13	18.6
89132	1472	Copper Island .....	July —, 1882	jun.	.....	.....	51	35	13	19
92523	2229	.....do.....	July 5, 1883	♀ juv.	104	16	48	29	11	18
92529	2230	.....do.....	July 5, 1883	♂ juv.	106	7	50	28	9.7	18.5
92528	2234	.....do.....	July 8, 1883	♂ juv.	116	18	51	32	10.5	19
92524	2273	.....do.....	July 20, 1883	juv.	113	24	50	35	11	19.5
92526	2274	.....do.....	July 20, 1883	♂ juv.	115	23	53	36	11.2	19.2
92525	2275	.....do.....	July 20, 1883	♂ juv.	114	23	54	36	12	18.5
92522	2276	.....do.....	July 20, 1883	♂ juv.	118	28	51	36	11	19
92527	2277	.....do.....	July 20, 1883	♀ juv.	115	25	49	34	11.5	18.8
92530	2286	.....do.....	July 23, 1883	juv.	121	24	52	37	12.7	19.5

No. 88994.—Iris dark brown. Bill blackish brown, at the base of lower mandible lighter, more grayish. Feet brownish gray, darker behind, more yellowish below the toes.

No. 92519.—Bill blackish brown, toms, base of gony, and angle of mouth yellowish. Feet light grayish brown, joints darker.

No 92532.—Iris dark brown. Bill blackish brown, basal half of tomtia and angle of mouth yellowish. Feet brownish gray. In the stomach remains of spiders and a land snail.

No. 92531.—Feet of a yellowish brownish flesh-color. Extremely fat.

No. 92521.—Feet light and clear grayish brown, joints darker. Not fat. A large naked "breeding patch" on abdomen and breast.

No. 92523.—Iris very dark brown. Bill dark grayish brown, lower mandible pale brownish flesh-color; angle of month prominent; bright neaple-yellow. Feet pale brownish gray.

No. 92528 belonged to the same family as Nos. 92523 and 92529.

Table of dimensions.

I.—TROGLODYTES FUMIGATUS TEMM.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Wing.	Tail-feathers.	Exposed culmen.	Tarsus.
						mm.	mm.	mm.	mm.
91363	Jouy . . . . .	787	Tate Yama, Japan . . . . .	Nov. 17, 1882	♂ ad.	50	37	10.7	17.7
91364	.. do .....	828	.....do .....	Dec. 2, 1882	♂ ad.	51	35	11	17
91366	.. do .....	835	.....do .....	Dec. 4, 1882	♂ ad.	49	36	11	18
			Average .....			50	36	10.9	17.6
91365	.. do .....	834	Tate Yama, Japan . . . . .	Dec. 4, 1882	♀ ad.	45	32	10.5	15.5
91367	.. do .....	839	.....do .....	Dec. 4, 1882	♀ ad.	47	32	10	16.2
			Average .....			46	32	10.2	15.8
88640	.. do .....	571	Fuji, Japan ....	July 20, 1882	♂	49	33	10.8	18.5

II.—TROGLODYTES ALASCENSIS BAIRD.

61330	W.H.Dall. ....		Unalaska, Alaska .....	Oct. 21, 1871	♂ ad.	51	34	15	20
61327	.. do .....	94	Amaknak Island, Alaska . . . . .	Oct. 22, 1871	♂ ad.	49	35	14	20
61655	.. do .....	288	Iliuliuk, Alaska .....	Dec. 3, 1871	♂ ad.	49	32	13.5	19.5
68324	Adams .....		Saint George's Island, Alaska.		♂ ad.	51	36	14	19.5
73508	Nelson .....		Akontan Island, Alaska .....	May 13, 1877	♂ ad.	52	33	15	19
78867	Turner ...	173	Alaska .....		♂ ad.	49	32	14	19
78869	.. do .....	175	.....do .....		♂ ad.	51	33	15	18.5
78870	.. do .....	172	.....do .....		♂ ad.	51	34	15.5	19
			Average .....			50.4	33.6	14.5	19.3
78871	.. do .....	174	Alaska .....		♀ ad.	51	32	14	19.3
81340	Bean.....	3897	Ilinliuk, Alaska.....	Oct. 13, 1880	♀ ad.	48	32	14	18.7
						49.5	32	14	19

The natives of the Commander Islands used to call this species, peculiar to the islands, the "*Limaschinka*," which means a little "chew of tobacco," obviously in allusion to its color, size, and shape.

On Bering Island the *Limaschinka* is rather scarce, but it is said that it was a common bird along its rocky beaches not many years ago. It seems probable that the growing multitude of the red *Arvicola* is



the cause of the diminution. An argument in favor of this opinion is the fact that the only place where the bird is still found in proportional abundance is on the small islet Toporkoff, where the *Arvicola* has not yet made its appearance, nor have its numbers diminished on Copper Island, where it is still common, and where there are no field-mice to disturb it.

In general manners of movement, flight, &c., it closely resembles the *T. hiemalis* and *T. troglodytes*. It is, however, strictly confined to the rocks, particularly the steep rugged walls near the shore, and they are frequently met with among the large stones close to the water's line. It creeps among the rocks in search of its food, and builds its nest and rears its young in a deep hole or crack, usually where the stone is most weathered and brittle, but always so that it is safe from anything larger than a mouse and which cannot fly. I knew of several holes in which there were nests, but it was, in every case, quite impossible to get at them. Its voice is agreeable and vigorous, remarkably so compared with the size of the bird. Like that of *T. parvulus*, it has a great resemblance to the song of the canary, but it differs from that of the European species in being of a somewhat higher and more metallic sound.

It is needless to remark that the bird is a resident on the island.

### Family PARIDÆ.

#### 132. *Parus kamtschatkensis* (BONAP.).

1826.—*Parus carbonarius* PALL., Zoogr. Ross. As., I, p. 556 (*part*).

1826.—*Parus palustris* PALL., Zoogr. Ross. As., I, p. 557 (*part*).

1850.—*Pœcila kamtschatkensis* BONAP., Consp. Av., I, p. 230 (*nec* TACZAN., 1872, &c., *nec* SEEB., *nec* BLAKIST.).—KITTL., Denkw., I, p. 321 (*cf.* BOLLE, J. f. Orn., 1859, p. 47).—TACZAN., Bull. Soc. Zool. France, 1882, p. 390.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 361.—*Parus k.* MADARASZ, Zeitschr. Ges. Orn., I, 1884, p. 77, pl. iv.

1880.—*Parus wienuthi* DYBOWSKI, MSS.

This bird is a most elegant and distinct species, as already remarked by Bonaparte. It is rather strange that Taczanowski and others could apply the name *kamtschatkensis* to the northeastern form of *borealis*, as Bonaparte (*l. c.*) describes it as "*albo-canescens*," while Taczanowski himself states that his birds were "*schiefer-aschgrau*," slaty ash-colored. It is one proof more that it usually promotes more confusion to adopt an older name, the description of which does not exactly fit, than to give

a new name, which may later turn out to be a synonym. The *Pœcile* \* *kamtschatkensis* of Taczanowski should stand as *Parus baicalensis* (SWINH.), Ann. Mag. Nat. Hist., 1871 (p. 257).†

*Parus kamtschatkensis* BP. is one of the most striking looking birds in the group of the Chickadees. Its light color looks almost pure white when the lively fellow, busily engaged in the search for insects at the end of the green branches, flits from birch to birch, and the pretty black cap gives it a most exquisite appearance.

In spring and summer they were rather scarce, and, therefore, I suppose them to breed only in the pine woods, but during my stay in Petropaulski, in September and October, I found them numerous in all the birch and elder groves of the surroundings. They were usually met in small flocks of from four to ten individuals, rapidly passing through the woods, announcing their approach by the vigorous call-note by which the troupe managed to keep together. Whenever any of them had been too deeply absorbed in the search for food or in a struggle with a big spider, and found himself left behind, he would sing out an anxious and inquiring *tā, tē*, which immediately was answered by one or more of his comrades with a similar but more rapidly uttered sound, if within hearing range, whereupon he, with a satisfied *tā, tā-ě-ě-ě-ě!*, would hurry off to join them. In all the numerous flocks I met there never was a single bird of a different kind.

No specimen of this bird has been obtained from the islands, but it may sometimes be met with as a straggler from Kamtschatka. The Cossak, Aleksander Selivanoff, on the 4th of May, 1883, informed me that in the neighborhood on the village on Bering Island he had seen a small bird of the size of a Red-poll, but quite white, and with a black head. While he was fetching his gun, in order to secure it for me, it disappeared. It can hardly have been any other bird than the Kamtschatkan Chickadee.

\* Taczanowski writes *Pœcilia*, but *Pœcile* is the original spelling of Kaup. Besides, *Pœcilia* is preoccupied in 1801 for a fish and in 1802 for a lepidopterous insect. I have been unable to find any structural character which will separate these birds from *Parus*.

† The synonymy would then be: *Pœcilia kamtschatkensis* TACZAN., J. f. Orn., 1872, p. 443 (nec Bp., nec BLAKIST., *quæ japonica*).—*Id.*, Orn. Fauna Vost. Sibir., p. 33 bis (1877).—*Id.*, Bull. Soc. Zool. France, 1876, p. 163.—*Parus palustris* subsp. *kamtschatkensis* SEEB., Ibis, 1879, p. 32.—*Pœcilia borealis* ? TACZAN., Bull. Soc. Zool. France, 1882, p. 392.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.	Exposed culmen.
					mm.	mm.	mm.	mm.	mm.
92562	2599	Petropaulski, Kamtschatka .....	Sept. 19, 1883	♂	130	36	61	58	9
92568	2714	.....do.....	Sept. 27, 1883	♂	133	28	66	59	9
92573	2743	.....do.....	Oct. 2, 1883	♂	131	32	62	59	8
92576	2748	.....do.....	Oct. 6, 1883	♂	130	29	65	58	8
92563	2600	.....do.....	Sept. 19, 1883	♀	125	32	61	57	9
92564	2601	.....do.....	Sept. 19, 1883	♀	128	32	61	57	9
92565	2604	.....do.....	Sept. 20, 1883	♀	126	29	57	54	9
92566	2605	.....do.....	Sept. 20, 1883	♀	127	33	62	57	9
92567	2606	.....do.....	Sept. 20, 1883	♀	125	31	62	55	8
92569	2720	.....do.....	Sept. 29, 1883	♀	132	33	62	57	8
92570	2724	.....do.....	Sept. 30, 1883	♀	126	28	63	56	9
92574	2744	.....do.....	Oct. 2, 1883	♀	.....	.....	62	57	9
92583	2758	.....do.....	Oct. 9, 1883	♀	121	26	60	54	9
92584	2761	.....do.....	Oct. 10, 1883	♀	.....	.....	62	54	8
92571	2725	.....do.....	Sept. 20, 1883	.....	128	33	63	56	9
92572	2742	.....do.....	Oct. 2, 1883	.....	132	33	63	59	9
92575	2745	.....do.....	Oct. 2, 1883	.....	.....	.....	61	58	9
92577	2749	.....do.....	Oct. 7, 1883	.....	131	33	62	59	8
92578	2750	.....do.....	Oct. 7, 1883	.....	135	34	.....	.....	.....
92579	2751	.....do.....	Oct. 7, 1883	.....	.....	.....	61	55	9
92580	2752	.....do.....	Oct. 7, 1883	.....	.....	.....	62	56	9
92581	2753	.....do.....	Oct. 7, 1883	.....	.....	.....	63	59	8
92582	2756	.....do.....	Oct. 7, 1883	.....	.....	.....	65	62	10

## Family SYLVIDÆ.

133. *Acrocephalus ochotensis* (MIDD.).

1853.—*Sylvia (Locustella) ochotensis* MIDDENDORF, Sibir. Reise, II, 2 (p. 185).—*Calamodyta o.* TACZAN., Bull. Soc. Zool. France, 1882, p. 387.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 358.

1858.—*Sylvia certhiola* KITTLITZ, Denkw., II, p. 199 (*nec* PALL.).

1874.—*Locustella subcerthiola* SWINHOE, Ibis, 1874, p. 154.—DAVID, et OUST., Ois. Chine (p. 249) (1877).

1883.—*Acrocephalus dybowski* STEJNEGER, Pr. U. S. Nat. Mus., VI, 1883, p. 92.—*Id.*, Naturen, 1882, p. 181.

The additional material I collected since submitting my preliminary report gives little need for further comment. All the additional specimens were taken during early summer. The female (No. 92559) is the palest one, with a decided cinereous tinge on the nape, corresponding closely with the male described by Mr. Taczanowski (*l. c.*).

With the same author I agree in his opposition to including this species in the genus *Locustella*.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
89151	1251	Petropaulski .....	July 5, 1882	♂ ad.	149	.....	70	57
92559	2184	Bering Island .....	June 21, 1883	♀ ad.	152	34	57	52
92560	2329	.....do .....	June 28, 1883	(♂) ad.	.....	.....	70	56
92558	2331	.....do .....	July 13, 1883	(♂) ad.	.....	.....	69	56
92561	2307	Petropaulski .....	July —, 1883	ad.	.....	.....	70	56

No. 89151.—The type of *Acrocephalus dybowskii* STEJNEGER. Iris hazel. Feet clear yellowish brown.

No. 92559.—Iris brown Bill horny, blackish brown; basal half of lower mandible light gray, towards base yellowish, as is also the angle of mouth. Feet clear grayish brown, on the inner side tinged with yellowish; toes below yellow. Eggs swollen.

Of this bird which was rather numerous in the vicinity of Petropaulski, I have already given an account in my "Contributions," &c., Pr. U. S. Nat. Mus., 1883, p. 92, which need not be repeated here.

On the 21st of June I obtained a female on Bering Island. It was shot among the high grass near the beach, between Severnaja Seal-rookery and Saranna, and was in company with two others of its kind. Two others were shot and prepared on Bering Island, when I was absent on a trip to Copper Island. They were both said to be males. It is only an occasional visitor to the island.

134. *Locustella hendersonii* (CASS.).

1858.—*Sylvia locustella* KITTL., Denkw., II, p. 198 (*nec* LATH.).

1858.—*Lusciniopsis hendersonii* CASSIN, Proc. Phila. Acad., 1858, p. 194.—*Locustella hendersonii* SWINH., Ibis, 1863, p. 444.

1863.—? *Locustella minuta* SWINH., P. Z. S., 1863, p. 93.

1875.—*Loenstilla lanceolata* SWINH., Ibis, 1875, p. 449.—SEEBOHM, Ibis, 1879, p. 36.—BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 222.—*Ibid.*, *ibid.*, X, 1882, p. 158.—STEJNEGER, Naturen, 1882, p. 183.—TACZAN., Bull. Soc. Zool. France, 1882, p. 388.—DYBOWSKI, Bull. Soc. Zool. France, 1883, p. 358.—BLAKIST., Amend. List B. Jap., p. 22 (1884).

Seebohm (Brit. Mus. Cat., V, p. 119) describes the under-wing-coverts and the axillaries as "pale chestnut." In my bird there is not a trace of such a color; in fact these feathers are of a pale buffish white. They agree much better with Cassin's description, where they are stated to have "a tinge of a very pale reddish." I have examined Cassin's type in the collection of the Philadelphia Academy, and found it



to agree perfectly with my birds, which I consider sufficiently distinct from their western representative.

It was, as I thought, under rather peculiar circumstances that I made the first acquaintance of the Grasshopper-warbler. From what I had read about the habits of allied species, and conjectured from the manners of *Acrocephalus ochotensis*, I listened for this bird about and after sunset, wherever willows were abundant, in the marshy valley bottoms. I recollected the many poetical accounts of ornithological enthusiasts waiting in the wet swamps for the moon's rising over the white vapors, when the males of *Locustella naevia* would commence their strange chirping, and, invisible to the bewitched naturalist, mock round him like mischievous elves, now pitching their ventriloquous notes to the left, now to the right, until the gunning poet in bewilderment and despair sends a shot at random in the direction from whence the creaking thrills seem to proceed. So I tried patiently to get enchanted, bewildered, water-soaked, and mosquito-bitten too; but no *Locustella!*

It was a very hot day in the summer of 1882, in fact, the last day of June, that I took an ornithological morning ramble to a broad valley just behind the rounded hills, upon the sloping base of which Petropaulski is situated. The weather had been dry and warm for a considerable time; the vegetation was longing for rain, and the soil was gray and dusty. At last I determined to return, when the tropical rays of the sun at noon had silenced all birds, and the only living being in the neighborhood not seeking the cool shade was the mosquito-phobeous naturalist. Suddenly I was struck by the vigorous and rather protracted chirp of a heat-despising cricket. Something in its note led me to wish to get hold of the producer, so I cautiously proceeded in the direction of the sound. Zirrrrrr.....! But who describes my astonishment when I found that the supposed cicada was a small bird facing the sun from the top of a broken and dead birch! As he did not mind the noise I made, when breaking my way through the five-foot-high grass, if I only took care to stop whenever he interrupted his curious love-song, his fate was soon sealed. It is needless to say that I now became an attentive listener to the grating sound of the locusts, and half an hour later I was rewarded by another male, which I shot from the outer branches of a leaf-clad *Betula ermani*.

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.
					mm.	mm.	mm.
89159	1240	Petropauloki.....	June 30, 1882	♂ ad.	125	56	.....
89160	1241	.....do.....	June 30, 1882	♂ ad.	120	58	46

No. 89159.—Iris dark hazel. Bill blackish brown; lower mandible brownish flesh-color. Feet flesh-color; toes above brownish; below yellowish.

No. 89160.—Iris, bill, and feet as foregoing.

135. *Phyllopseustes borealis* (BLAS.).

1826.—*Motacilla trochilus* PALL., Zoogr. Ross. Asiat., I, p. 494 (*part, nec* LIN.).

1853.—*Sylvia (Phyllopneuste) evrcsmanni* MIDD., Sibir. Reise, I, 2, (p. 178, tb. xvi, fig. 1-3) (*nec* BONAP.).—RADDE, Reisen Süden Ost-Sibir., II (p. 263) (1863).—DYBOW. & PARVEX, J. f. Orn., 1868, p. 334.—NELSON, Cruise Corwin, p. 60 (1883).

1858.—*Phyllopneuste borealis* BLASIUS, Naumannia, 1858, p. 313.—*Id.*, Ibis, 1862, p. 68.—SWINHOE, P. Z. S., 1871, p. 356.—TRISTRAM, Ibis, 1871, p. 231.—TACZAN., J. f. Orn., 1872, p. 358.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, 1875, p. 245.—*Id.*, Bull. Soc. Zool. France, 1876, p. 141.—*Id.*, *ibid.*, 1882, p. 388.—*Id.*, Orn. Fauna Vost. Sibir., p. 26 (1877).—BAIRD, BREW. & RIDGW., B. N. Amer., I, p. 70 (1874).—DAVID & OUSTAL., Ois. Chine (p. 271) (1877).—STEJNEGER, Naturen, 1882, p. 182.—*Id.*, Pr. U. S. Nat. Mus., 1883, p. 71.—*Phylloscopus b.* SEEB., Ibis, 1879, pp. 9 and 36.—BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 223.—*Id.*, *ibid.*, X, 1882, p. 159.—NELSON, Cruise Corwin, p. 60 (1883).—BLAKIST., Amend. List B. Jap., p. 56 (1884).—*Sylvia b.* PALMÉN, Cat. Fish. Exp., Lond. Swed., p. 204.

1858.—*Sylvia chloris* KITTLITZ, Denkw., I, p. 314, and II, p. 200.

1860.—*Phylloscopus sylvicaltrix* SWINH., Ibis, 1860, p. 53.—*Id.*, *ibid.*, 1866, p. 295.—*Phyllopneuste s.*, *Id.*, *ibid.*, 1863, p. 307.—*Id.*, P. Z. S., 1863, p. 295.

1869.—*Phyllopneuste kennicotti* BAIRD, Trans. Chic. Acad., 1869, I, 2 (p. 313), pl. xxx, fig. 2.

1872.—*Phyllopneuste magnirostris* FINSCH, Abh. Nat. Ver. Bremen, III, p. 32 (*nec* BLYTH).

## List of specimens collected.

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Exposed portion of first primary.	Tail-feathers.	Exposed culmen.	Tarsus.
88993	1184	Bering Island .....	June 9, 1882	♂ ad.	124	.....	67	10	49	10	20
89157	1252	Petropaulski .....	July 6, 1882	♂ ad.	127	.....	69	8	49	10	21
89158	1245	.....do.....	July 4, 1882	♂ ad.	134	.....	72	13	54	10	20
89133	1215	Copper Island .....	June 20, 1882	♂ ad.	130	.....	69	11	48	10	21
92551	2141	Bering Island .....	June 8, 1883	♂ ad.	129	24	64	10	48	10	21
92552	2148	.....do.....	June 9, 1883	♂ ad.	134	34	68	10	48	10	21
92553	2173	.....do.....	June 15, 1883	♂ ad.	139	25	72	9	51	11	21
92550	2174	.....do.....	June 15, 1883	♂ ad.	140	24	72	11	50	10	20
92554	2179	.....do.....	June 17, 1883	♂ ad.	131	25	66	10	47	10	20
92555	2182	.....do.....	June 19, 1883	♂ ad.	133	23	70	11	49	10	20
92556	2639	Petropaulski .....	Sept. 25, 1883	♂	132	21	67	11	49	9	20
Average measurements of eleven males .....					132	25	69	10	49	10	20

No. 84993.—Iris dark brown. Bill horny brown, tomia and base of lower mandible yellowish; angle of mouth chrome yellow. Feet dark grayish brown, toes below yellow.

No. 92551.—Testes large, swollen.

No. 92553.—Feet clear yellowish brown.

No. 92556.—Iris dark brown. Bill above horny brown, below and at base orange-yellow. Feet brownish gray, tarsus behind and toes below yellow.

The above specimens have been carefully compared with a series from Alaska and another from China. But as both are too imperfectly labeled by the collectors, nothing definite can be said. Both series show inferior dimensions, which may be ascribed to the occurrence of females, while the Kamtschatkan series unfortunately only includes males. But it would seem as if the Alaskan birds have a comparatively smaller bill and smaller size altogether, and I should not be surprised if a larger and better determined series of specimens from Alaska would prove them entitled to rank as a subspecies under the name of *Ph. borealis kenicotti* (BAIRD). The case is absolutely parallel to that of *Budytes flavus leucostriatus*, offering the same suggestions as to the migratory route of the Alaskan birds.

## Tables of dimensions.

## A.—SPECIMENS FROM ALASKA.

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Measurements				
						Wing.	Exposed portion of first primary.	Tail-feathers.	Exposed culmen.	Tarsus.
						mm.	mm.	mm.	mm.	mm.
45909*	Pease.....	178	Saint Michael's, Alaska.	Aug. 16, 1866	.....	60	9	43	9	20
75416	Nelson.....	438	do.....	Aug. 24, 1877	.....	60	7	42	9	20
75415	do.....	462	do.....	Aug. 31, 1877	♂	65	9	46	8	20
Average measurements of three adults.....						62	8	44	9	20
75417	Nelson....	463	Saint Michael's, Alaska.	Aug. 31, 1877	juv.	59	10	41	8.5	18

## B.—SPECIMENS FROM CHINA.

86088	Jouy & Dale.	147	Hong-Kong.....	Sept. 25, 1881	.....	64	11	47	11	20
86092	do.....	152	Kowloon, China.....	Sept. 28, 1881	♀ ad.	63	10	41	9.5	20
86110	do.....	173	Hong-Kong.....	Oct. 9, 1881	.....	64	11	45	10	20
88504	Swinhoe.....	(1)	Amoy, China.....	.....	.....	66	7	46	11	19
88505	do.....	.....	do.....	May —, 1866	.....	18	9	46	9.5	20
Average measurements of five specimens.....						65	10	45	10	20

\* Type of *Ph. kennicotti* BAIRD.† Labeled *Phyllopneste sylvicultrix*.

The Arctic Willow-warbler is one of the commonest summer birds in the neighboring birch and elder groves of Petropaulski.

They are not known to breed on the islands, where they have been collected only during the spring migration. In 1882 I shot only one specimen on each island, but during the "bird-wave" of 1883, they were plentiful in the northern part of Bering Island.

The birds occurring on the islands belong to the same stock as those inhabiting the mainland of Kamtschatka. As already mentioned, the individuals from Alaska seem to travel on a route not touching Kamtschatka.

136. *Phyllopneste xanthodryas* (SWINH.).

1863.—*Phylloscopus xanthodryas* SWINHOE, P. Z. S., 1863, p. 296.—SEEBOHM, Ibis, 1877, p. 71.—BLAKIST. & PRYER, Trans. As. Soc. Japan, VIII, 1880, p. 223.—*Ibid.*, X, 1882, p. 159.—JOUY, Pr. U. S. Nat. Mus., 1883, p. 283.—BLAKIST., Amend. List B. Jap., p. 16 (1884).—*Phyllopneste x.* SWINH., P. Z. S., 1871, p. 353.—DAVID & OUST., Ois. Chine (p. 238) (1871).

This species is said to be distinguished from *Ph. borealis* in having the underparts more yellowish, a larger size, and a longer first pri-



mary. The latter two distinctions are formulated by Seebohm (Cat. Brit. Mus., V, p. 38) thus: "Exposed portion of bastard primary 0.3 to 0.35 inch [7.6 to 8.9<sup>mm</sup>] in adults; 0.4 to 0.45 [10 to 11.4<sup>mm</sup>] in birds of the year" in *borealis*, against "0.5 to 0.6 inch" [12.7 to 15.2<sup>mm</sup>] in *xanthodryas*, and "length of wing 2.7 to 2.4 inches" [69 to 61<sup>mm</sup>] in *borealis*, against "2.85 to 2.6 inches" [72 to 66<sup>mm</sup>] in *xanthodryas*.

Comparing these measurements with those of *borealis* given by me in the table under the head of the latter species, it is evident that the individual variation, even in the same sex, is as great as the difference between the maximum of the larger and the minimum of the smaller species, as given by Seebohm. It will furthermore be seen that the average measurements of the first primary in my series is equivalent to the minimum length of the corresponding feather of the young bird, as stated by Seebohm, and that only one or two, out of eleven, have a bastard primary as small as the maximum given by the latter author. It is therefore evident that, for instance, No. 89158, in regard to the dimensions, should rank as *Ph. xanthodryas*. It agrees, however, so closely with the others of the same series in color that there can be no thought of separating it from these.

Below are given the dimensions of two genuine *Ph. xanthodryas* collected by Mr. Jouy in Japan, one a bird in summer plumage, the other one shot in the autumn. They are both males, as are all my specimens of *borealis*. A comparison of their dimensions gives the same results as above; they differ in no way, the largest of the two being even a trifle smaller than the largest *borealis*. The first primary is, however, in both, longer than the average of *borealis*, although in the smaller specimen it is a little shorter than the longest first primary in *borealis*. But the color is decidedly much more yellowish than in the eleven specimens belonging to the latter species.

It may here be well to remark that not only are the two Japanese specimens completely uniform in color *inter se*, but there is not the slightest difference between the specimen No. 92556 of *borealis* in autumnal plumage and the other ten obtained during the spring and summer months.\*

Finally it may be stated that there is no difference in color whatever

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\* That the relative length of the second and sixth primaries is of little value is evident from the fact that in No. 75416 from Alaska the sixth is longer than the second.

between the two Japanese specimens and No. 92557 \* shot at Petropaulski on the last day of September, 1883, the dimensions of which are given below. It is superior in size to the smaller of the Japanese birds, while its color is of exactly the same yellowish shade, and the length of the first primary is considerably [2.6<sup>mm</sup>] greater than the maximum length of the same portion of the quill in the young *borealis*.

My reasons for referring this single specimen to the Japanese species may be clearly seen from the above statements without further comment. But the question presents itself whether there is no intergradation between the two forms. The dimensions certainly intergrade, but not having seen or heard of intermediately colored forms I abstain from naming the present bird *Ph. borealis xanthodryas*.

*Dimensions of the specimen collected.*

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Age.	Total length.	Tail beyond wings.	Wing	Exposed portion of first primary.	Tail-feathers.
						mm.	mm.	mm.	mm.	mm.
92557	Stejneger	2722	Petropaulski .....	Sept. 30, 1883	ad.	132	24	67	14	48

*Table of dimensions of specimens from Japan.*

U. S. Nat. Mus. No.	Collector's name.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Exposed portion of first primary.	Tail-feathers.
						mm.	mm.	mm.	mm.	mm.
88624	Jouy .....	573	Fuji, Japan .....	July 20, 1882	♂ ad.	.....	.....	71	15	52
91374	...do .....	682	Japan .....	Oct. 3, 1882	♂ ad.	.....	.....	65	12	47

Only one specimen was obtained in the neighborhood of Petropaulski, the species thus presumably being scarce. It was the last Willow-warbler I saw during the autumn of 1883.

\* The yellow color of these birds is of a very different tint from that of the young *borealis*, being of a clear yellow, suffused with greenish, while in the latter the yellow is duller and tinged with buff. It may perhaps not be unnecessary to state that No. 92557 is not a bird of the year,

Family TURDIDÆ.

137. *Turdus eunomus* TEMM.

- 1826.—*Turdus fuscatus* PALL., Zoogr. Ross. As., I, p. 451, tab. xii (*nee* VIEILL., 1807).—MIDD., Sibir. Reise Zool., I, 2 (p. 172) (1853).—SCHIRENCK, Reise Amurl., I, p. 354 (1860).—SWINH., P. Z. S., 1862 (p. 317).—*Id.*, *ibid.*, 1863, p. 280.—*Id.*, *ibid.*, 1871, p. 366.—*Id.*, Ibis, 1863, I, pp. 93, 277.—*Id.*, *ibid.*, 1874, p. 157.—BLAKIST., Ibis, 1862, p. 319.—*Id.*, Amend. List B. Jap., p. 17 (1884).—BLAKIST. & PRYER, Ibis, 1878, p. 241.—*Id.*, Trans. As. Soc. Japan, VIII, 1880, p. 227.—*Id.*, *ibid.*, 1882, p. 167.—RADDE, Reisen Süd. Ost-Sibir. (p. 236) (1863).—PRZEWALSKI, Putesch. Ussur. Suppl. (n. 96) (1870).—FINSCH, Verh. Zool. Botan. Ges. Wien, 1872, p. 257.—TACZANOWSKI, J. f. Orn., 1872, p. 457.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *ibid.*, 1875, p. 246.—*Id.*, *ibid.*, 1876, p. 193.—*Id.*, Bull. Soc. Zool. France, 1876 (p. 147).—*Id.*, *ibid.*, 1882, p. 388.—*Id.*, Orn. Fauna Vost. Sibir., p. 31 (1877).—HEUGLIN, J. f. Orn., 1874, p. 397.—BOLAU, J. f. Orn., 1880, p. 121.—*Id.*, *ibid.*, 1881, p. 56.—*Id.*, *ibid.*, 1882, p. 334.—JOUY, Pr. U. S. Nat. Mus., 1883, p. 279.
- 1831.—*Turdus eunomus* TEMM., Pl. Color., II, 87 livr., pl. 514.—DYBOWSKI & PARVEK, J. f. Orn., 1868, p. 333.
- 1877.—*Turdus dubius* DRESSER, Birds of Eur., (pt. Iviii).—SEEBOHM, Ibis, 1879, p. 3.

A single specimen of this handsome Thrush was obtained on Bering Island between the sand-dunes opposite the village on the 3d of June, 1883. It is only a rare straggler from Kamtschatka.

At Petropaulski I met a small flock of this species May 15, 1883, and shot, but only wounded, one.

*Specimen collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
92507*	2119	Bering Island .....	June 3, 1883	♀ ad.	244	50	123	86

\* Iris dark brown. Bill horny black, except the basal three-fourths of upper tomium and lower mandible, except tip, pale orange. Feet pale grayish brown. Very fat. Stomach contained remains of *Staphylinidæ*.

138. *Turdus obscurus* GMEL.

- 1788.—*Turdus obscurus* GMEL., Syst. Nat., I, 2, p. 816.—MIDD., Sibir. Reise, I, 2 (p. 169) (1853).—RADDE, Reis. Süd. Ost-Sib. (p. 235) (1863).—DYB. & PARV., J. f. Orn., 1868, p. 333.—SWINH., P. Z. S., 1871, p. 367.—*Id.*, Ibis, 1874, p. 443.—TACZAN., J. f. Orn., 1872, p. 440.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *ibid.*, 1875, p. 246.—*Id.*, *ibid.*, 1876, p. 193.—*Id.*, *ibid.*, 1881, p. 182.—*Id.*, Bull. Soc. Zool. Fr. 1876, p. 148.—*Id.*, *ibid.*, 1882, p. 388.—*Id.*, Orn. Fauna Vost. Sibir., p. 32 (1877).—DAV. & OUST., Ois. Chine (p. 153) (1877).—SEEB., Ibis, 1879, p. 4.—BLAK. & PRYER, Tr. As. Soc. Jap., VIII, 1880, p. 227.—*Id.*, *ibid.*, X, 1882, p. 165.—JOUY, Pr. U. S. Nat. Mus., 1883, p. 277 (*part*).—BLAK., Amend. List B. Jap., p. 59 (1884).
- 1826.—*Turdus pallens* PALL., Zoogr. R. As., I, p. 457.—TEMM. & SCHL., F. Jap., Av. (p. 63, pl. xxvii) (1847).—KITTL., Denkw., II, p. 234 (1858).—SWINH., Ibis, 1860, p. 56.

As a whole, my specimens are considerably paler than a series of birds from Japan, collected by Mr. Jouy. Since the latter are autumnal specimens in fresh plumage, the difference may only be seasonal, however.

The coloration is very much the same in all the specimens, except in No. 92511, which is much brighter and deeper tinged, both above and underneath, than any of the others.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
92511	2149	Bering Island.....	June 10, 1883	♂ ad.	215	41	121	81
92513	2159	.....do.....	June 11, 1883	♂ ad.	228	40	125	86
92509	2170	.....do.....	June 13, 1883	♀ ad.	226	38	119	79
92508	2175	.....do.....	June 13, 1883	♀ ad.	227	40	120	82
92510	2176	.....do.....	June 15, 1883	♀ ad.	221	33	124	78
92512	2181	.....do.....	June 17, 1883	♀ ad.	228	32	126	83

No. 92513.—Iris dark brown. Bill horny blackish brown; lower mandible, except tip, which is dusky, tomtia, and angle of mouth pale orange-yellow. Naked eye-ring and lower eyelash light yellowish gray. Feet, including claws, clear yellowish gray.

Nos. 92508, 92509, 92510.—Very fat. Eggs small, undeveloped.

No. 92512.—Feet more yellow than any of the foregoing.

A few individuals of this Thrush usually visit Bering Island in the spring, without any regularity, however. In 1883 the first was observed on one of the first days of June, and during the week between the 10th and the 17th of the same month, two males and four females were secured. They were extremely shy, and always single.

**139. *Ianthia*\* *cyanura* (PALL.).**

1776.—*Motacilla cyanurus* PALL., Reisen Russ. Reichs, II (app., p. 709).—*Id.*, Zoogr. Ross. As., I, p. 490 (1826).—*Lusciola c.* TEMM. & SCHLEG., Fn., Jap. Av. (p. 54, pl. 21) (1847).—*L. (Nemura) c.* SCHRENCK, Reise Amurl., II, p. 361 (1860).—*Sylvia (Nemura) c.* MIDD., Sibir. Reise, II, 2 (p. 177, tb. 15, f. 5) (1853).—RADDE, Reis. Süd. Ost-Sibir., II (p. 258) (1863).—*Nemura c.* BLAKIST., Ibis, 1862, p. 318.—DYBOW. & PARVEX, J. f. Orn., 1868, p. 334.—PRZEW., Putesch. Ussur. (n. 53) (1870).—TACZAN., J. f. Orn., 1872, p. 364.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *ibid.*, 1875, p. 246.—*Id.*, *ibid.*, 1876, p. 193.—*Id.*, Orn. Fauna Vost. Sibir., p. 27 (1877).—BOLAU, J. f. Orn., 1880, p. 117.—*Id.*, *ibid.*, 1881, p. 55.—STEJNEGER, Naturen, 1882, p. 180.—*Ianthia c.* SWINH., Ibis, 1863, pp. 91, 298.—*Id.*, P. Z. S., 1863, p. 290.—*Id.*, *ibid.*, 1871, p. 359.—WHITELY, Ibis, 1867, p. 197.—DAVID & OUST., Ois. Chine (p. 231, pl. 28) (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 239.—*Id.*, *ibid.*, Trans. As. Soc. Japan, VII, 1880, p. 224.—*I. (Nemura) c.* *Id.*, *ibid.*, X, 1882, p. 161.—*Tarsiger c.* JOUY, Pr. U. S. Nat. Mus., 1883, p. 281.—BLAKIST., Amend. List B. Jap., p. 58 (1884).

\* *Nemura*, *Nemoura*, and *Nematura* are all preoccupied in zoology and are therefore inapplicable. The propriety of uniting the type of *Ianthia* and its nearest allies with the forms comprising the genus *Tarsiger* seems rather doubtful to me.



1860.—*Nemura rufilata* SWINH., *Ibis*, 1860, p. 54 (*nec* HODGS.).—*Ianthia r. Id.*, *ibid.*, 1861, p. 1861, p. 329.—*Id.*, *ibid.*, 1862, pp. 261, 264.—*Id.*, *P. Z. S.*, 1862, p. 316.

One of the rarest stragglers which the "bird-wave" forced over to the inhospitable shores of Bering Island was a specimen of this delicately-built and exquisitely-colored species. It was secured during my absence in Petropaulski and prepared by my faithful native assistant, Nikanor, or "the professor," as he was usually styled. The determination of the sex (by dissection) and the measurement of the total length were also made by him.

Even in Kamtschatka the Bluestart is a rare bird, and I believe that this is the first record of it having been taken there. One hot day in July, 1882, when seeking the shades of the birches on the hillock opposite Petropaulski, I met a splendid male of this lovely bird, the only one I have ever seen alive. I had just laid down for a moment's rest in the dense grove when he perched on a branch right over my head, wagging his sky-blue tail rapidly up and down. I did not dare wait until I could get a longer shot, for if he took to the wing he would have been gone forever. So, feverish with excitement, I lifted my gun, but aimed nevertheless too well. When at last I found the mutilated body, literally without head and tail, I could have cried at my misfortune but for the hope that another might soon get within range of my cane-gun. But the other did not come, and the chirping titlarks found me on several succeeding days posted in vain at the same spot. The remains, however, were sufficient for identification.

*Dimensions of specimen collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Sex and age.	Total length.	Wing.	Tail-feathers.
92518	2070	Bering Island.....	May 21, 1883	(♂) ad.	mm. (123)	mm. 72	mm. 59

**140. *Melodes calliope* (PALL.).**

1776.—*Motacilla calliope* PALL., *Reise Russ. Reich.*, III (p. 697).—*Lusciola c.* TEMM. & SCHLEG., *Faun. Jap. Aves* (p. 57) (1847).—*Sylvia c.* KITTL., *Denkw.*, I, p. 314, II, p. 199 (1858).—*Melodes c.* BLASIUS, *List B. Eur.*, p. 10 (1862).—*Erithacus c.* BLAKIST., *Amend. List B. Jap.*, p. 58 (1884).

1788.—*Turdus camtschatkensis* GMEL., Syst. Nat., I, 2, p. 817.—*Sylvia (Calliope) camtschatkensis* MIDD., Sibir. Reise, II, 2 (p. 174) (1853).—*Lusciola (C.) k.* SCHRENCK, Reise Amurl., I, p. 359 (1860).—*Calliope camtschatkensis* SWINH., P. Z. S., 1871, p. 359.—TACZAN., J. f. Orn., 1872, p. 433.—*Id.*, *ibid.*, 1874, p. 335.—*Id.*, *ibid.*, 1876, p. 193.—*Id.*, *ibid.*, 1881, p. 181.—*Id.*, Orn. Fauna Vost. Sibir., p. 27 (1877).—*Id.*, Bull. Soc. Zool. France, 1876, p. 143.—*Id.*, *ibid.*, 1880, p. 136.—*Id.*, *ibid.*, 1882, p. 388.—DAVID & OUST., Ois. Chine (p. 235) (1877).—BLAKIST. & PRYER, Ibis, 1878, p. 239.—*Id.*, Trans. As. Soc. Jap., VIII, 1880, p. 225.—*Id.*, *ibid.*, X, 1882, p. 161.—STEJNEGER, Naturen, 1882, p. 181.—*Id.*, *ibid.*, 1884, p. 6.

Kamtschatka's Nightingale, one of the loveliest birds I ever saw or heard, breeds plentifully round Petropaulski, especially in the sunny alder-groves on the slopes above and behind the town. In the late spring of 1883 I shot the first male arrivals on the 22d of May. It was absolutely silent, creeping shyly among the lower branches of the bushes. During the following autumn I met several in the latter part of September. They were found especially in a narrow valley on the eastern side of the graveyard, the same place where Kittlitz, more than fifty years ago, had collected his specimens during the same season of the year. About the 1st of October all had left.

A single straggler was shot on Bering Island January 29, 1883. It has the throat and chin white, with some mottlings of the lovely scarlet, which adorns these parts in the adult male. On the island it is only an accidental visitor.

*List of specimens collected.*

U. S. Nat. Mus. No.	Collector's No.	Locality.	When collected.	Age and sex.	Total length.	Tail beyond wings.	Wing.	Tail-feathers.
					mm.	mm.	mm.	mm.
89155	1232	Petropaulski .....	June 27, 1882	♂ ad.	167	.....	79	63
89156	1236	.....do .....	June 29, 1882	♂ ad.	175	.....	79	64
92514	2050	.....do .....	May 22, 1883	♂ ad.	172	45	.....	.....
92517	2330	Bering Island.....	June 29, 1883	♂ ? ad.	.....	.....	76	57
92515	2306	Petropaulski .....	July —, 1883	..... ad.	.....	.....	77	65
92516	2593	.....do .....	Sept. 18, 1883	♂	170	38	78	62
	2642	.....do .....	Sept. 25, 1883	♂	164	34	.....	.....

No. 89155.—Iris dark brown. Bill brownish black. Feet grayish brown, hind part of tarsus shining whitish.

No. 89156.—As foregoing. Inside of mouth blackish brown.

No. 92514.—Iris dark brown. Bill horny grayish black. Feet dark pearl gray, below lighter with a livid tinge. Inside of mouth blackish. Testes large, swollen, dark olive gray.

No. 92516.—Bill horny blackish brown, paler at base of lower mandible; angle of mouth pale yellow; interior of mouth pale orange. Feet of a dark silvery gray with a brownish violet tinge, and tarsus white behind. Testes small, black.

No. 2642.—Bill horny blackish brown, pale flesh-color at base of lower mandible. Otherwise like the foregoing.

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II.—SYNOPSIS OF THE BIRDS REPORTED TO  
INHABIT KAMTSCHATKA.

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# SYNOPSIS OF THE BIRDS REPORTED TO INHABIT KAMTSCHATKA.

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The chief sources of our knowledge of the Kamtschatkan ornis are the explorations of Steller, Vossnessenski, v. Kittlitz, Dybowski, and myself, but the localities from which reliable information has been gathered are very few and limited, considering the area of the country, the greater part of which is still a *terra incognita*. We know next to nothing about the distribution of the species all along the western coast, and absolutely nothing about the birds on the eastern side north of Nischnij Kamtschatka. We know very little, if anything, about the relations of the two coasts of the peninsula *inter se*; we do not know much more about the birds of the mountains and their vertical distribution; and we are ignorant of the northern limits of most of the species.

The following list, therefore, only attempts to enumerate the species which have been recorded from Kamtschatka (including the Commander Islands) without going into details. The figures in parenthesis following the name refers to the page of this volume where the references belonging to the species will be found. The other species are provided with the necessary references.

A few names, more or less generally credited to Kamtschatka without there being any reliable authority for the statements, are given without a number.

## COLYMBOIDEÆ.

1. *Colymbus holboëllii* (REINH.) (p. 11).
2. *Colymbus auritus* (LIN.) (p. 14).

## ALCOIDEÆ.

3. *Urinator adamsii* (GRAY) (p. 14).

Whether *U. imber* also occurs is doubtful, but not improbable.

4. *Urinator arcticus* (LIN.).

*Colymbus arcticus* KITTL., Denkw., I, p. 330.—TACZAN., B. S. Z. F., 1882, p. 398.

5. *Urinator lumme* (GUNN.) (p. 15).
6. *Uria lomvia arra* (PALL.) (p. 17).
7. *Uria troile californica* (BRYANT) (p. 20).

*Cepphus mandtii* (LICHT.).

Schlegel (Mus. P. B. Urinat., p. 19) enumerates as No. 5 of *Alca grylle* an "Individu au plumage parfait, et au miroir d'un blanc pur; mais au ventre varié d'un petit nombre de plumes blanches, restes du plumage d'hiver, Kamtschatka, 1862." There can be no doubt that this specimen is referable to *mandtii*, which, consequently, sometimes comes as far down as Kamtschatka, provided the locality be correct.

8. *Cepphus columba* PALL. (p. 21).
9. *Cepphus carbo* PALL. (p. 21).
10. *Brachyramphus marmoratus* (GM.).

TACZAN., B. S. Z. F., 1883, p. 345.

11. *Brachyramphus kittlitzii* BRANDT.

The original specimens came from Petropaulski (Brandt, Mel. Biol., VII, p. 215).

Taczanowski (*l. c.*) mentions two specimens of a *Brachyramphus* obtained in Kamtschatka by Dr. Dybowski as different from *marmoratus*, without determining the species. They probably belong here.

12. *Synthliboramphus antiquus* (GM.) (p. 23).

*Ptychoramphus aleuticus* (PALL.).

According to Lichtenstein's "Nomenclator Avium Musei Berolinensis" (1854), p. 105, the collection of the Berlin Museum contains a single specimen from "Kamtschatka." The locality needs confirmation, however.

13. *Simorhynchus pygmæus* (GM.) (p. 23).
14. *Simorhynchus cristatellus* (PALL.) (p. 32).
15. *Simorhynchus pusillus* (PALL.) (p. 35).
16. *Cerorhinca monocerata* (PALL.).

*Chimerina cornuta* DYBOW., Orn. Centrbl., 1882, p. 28.

17. *Cyclorhynchus pstittaculus* (PALL.) (p. 38).
18. *Lunda cirrhata* PALL. (p. 43).
19. *Fratercula corniculata* (NAUM.) (p. 59).

## LAROIDEÆ.

20. *Larus glaucescens* NAUM. (p. 62).
21. *Larus glaucus* BRÜNN.

TACZAN., B. S. Z. F., 1883, p. 341.

22. *Larus schistisagus* STEJN. (p. 67).

This is, in all probability, the bird which Taczanowski has recorded as "*Larus pelagicus* Bruch," a name which belongs to *L. dominicanus* as a synonym. It is also probably the same which Schlegel records from Kamtschatka as *L. occidentalis*, and Finsch (*Ibis*, 1879, p. III), as *L. affinis*.

? *Larus borealis* BRANDT.

TACZAN., B. S. Z. F., 1882, p. 397.

"Des Oiseaux et des œufs de l'île Behring." Probably *L. glaucescens* is meant; or else it is *L. cachinnans* with an erroneous locality, for this latter species does not breed on Bering Island.

23. *Larus cachinnans* PALL.

At the entrance to Avatcha Bay I observed a number of these birds during the latter part of September, 1883.

24. *Larus kamtschatchensis* (BP.) (p. 73).25. *Larus canus* LIN. (p. 76).26. *Larus ridibundus* LIN. (p. 76).*Rhodostethia rosea* (MACGILL.).

Two specimens in immature plumage are in the museum of Mayence, said to have come from Kamtschatka.

Mr. Howard Saunders gives a detailed account of them in the *Ibis* for 1875, pp. 484-487, but doubts the correctness of the statement as to the locality, as follows:

"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 Kamtschatka. 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 Birch 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 Kamtschatka, and that he 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 skeptical as to the locality, and continue to be so. It is true that another Arctic species (*Xema sabini*) 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 Kamtschatka 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."

Now that we know that Nordenskjöld's Vega expedition obtained a specimen on the northeastern coast of Siberia, and the Point Barrow party collected numerous specimens at that locality, the occurrence of stragglers of the species in question on the coast of Kamtschatka is not stranger than its accidental appearance in Yorkshire or in Heligoland.

27. *Rissa tridactyla pollicaris* STEJN. (p. 78).28. *Rissa brevirostris* (BRUCH) (p. 82).29. *Gavia alba* (GUNN.).

TACZAN., B. S. Z. F., p. 1883, 341.

30. *Sterna camtschatica* PALL. (p. 83).31. *Sterna paradisæa* BRÜNN. (p. 85).

?? *Sterna leucoptera* SCHINZ.

The statement of Pallas that this species (*St. fissipes*, Z. R. A., II, p. 338) "also occurs in Kamtschatka" is too vague to be accepted without confirmation.

32. *Stercorarius parasiticus* (LIN.) (p. 86).

33. *Stercorarius longicaudus* VIEILL. (p. 87).

### PROCELLAROIDEÆ.

34. *Diomedea albatrus* PALL. (p. 89).

35. ? *Diomedea nigripes* AUDUB.

TACZAN., B. S. Z. F., 1882, p. 398.

This species is enumerated with a query, since there is a probability that the bird recorded from "les rivages du Kamtschatka" is nothing but a young *D. albatrus*.

36. *Fulmarus glacialis glupischa* STEJN. (p. 91).

37. *Puffinus tenuirostris* (TEMM.) (p. 96).

? *Cœstrelata desolata* (GM.).

A specimen in the Leyden Museum is said by Bonaparte (*Consp. Av.*, II, p. 189) and Schlegel (*Mus. P. B. Procell.*, p. 13) to have come from Kamtschatka. Like similar statements it requires confirmation.

38. *Oceanodroma leucorhoa* (VIEILL.) (p. 97).

39. *Oceanodroma furcata* (GM.) (p. 98).

### SCOLOPACOIDEÆ.

40. *Hæmatopus osculans* (SWINH.) (p. 100).

41. *Arenaria interpres* (LIN.) (p. 102).

42. *Charadrius squatarola* (LIN.) (p. 103).

43. *Charadrius dominicus fulvus* (GM.) (p. 104).

44. *Ægialitis mongola* (PALL.) (p. 105).

45. *Gallinago gallinago* (LIN.) (p. 110).

46. *Gallinago hyemalis* (EWERSM.) ?

TACZAN., B. S. Z. F., 1883, p. 340.

47. *Arquatella couesi* (RIDGW.) (p. 112).

48. *Actodromas acuminatus* (HORSEF.) (p. 115).

49. *Actodromas damacensis* (HORSEF.) (p. 116).

50. *Actodromas ruficollis* (PALL.) (p. 118).

51. *Actodromas temminckii* (LEISL.) (p. 119).

52. *Pelidna alpina pacifica* (COUES) (p. 120).

*Tringa cinclus* MIDD., Isep. Russl., p. 125.

53. *Calidris arenaria* (LIN.) (p. 122).

54. *Limosa lapponica baueri* (NAUM.) (p. 122).

55. *Limosa ægocephala melanuroides* (GOULD).

*Limosa melanura* KITTL., Denkw., II, pp. 294, 314.—*L. melanuroides* TACZAN., B. S. Z. F., 1883, p. 340.—BOGDAN., C. A. I. R., I, p. 85.

56. *Pseudototanus guttifer* (NORDM.) (p. 124).



57. *Totanus nebularius* (GUNN.) (p. 128).  
 58. *Totanus ater* (SANDER) (p. 129).  
 59. *Totanus glareola* (LIN.) (p. 130).  
 60. *Pavoncella pugnax* (LIN.).

*Trynga pugnax* PALLAS, Z. R. A., II, p. 191:

"In Camtschatca raro apparent." Dybowski's hunter secured two specimens on Bering Island during the spring migration of 1883.

61. *Actitis hypoleucos* (LIN.) (p. 131).  
 62. *Terekia cinera* (GÜLD.) (p. 132).  
 63. *Heteractitis incanus* (GM.) (p. 132).  
 64. *Heteractitis brevipes* (VIEILL.) (p. 137).  
 65. *Numenius cyanopus* (VIEILL.).

*N. arguata* MIDD., Isep. Russl., p. 125.

*N. australis* SCHRENCK, R. Amurl., I, p. 433; BOGDAN., C. A. I. R., I, p. 82.

*N. tahitiensis* TACZAN., B. S. Z. F., 1832, p. 397, and 1883, p. 340.

66. *Numenius phæopus variegatus* (SCOP.) (p. 138).  
 67. *Phalaropus lobatus* (LIN.) (p. 139).  
 68. *Crymophilus fulicarius* (LIN.) (p. 140).

It may be added here that Merck observed this species, "circa Camtschatcam," according to Pallas (Z. R. A., II, p. 205).

#### GRUOIDEÆ.

69. *Grus grus orientalis* (BLYTH) ?

Steller (Beschr. Kamtsch., p. 142) speaks of the crane, and "*Grus vulgaris*" is said by Pallas (Z. R. A., II, p. 106) to have been observed in Kamtschatka during the migrations. The natives of Bering Island also told me of a bird, according to their description evidently a Crane, which is occasionally seen at the island. The specific name as given above is merely conjectural, of course.

#### ANATOIDEÆ.

70. *Anser segetum middendorffi* (SEVERZ.) (p. 141).

*A. s.* MIDD., Isep. Russl., p. 126.

Taczanowski mentions two species of Geese of this group from Kamtschatka: "*A. grandis* MIDD." and "*A. segetum* LIN." Probably both belong to the present species.

71. *Anser albifrons gambeli* (HARTL.) p. (145).

*A. a.* MIDD., Isep. Russl., p. 126.

72. *Chen hyperboreus* (PALL.).

*Anser h.* PALLAS, Z. R. A., II, p. 228:

"Rarissimi apparent in Camtschatca." During the early autumn of 1883 the native hunters on Bering Island observed what they called "Swans with black wings," probably individuals of this species,

73. *Branta canadensis hutchinsii* (RICH.) (p. 147).  
 "Anser pictus," KITTL., Denkw., II, p. 384, by the inhabitants called  
 "Bjeloscheika" (= white-throat), is probably this species.
74. *Branta nigricans* (LAWR.) (p. 149).
75. *Cygnopsis cygnoides* (PALL.).  
 PALLAS, Z. R. A., II, p. 219.—TACZAN., B. S. Z. F., 1883, p. 343.
76. *Olor cygnus* (LIN.) (p. 149).
77. *Olor columbianus* (ORD) (p. 150).
78. *Anas boschas* (LIN.) (p. 152).
79. *Dafila acuta* (LIN.) (p. 153).
80. *Nettion crecca* (LIN.) (p. 155).
81. *Querquedula querquedula* (LIN.) (p. 156).
82. *Eunetta falcata* (GEORGI) (p. 156).  
*Anas f.* MIDD., Isep. Russl., p. 126.
83. *Eunetta formosa* (GEORGI).  
 TACZAN., B. S. Z. F., 1883, p. 343.
84. *Mareca penelope* (LIN.) (p. 157).
85. *Mareca americana* (GM.) (p. 158).
86. *Spatula clypeata* (LIN.) (p. 159).
87. *Aythya fuligula* (LIN.) (p. 160).
88. *Aythya marila* (LIN.) (p. 160).  
 ?? *Aythya ferina* (LIN.).
- During the spring of 1883 a Duck was described to me by a Bering Island hunter as being exactly like the "Tschernick" (*A. marila*), but with red instead of black head. He had seen a pair in Kamennij Valley. They may have belonged to this species.
89. *Clangula clangula* (LIN.) (p. 163).
90. *Charitonetta albeola* (LIN.) (p. 166).
91. *Histrionicus histrionicus* (LIN.) (p. 166).
92. *Harelda hyemalis* (LIN.) (p. 169).
93. *Eniconetta stelleri* (PALL.) (p. 170).
94. *Somateria v-nigra* GRAY (p. 173).
95. *Somateria spectabilis* (LIN.).  
 STELLER, Beschf. Kamtsch., p. 188.—PALLAS, Z. R. A., II, p. 237.—TACZAN.,  
 B. S. Z. F., 1883, p. 344.
96. *Oidemia americana* (SW. & RICH.) (p. 174).
97. *Oidemia deglandi* BP. (p. 174).
98. *Merganser merganser* (LIN.) (p. 176).
99. *Merganser serrator* (LIN.) (p. 178).
100. *Mergus albellus* LIN. (p. 178).

### PHALACROCORACOIDEÆ.

101. *Phalacrocorax perspicillatus* PALL. (p. 180).
102. *Phalacrocorax urile* (GM.) (p. 181).
103. *Phalacrocorax pelagicus* PALL. (p. 187).  
 ?? *Phalacrocorax carbo* PALLAS.

Z. R. A., II, p. 297: "Vulgares usque in Camtschatcam." Perhaps the Japanese form may occur on the western shore near the southern extremity of the peninsula.

## TETRAONOIDEÆ.

104. *Urogallus parvirostris kamschaticus* (KITTL.) (p. 192).?? *Falcipennis falcipennis* (HARTL.).

Occasionally "Kamtschatka" is given as the habitat of this species. It seems not to occur there, however, and the statement is probably due to some earlier author who ignorantly supposed that all the countries surrounding the Okotsk Sea belonged to Kamtschatka. It must be remarked, however, that also Bogdanow (Consp. Av. Imp. Ross., I, p. 30) (1884) gives Kamtschatka as the habitat of this bird.

?? *Bonasa albigularis* BREWM.

Brehm, in Naumannia, 1855, p. 287, described it in the following words: "Bonasia albigularis, mento albo. Kamtschatkalis." In J. f. Orn., 1860, p. 393, is a statement that the specimen was originally brought from Kamtschatka by Tilesius. No one else has found the Hazel Grouse in Kamtschatka. The specimen may be from Siberia, though, and is possibly identical with Menzbier's *B. griseiventris*, in which case Brehm's name would have priority; even Pallas says, "in Camtschatca, Stellero observante, deest."

"Graue Rebhüner befinden sich allein um *Werchoi Ostrog*, doch sehr selten" (Steller, Besch. Kamtsch., p. 193.) Gray Partridges! May they not, perhaps, be one of the two mentioned?

105. *Lagopus lagopus* (LIN.) (p. 194).106. *Lagopus mutus* (MONTIN)?

TACZAN., B. S. Z. F., 1883, p. 338.—*L. alpinus* BOGDAN., C. A. I. R., I, p. 33.—DYB., B. S. Z. F., 1883, p. 368.

The Ptarmigan found in the mountains of the peninsula has not been satisfactorily determined. It would be no surprise if it should prove to be distinct. It is pretty safe to say, however, that it is not typical *mutus*.

107. *Lagopus ridgwayi* STEJN. (p. 194).

## ACCIPITROIDEÆ.

108. *Falco rusticolus* LIN. (p. 203).109. *Falco islandus* BRÜNN. (p. 204).110. *Falco pealei* RIDGW. (p. 206).111. *Falco peregrinus* TUNST. ?

TACZAN., B. S. Z. F., 1883, p. 330.

The description of an adult male given by Taczanowski seems to indicate *F. pealei*. The exact identification cannot be made without examining the specimen, and *F. peregrinus* is therefore retained with a query.

112. *Falco subbuteo* LIN.

PALLAS, Z. R. A., I, p. 332.—*Hypotriorchis s.* TACZAN., B. S. Z. F., 1882, p. 384.—DYB., *ibid.*, p. 352.

113. *Astur candidissimus* DYBOW.

*Accipiter astur* PALLAS, Z. R. A., I, p. 370.—*Astur palumaribus*, "weissliche Varietät," KITTL., Denkw., II, p. 344.—*A. atricapillus* "albino complete," TACZAN., B. S. Z. F., 1883, p. 332.—*Astur candidissimus* DYBOW., *ibid.*, p. 353.

Steller is the first author to mention the White Hawk: "Eine besondere Sorte weisser Habichte" (Besch. Kamtsch., p. 194).

? *Astur palumbarius* (LIN.).

Taczanowski (B. S. Z. F., 1883, p. 331), under the heading of *Astur atricapillus*, mentions having received a "young female from Bolszeithk [Bolscheretschk ?], differing from a female from Quebec, in similar plumage, by having the general color much clearer," &c. The identification of this specimen is extremely doubtful; it is probably only a young of *A. candidissimus*.

114. *Accipiter nisus* (LIN.).

TACZAN., B. S. Z. F., 1883, p. 332.—DYB., *ibid.*, p. 355.

115. *Archibuteo lagopus* (BRÜNN.) (p. 208).

116. *Aquila chrysaëtos* (LIN.).

*Aquila nobilis* PALLAS, Z. R. A., I, p. 341.—*A. ch.* TACZAN., B. S. Z. F., 1883, p. 329.—DYB., *ibid.*, p. 351.

? *Aquila clanga* PALLAS (Z. R. A., I, p. 351; "usque in Camtschatcam") is probably the same bird which Steller mentions as "*Naevia*" (Besch. Kamtsch., p. 193). But where refer it?

117. *Haliæetus leucocephalus* (LIN.) (p. 209).

118. *Haliæetus hypoleucus* RIDGW. (p. 213).

119. *Haliæetus albicilla* (LIN.) (p. 216).

*Aquila a.* MIDD., Isep. Russl., p. 123.

120. *Thalassoaetus pelagicus* (PALL.) (p. 217).

*Aquila p.* MIDD., Isep. Russl., p. 123.

121. *Pandion haliæetus* (LIN.) (p. 219).

*Falco h.* MIDD., Isep. Russl., p. 123.

### STRIGOIDEÆ.

122. *Asio otus* (LIN.).

*Otus vulgaris* TACZAN., B. S. Z. F., 1882, p. 385.

123. *Asio accipitrinus* (PALL.) (p. 220).

*Megascops scops* (LIN.).

*Scops kamtschatkensis* BP., Rev. et Mag. de Zool., 1854 (p. 543).

*Scops giu* SCOPOLI.—SHARPE, Brit. Mus. Cat., II, p. 47 (1875).

"A French specimen collected by Mr. Swainson is in the Cambridge Museum, and nearly equals in intensity the type of *Scops kamtschatkensis* in the Paris Museum. I carefully compared this with ordinary European examples, and can affirm with certainty that it is nothing but a more than ordinarily rufous *Scops giu*; no authority for its Kamtschatkan habitat exists beyond the assertion of the late M. Jules Verreaux.

"In the Paris Museum there is another specimen marked as from Kamtschatka, and absolutely identical with ordinary European specimens." (SHARPE, l. c. pp., 50, 51.)

The locality requires confirmation.

? *Ulula* sp.

*Stryx barbata* PALLAS, Z. R. A., I, p. 318.—"Stellero frequenter ad Lenam inque Camtschatca observata."

124. *Nyctea nyctea* (LIN.) (p. 221).

125. *Surnia ulula* (LIN.).

*Strix nisoria* KITTL., Denkw., II, p. 409.

*S. u.*, DALL. & BANNIST., Tr. Chicago Acad., I, 1869, p. 274.—TACZAN., B. S. Z. F., 1883, p. 332.—DYBOW., B. S. Z. F., 1883, p. 355.



The latter says that "ils ont les raies blanches caudales distinctement plus larges et d'une nuance plus pure," and Dall mentions a specimen from Petropaulski as "remarkably light colored." The Kamtschatkan bird may be subspecifically separable.

## CUCULOIDEÆ.

126. *Cuculus canorus telephonus* (HEINE). (p. 224.)

*C. c.* MIDD., Isep. Russl., p. 124.

127. *Cuculus peninsulæ* STEJN. (p. 227.)

## PICOIDEÆ.

?? *Dryocopus martius* (LIN.).

*Dryopicus martius* DYBOW., B. S. Z. F., 1883, p. 368.

No specimens obtained; only determined from the voice.

128. *Dryobates purus* STEJN. (p. 230.)

129. *Dryobates immaculatus* STEJN. (p. 231.)

? *Dryobates* sp.

*Picus cirris* PALLAS, Z. R. A., I, p. 410:

"Per omnem Rossiam et Sibiriam, usque in Camtschatcam abundat." Not confirmed by later explorers. When considering the greater or lesser probability of the occurrence of a form of *Dryobates leucotus* in Kamtschatka, it must be borne in mind that this species is represented in Japan, as are likewise the two other species of the genus inhabiting the peninsula.

130. *Picoides albidior* STEJN.

*Picus tridactylus* KITTL., Denkw., I, pp. 327, 329.

*Picoides crissolencus* TACZAN., B. S. Z. F., 1882, p. 396.

## MICROPODOIDEÆ.

131. *Micropus pacificus* Lath.?

*Cypselus*—KITTL., Denkw. I, p. 338.

? "*Cypselus pacificus* LATH.," DYBOW., B. S. Z. F., 1883, p. 356.

The species is only mentioned by Dybowski with a query and no further details. Kittlitz describes it as "etwa von der Grösse des *C. melba*, doch von meist dunkler Farbe des Unterleibes."

## PASSEROIDEÆ.

132. *Alauda blakistoni* STEJN. (p. 234.)

*A. arvensis* MIDD., Isep. Russl., p. 124.

133. *Nucifraga caryocatactes* (LIN.).

*Corvus caryocatactes* PALL., Z. R. A., I, p. 398.

*N. c.* KITTL., Denkw. I, p. 335.—TACZAN., B. S. Z. F., 1882, p. 392.

134. *Corvus corax* LIN.

*Corvus corax* PALL., Z. R. A., I, p. 380.—KITTL., Denkw., I, p. 313.

*Corvus corax kamtschaticus* DYBOW., B. S. Z. F., 1883, p. 362.

The difference of the present bird from the typical *corax* is not clearly stated by Dr. Dybowski.

135. *Corvus behringianus* (DYBOW.). (p. 237.)
136. *Corvus corone levaillantii* (LESS.). (p. 239.)
137. *Pica camtschatica* STEJN. (p. 241.)  
 ?? *Corvus glandarius* PALLAS.  
 Z. R. A., I, p. 394: "Dantur vero in Camtschatica australiore."  
 ?? *Cyanocitta stelleri* (GM.).  
 CAB., Mus. Hein., I, p. 221 (1851).
- The only specimen in the Museum Heineanum is given as coming from "*Kamtschatka*" (p. 222), but the locality is in all probability erroneous, as in many other instances in the same collection.
138. *Hypocentor aureolus* (PALL.) (p. 244.)  
*Emberiza a.* MIDD., Isep. Russl., p. 124.
139. *Hypocentor rusticus* (PALL.) (p. 246.)
140. *Hypocentor variabilis* (TEMM. & SCHL.) p. (247.)
141. *Emberiza schœniclus* (LIN.).  
*Schœnicola arundinacea* TACZAN., B. S. Z. F., 1882, p. 392.—DYB., *ibid.*, 1883, p. 364.
142. *Plectrophenax nivalis* (LIN.) (p. 248.)
143. *Calcarius lapponicus* (LIN.) (p. 250.)
144. *Acanthis linaria* (LIN.) (p. 252.)
145. *Acanthis linaria holbœllii* (BREHM.) (p. 256.)
146. *Acanthis hornemannii exilipes* (COUES) (p. 258.)
147. *Leucosticte brunneonucha* (BRANDT).  
*Fringilla b.* MIDD., Isep. Russl., p. 124.  
 KITTL., Denkw., I, p. 336.—TACZAN., B. S. Z. F., 1882, p. 393.—DYB., *ibid.*, 1883, p. 364.
148. *Leucosticte griseonucha* (BRANDT) (p. 261.)
149. *Fringilla montifringilla* (LIN.) (p. 264.)
150. *Chloris kawarahiba* (TEMM. & SCHL.) (p. 265.)
151. *Coccothraustes coccothraustes* (LIN.)?  
*Coccothraustes vulgaris* MIDD., Isep. Russl., p. 124.
- According to Middendorff this species was observed or collected (?) by Vossnessenski at the Kamtschatka River (57° N. Lat.), March 18, 1848 (old style, = March 30, new style). Has not been observed since.
152. *Pyrrhula pyrrhula kamtschatica* (TACZAN.).  
*Pyrrhula rubicilla* PALL., Z. R. A., II, p. 8.—KITTL., Denkw., I, p. 322.—P. k. TACZAN., B. S. Z. F., 1882, p. 395.—DYB., *ibid.*, 1883, p. 367.
153. *Carpodacus erythrinus grebnitskii* STEJN. (p. 265.)
154. *Pinicola enucleator* (LIN.).  
*Cf.* BONAP., Coll. Delattre, p. 20.  
*Loxia enucleator* KITTL., Denkw., I, p. 335.  
*Corythus enucleator* TACZAN., B. S. Z. F., 1882, p. 394.  
*Corythus enucleator kamtschatkensis* DYBOW., B. S. Z. F., 1883, p. 367.

Bright specimens have already been separated by v. Homeyer as *P. flammula*, but they hardly constitute a race.

155. *Loxia* sp. ?

*Loxia leucoptera* DYBOW., B. S. Z. F., 1883, p. 367.

*Loxia bifasciata* DYB. & TACZ., B. S. Z. F., 1884, extr. p. 2.

“Une femelle ou un jeune” (!) from Bering Island (Dyb.). The determination of the species is entirely unreliable. The only information as to the occurrence of a Cross-bill in Kamtschatka is furnished by Pallas, who, under *Loxia crucirostra* (Z. R. A., II, p. 4), says: “In Kamtschatca cum sylva deest hyeme tota gregaria apparet, voce et cantu rariore.”

156. *Clivicola riparia* (LIN.) (p. 267.)

*Hirundo r.* MIDD., Isep. Russl., p. 125.

157. *Chelidon tytleri* (JERDON) (p. 269.)

*Hirundo rustica (rufa)* MIDD., Isep. Russl., p. 125.

158. *Chelidon kamtschatica* (DYBOW.).

*Hirundo k.* DYBOW., B. S. Z. F., 1883, p. 356.

*Hirundo borealis* DYB. & TACZ., B. S. Z. F., 1884, extr. p. 7.

We have seen the type of this species, and are inclined to regard it as valid.

?? *Hirundo lagopoda* PALL.

“Ad Kamtschatcam usque,” says Pallas (Z. R. A., I, p. 533). Nothing definite is known, however, and the statement is very doubtful, though it may be remembered that it is said to occur at Gischiginsk.

159. *Ampelis garrulus* LIN.

*Bombycilla garrula* KITTL., Denkw., I, p. 338.—TACZAN., B. S. Z. F., 1882, p. 392.—DYB., *ibid.*, 1883, p. 368.

“La nuance des parties supérieures du corps est un peu plus claire que dans les Oiseaux d'Europe.” Taczan., l. c.

160. *Lanius cristatus* (LIN.?).

*Lanius phoenicurus* KITTL., Denkw., II, p. 313.—*Otomela ph.* DYB. & TACZ., B. S. Z. F., 1884, extr. pp. 2, 11.

*Otomela superciliosa* DYBOW., B. S. Z. F., 1883, p. 362.

161. *Lanius sibiricus* (BOGDAN.).

*Lanius major* TACZAN., B. S. Z. F., 1882, p. 392.—DYB., *ibid.*, 1883, p. 361.

162. *Butalis sibirica* (GM.) (p. 272.)163. *Erythrosterna albicilla* (PALL.) (p. 273.)164. *Anthus gustavi* SWINH. (p. 274.)165. *Anthus japonicus* (TEMM. & SCHL.).

*A. ludovicianus* KITTL., Denkw., II, pp. 340, 357, 385.

*A. j.* DYBOW., B. S. Z. F., 1883, p. 361.

?? *Anthus blakistoni* (SWINH.).

Given by Gray (Handl., I, p. 251) as occurring in Kamtschatka, but it is probably only *A. japonicus*.

166. *Anthus cervinus* (PALL.).

*Motacilla cervina* PALL., Z. R. A., I, p. 511.

*A. c.* DYBOW., B. S. Z. F., 1883, p. 361.

167. *Pipastes maculatus* (HOGDS.) (p. 278.)

*Anthus arboreus* MIDD., Isep. Russl., p. 124.

168. *Budytes flavus leucostriatus* (HOMEY.) (p. 280.)

?? *Budytes citreolus* (PALL.).

*Motacilla citrinella* PALLAS, Z. R. A., I, p. 503:

“Ex regionibus ad Lenam, Camtschatea et insulis versus Americam sparsis habui.”

This species is not now known east of the Jenisej. What species can Pallas have had?

169. *Motacilla melanope* PALL. (p. 283.)

170. *Motacilla ocularis* SWINH. (p. 284.)

171. *Motacilla lugens* KITTL. (p. 287.)

*M. alba* MIDD., Isep. Russl., p. 124.

*M. japonica* DYB. & TACZ., B. S. Z. F., 1884, extr. p. 11.

172. *Troglodytes pallescens* (RIDGW.) (p. 292.)

I cannot now lay hands on any reference of a Wren having been taken on the mainland of Kamtschatka, but I believe that I have seen such a record somewhere, unless it be the vague statement by Taczanowski, J. f. Orn., 1881, p. 180. The total absence of a species of this genus, which is represented both in the Kurils, and in the Commander Islands, would be very strange.

?? *Calamophilus sibiricus* BP.

BP., Compt. Rend., XLIII, 1856, p. 414.

“Au Kamtschatka vit une race particulière de Mésange des roseaux, pour le moins aussi distincte de la nôtre que les Mésanges du Japon le sont de leurs analogues européens.

“*Calamophilus sibiricus*, Bp., dilutissime cinamomeus, pileo rix cinereo. Fæm. fere unicolor, macula dorsali magna nigra; subtus candida.”

The locality is probably as unreliable as many others from the same source.

173. *Parus ater* LIN.

TACZAN., B. S. Z. F., 1882, p. 390.

“Deux individus ont la nuance roussâtre plus forte qu'à l'ordinaire sur le dessous du corps.” DYB., *ibid.*, 1883, p. 361.

174. *Parus kamtschatkensis* (BP.) (p. 297.)

175. *Ægithalos caudatus* (LIN.)?

*Mecistura caudata* TACZAN., B. S. Z. F., 1882, p. 392.—DYB., *ibid.*, 1883, p. 361.

The Long-tailed Tits from Kamtschatka probably belong to the Siberian race indicated by Mr. Seebohm.

176. *Sitta albifrons* TACZAN.

*Sitta uralensis* KITTL., Denkw., I, p. 321.

*S. albifrons* TACZAN., B. S. Z. F., 1882, p. 355.—DYB., *ibid.*, 1883, p. 357.

It should be remarked that Temminck's *Sitta sericea* (Man. d'Orn., 2 ed., IV, p. 645) is based in part upon a specimen from Kamtschatka.

?? *Cinclus pallasii* TEMM.

Schrenck (Reis. Amurl., I, p. 335) speaks of this species as occurring in Kamtschatka. The statement is wholly unconfirmed and probably incorrect. It is based



upon the statement of Pallas (R. A., Z. I., p. 424) that "*Sturnus cinclus*" "per omnem Rossiam et Sibiriam, in Camtschatcam. . . non infrequens observatur."

177. *Acrocephalus ochotensis* (MIDD.) (p. 299.)

178. *Locustella hendersonii* (CASS.) (p. 300.)

179. *Phylloseustes borealis* BLAS (p. 302.)

180. *Phylloseustes xanthodryas* (SWINH.) (p. 304.)

181. *Phylloseustes homeyeri* DYBOW.

DYBOW., B. S. Z. F., 1883, p. 358.

We have no means of ascertaining the status of this alleged species.

??? *Hylocichla aliciae* (BAIRD).

This species has been attributed to Kamtschatka by Mr. E. W. Nelson, but the statement is evidently based upon a mistake. Cf. my notes in "The Auk," 1884, p. 166.

182. *Turdus eunomus* TEMM. (p. 307.)

*Turdus pilaris*, "in Camtschatea, Stellero teste," Pallas, Z. R. A., I. p. 456, is evidently *T. eunomus*.

183. *Turdus obscurus* GM. (p. 307.)

*Turdus chrysolais* DYBOW., B. S. Z. F., 1883, p. 359.

? *Phœnicurus aureus* (PALL.).

*Motacilla phœnicurus* PALLAS, Z. R. A., I. p. 476:

"*Stellerus* etiam in Camtschatea et Curilis insulis dari prodidit" It is not improbable that this Red-start may occur towards the southern extremity of the peninsula.

184. *Ianthia cyanura* (PALL.) (p. 308.)

185. *Cyanecula suecica* (LIN.).

*C. œrulecula* DYBOW., B. S. Z. F., 1883, p. 359.

186. *Melodes calliope* (PALL.) (p. 309.)

*Sylvia c.* MIDD., Isep. Russl., p. 125.



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APPENDIX TO THE SYNOPSIS OF BIRDS REPORTED  
TO INHABIT KAMTSCHATKA.

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## APPENDIX TO THE SYNOPSIS OF BIRDS REPORTED TO INHABIT KAMTSCHATKA.

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While the foregoing list is going through the press I receive the "Liste des Oiseaux du Kamtschatka et des îles Comandores, par le Dr. B. Dybowski et L. Taczanowski" (Extr. du Bulletin de la Société Zoologique de France, t. IX, 1884), which necessitates some additional remarks on my part.

*Aquila nobilis* PALL. is given as distinct from *A. chrysaëtos*, and both as occurring in Kamtschatka.

"*Archibuteo lagopus ferrugineus*," is given as occurring on Bering Island against *A. lagopus* from Kamtschatka. As to the identity of the Bering Island bird, see this work, p. 208. *Archibuteo ferrugineus* is a perfectly good species from Western North America, south of Washington Territory, which not even the wildest trinomialist ever thought of uniting with *A. lagopus*. Indeed, to use Dr. Coues's words, it is "one of the handsomest and most distinctively marked hawks of North America, somewhat recalling *Buteo albocaudatus*." It is "pure white underneath, from bill to end of tail, the legs rich rufous or bright chestnut, barred with black, in marked contrast; usually a few chestnut bars or arrow-heads on the belly and flanks, and the breast with sharp shaft lines of black." Taczanowski says of his birds that "Ils ont tous l'abdomen largement brun, tout le devant des parties inférieures isabelle-roussâtre, varié de stries brunes," &c. It is unnecessary to remark that they have not the faintest relation to *A. ferrugineus*. Dybowski's and Taczanowski's misidentification is most extraordinary!

*Falco peregrinus*.—From the comparison with the bird from Bering Island (*Falco pealei*) it appears as if the Kamtschatkan bird might be the typical *peregrinus*.

*Astur palumbarius*.—The authors concede, as suggested by me on p. 320, that their *atricapillus* is only the young *candidissimus*.

*Asio otus* should be stricken out of the list. The authors state that it was "inscrit par erreur au lieu de l'*O. brachyotus*."

*Chelidon tytléri*.—The authors have treated of the two Kamtschatkan swallows in an extremely confused manner. After Mr. Taczanowski, in 1883 condemned *Hirundo saturata*, which the authors call "*Hirundo rustica, saturata* Smith." (distinguée récemment dans les publications de l'Institution Smithsonianne!!) as identical with *H. gutturalis*, the authors now go so far as to even separate it from the Baical form to which they apply the new term *H. baicalensis*. We now know that both are identical with *Ch. tytléri*. But the other form is treated of in a still more peculiar manner. In 1883 Dybowski described a swallow from Petropaulski as new under the name of *H. kamtschatica*. In the diagnosis he says: "Abdomen et sous-caudales blancs, les deux plus longues de ces dernières traversées par une large bande antéapicale noirâtre, avec un léger éclat d'acier." This form the authors now give as a synonym (Extr., p. 8) of *H. saturata*, which they describe as "Subtus intense rufa." But the very specimen (I do not think there exists in collections more specimens than the type which I have seen myself) is redescribed as *Hirundo borealis* ("pour cette forme qui paraît inédite"), as is evident from the diagnosis: "Subtus alba, subcaudalibus binis posterioribus fascia apicali nigra."

After this the synonymy of the two forms stands thus :

CHELIDON TYTLERI.

<i>Hirundo saturata</i>	}	Ridgway, Stejneger.
<i>Chelidon saturata</i>		
<i>Hirundo gutturalis</i>		Taczanowski.
<i>Hirundo rustica, saturata</i>	}	Dybowski et Taczanowski.
<i>Hirundo baicalensis</i>		
<i>Hirundo rustica, baicalensis</i>		

CHELIDON KAMTSCHATICA.

<i>Hirundo kamtschatica</i>	Dybowski.	
<i>Chelidon kamtschatica</i>	Stejneger.	
<i>Hirundo borealis</i>	}	Dybowski et Taczanowski.
<i>Hirundo rustica, borealis</i>		
<i>Hirundo rustica, kamtschatica</i>		

The authors assert that this form "n'est que de passage et se rend plus au nord pour le temps de la nidification." It may be permitted to ask from what source the authors have derived their knowledge as to where this bird breeds.

*Turdus chrysolais* is now dropped as a Kamtschatkan bird, the authors asserting that it "nous paraît être le jeune du *T. obscurus* Gm."

*Lagopus ridgwayi*.—Most curiously all references to a ptarmigan occurring on the islands have been dropped altogether.

33.1. *Stercorarius pomarinus*.—This species is given in the "Liste" (p. 3, No. 111) under the name of *Lestris pomarina*, as occurring in Kamtschatka and Bering Island. If the information is reliable, this constitutes a veritable addition to the number of Kamtschatkan species.

*Diomedea nigripes* "Audub." is now given as the only albatros from Kamtschatka and Bering Island. I need hardly add that the identification is entirely erroneous, but it proves that I was completely justified in the suspicion expressed by me above under No. 35 (p. 316).

78.1. *Chaulelasmus streperus*.—This species is given as obtained on Bering Island. It has probably been taken during the spring migration, 1883, while I was in Petropaulski.

*Merganser merganser*.—The authors identify the Kamtschatkan and Bering Island birds as "*Mergus merganser americanus*," saying, however, that "Le mâle adulte ne se distingue de celui de la forme européenne que par la couleur de l'abdomen, rosée au lieu de saumon, et par le vert brillant du sommet de la tête et du cou, remplacé par le violet." Compared with what has been said above of the two species (p. 176 *seqv.*) it is plain that Messrs. Dybowski and Taczanowski are entirely mistaken in their identification.

*Brachyramphus kittlitzii*.—The "*Brachyramphus* sp. ?" of the former lists has now been changed to "*Synthliborhynchus* sp. ?" (*Synthliborhynchus* sic!). What is it, after all, if it is not *B. kittlitzii*?

*Cerorhinca monocerata* has been dropped altogether, without good reason, as it seems.

The effect of this "Liste" upon the foregoing synopsis is as follows:

We have to eliminate Nos. 35 and 122, and to add *Stercorarius pomarinus* and *Chaulelasmus streperus*. The number of well authenticated birds is, therefore, still 186, as in my synopsis.





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III.—CONCLUSIONS.

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It is not my intention, in the present connection, to enter into a detailed discussion of the components of the ornis of the Commander Islands, referring such conclusions to a subsequent number of my "Contributions to the History of the Commander Islands," but a few remarks as to their position in relation to the peninsula may not be out of place here.

From the second part of this book, compared with the first table, given below, it is evident that the ornis of the islands is chiefly Kamtschatkan, since only eleven species have been taken on them which do not belong to the Kamtschatkan fauna. Of these eleven only five species are of American origin, of which three are merely accidental stragglers; three are Aleutian (one extinct), and three are peculiar to the islands.

The rest of the ornis is Kamtschatkan, although among the regular inhabitants the proportion between land and water birds is considerably different from what we find on the Kamtschatkan mainland, which is well wooded while the Commander Islands can hardly show a shrub 6 feet high. That an enumeration of the birds actually taken on the islands does not bring this difference out very strikingly is due to the fact that a great many land birds, especially during the migrations, are blown over to the islands across the not more than 100-mile wide strait which separates them from the peninsula.

In now turning our attention to the fauna of the peninsula itself, we will have to base our conclusions and calculations upon the list given in the second part of this book. Meager as it is, and uncertain as the status of many of the forms enumerated still are, it is thought of sufficient accuracy to allow certain more general conclusions to be made, which may serve as a base for future investigations.

In order to obtain a correct idea of the ornis of Kamtschatka it will be necessary first to eliminate from the above list certain species which do not properly belong to it. The Commander Islands, though zoologically a part of Kamtschatka, show a certain admixture of American forms on account of their neighborhood to the other Aleutian Islands, besides possessing forms peculiar to themselves. It would, therefore,

manifestly obscure the results were we to take into account those species which never have been observed on the peninsula proper, nor are likely ever to occur there except as accidental stragglers. These forms are contained in the following table, but it must be observed that it does not embrace all species which have only been recorded from the islands and not from the mainland, since such forms which have, probably, only been overlooked on the latter, especially Circumpolar, Palaæctic, Pacific, and East-Asiatic forms, may be regarded as truly Kamtschatkad.

TABLE I.—*Birds, American or peculiar to the Commander Islands, which do not occur in Kamtschatka.*

Heteractitis incanus.	Falco pealei.
Olor columbianus.	Haliaetus leucocephalus.
Mareca americana.	Corvus behringianus.
Charitonetta albeola.	Leucosticte griseonucha.
Phalacrocorax perspicillatus.	Troglodytes pallescens.
Lagopus ridgwayi.	

This virtually reduces the number of Kamtschatkan birds to 175.

Before entering into a discussion of their geographical distribution it may be well to show to which geographical categories the different species belong.

TABLE II.—*Circumpolar forms.*

Colymbus auritus.	Spatula clypeata.
Urinator adamsii.	Histrionicus histrionicus.
arcticus.	Harelda hyemalis.
lumme.	Eniconetta stelleri.
Larus glaucus.	Somateria spectabilis.
Gavia alba.	Merganser serrator.
Sterna paradisæa.	Lagopus lagopus.
Stercorarius parasiticus.	Falco rusticolus.
longicaudus.	islandus.
pomarinus.	Archibuteo lagopus.
Oceanodroma leucorhoa.	Aquila chrysaëtos.
Arenaria interpres.	Asio accipitrinus.
Charadrius squatarola.	Nyctea nyctea.
Calidris arenaria.	Plectrophenax nivalis.
Phalaropus lobatus.	Calcarius lapponicus.
Crymophilus fularicus.	Acanthis linaria.
Chen hyperboreus.	holbœllii.
Anas boschas.	Pinicola enucleator.
Dafila acuta.	Ampelis garrulus ?
Chaulelasmus streperus.	



TABLE III.—*Palaearctic forms.*

Larus canus.	Falco peregrinus†
ridibundus.	subbuteo.
Gallinago gallinago.	Accipiter nisus.
Actodromas temminckii.	Haliaeetus albicilla.
Totanus nebularius.	Pandion haliaetus.
ater.	Surnia ulula.
glareola.	Nucifraga caryocatactes.
Pavoncella pugnax.	Corvus corax.
Actitis hypoleucos.	Emberiza schœniclus†
Olor cygnus.	Fringilla montifringilla.
Nettion crecca.	Coccothraustes coccothraustes†
Querquedula querquedula.	Loxia, sp.
Mareca penelope.	Clivicola riparia.
Aythya fuligula.	Anthus cervinus.
marila.	Motacilla melanope†
Clangula clangula.	Parus ater†
Merganser merganser.	Ægithalos caudatus†
Mergus albellus.	Cyanecula suecica.
Lagopus mutus †	

TABLE IV.—*Pacific forms.*

Uria lomvia arra.	Larus glaucescens.
troile californica.	schistisagus.
Cepphus columba.	cachinnans.
carbo.	kantschatkensis.
Brachyramphus marmoratus.	Rissa tridactyla pollicaris.
kittlitzii.	brevirostris.
Synthliboramphus antiquus.	Diomedea albatrus.
Simorhynchus pygmaeus.	Fulmarus glacialis glupischa.
crystalellus.	Puffinus tenuirostris.
pusillus.	Oceanodroma furcata.
Cerorhinca monocerata.	Arquatella couesi.
Cyclorhynchus psittaculus.	Somateria v-nigra.
Lunda cirrhata.	Phalacrocorax urile.
Fratercula corniculata.	pelagicus.

TABLE V.—*American forms.*

Colymbus holboëllii.	Branta nigricans.
Pelidna alpina pacifica.	Oidemia americana.
Anser albifrons gambeli.	deglandi.
Branta canadensis hutchinsii.	Acanthis hornemannii exilipes.

TABLE VI.—*Siberian forms.\**

Charadrius dominicus fulvus.	Hypocentor rusticus.
Ægialitis mongola.	Lanius sibiricus.
Gallinago hyemalis †	Anthus gustavi.
Terekia cinerea.	Phylloseustes borealis.
Hypocentor aureolus.	

\* By "Siberian forms" are meant species inhabiting the whole portion of the Palaearctic region east of the Ural Mountains, besides a few forms which have pushed their outposts farther west, toward the Baltic, but without reaching the Atlantic Ocean.

TABLE VII.—*East Asiatic\* or peculiar forms.*

<i>Sterna camtschatica.</i>	<i>Corvus corone lavallantii.</i>
<i>Hæmatopus osculans.</i>	<i>Pica camtschatica.</i>
<i>Actodromas acuminatus.</i>	<i>Hypocentor variabilis.</i>
<i>damacensis.</i>	<i>Leucosticte brunneonucha.</i>
<i>ruficollis.</i>	<i>Chloris kawarabiba.</i>
<i>Limosa lapponica baueri.</i>	<i>Pyrhula pyrhhula kamtschatkensis.</i>
<i>ægocephala melanuroides.</i>	<i>Carpodacus erythrinus grebnitskii.</i>
<i>Pseudototanus guttifer.</i>	<i>Chelidon tyleri.</i>
<i>Heteractitis brevipes.</i>	<i>kamtschatica.</i>
<i>Numenius cyauopus.</i>	<i>Lanius cristatus.</i>
<i>phæopus variegatus.</i>	<i>Butalis sibirica.</i>
<i>Grus grus orientalis</i> †	<i>Erythrosterina albicilla.</i>
<i>Anser segetus middendorffi.</i>	<i>Anthus japonicus.</i>
<i>Cygnopsis cygnoides.</i>	<i>Pipastes maculatus.</i>
<i>Eunetta falcata.</i>	<i>Budytes flavus leucostriatus.</i> †
<i>formosa.</i>	<i>Motacilla ocularis.</i>
<i>Urogallus parvirostris kamtschaticus.</i>	<i>lugens.</i>
<i>Astur candidissimus.</i>	<i>Parus kamtschatkensis.</i>
<i>Haliæctus hypoleucus.</i>	<i>Sitta albifrons.</i>
<i>Thalassoaëtus pelagicus.</i>	<i>Acrocephalus ochotensis.</i>
<i>Cuculus canorus telephonus.</i>	<i>Locustella hendersoni.</i>
<i>peninsulæ.</i>	<i>Phyllopeustes xanthodryas.</i>
<i>Dryobates purus.</i>	<i>homeyeri.</i>
<i>immaculatus.</i>	<i>Turdus ennomus.</i>
<i>Picoides albidior.</i>	<i>obscurus.</i>
<i>Micropus pacificus</i> †	<i>Ianthia cyanura.</i>
<i>Alauda blackistoni.</i>	<i>Melodes calliope.</i>

The number of species of each group and their percentage, as compared with the total number of Kamtschatkan birds, 175, may be tabulated thus:

TABLE VIII.

39 species are <i>Circumpolar</i> , or about.....	22.3 per cent.
37 species are <i>Palæarctic</i> , or about .....	21.1 per cent.
23 species are <i>Pacific</i> , or about .....	16. per cent.
8 species are <i>American</i> , or about.....	4.6 per cent.
9 species are <i>Siberian</i> , or about.....	5.1 per cent.
54 species are <i>East Asiatic or peculiar</i> , or about.....	30.9 per cent.

This includes all the birds which are supposed to have been obtained in Kamtschatka. The ornithology of a country does not properly consist of all these, as in most cases a considerable number of occasional and ac-

\*Such forms are regarded as East Asiatic which, ordinarily, do not occur west of the Jenisej River.

†This form, belonging to an exclusively Palæarctic group of birds, is here treated as Asiatic, notwithstanding the fact that a small colony breeds in Northern Alaska.

cidental visitors enter the faunal lists, which, strictly, should be kept aside as foreign elements. The list of Kamtschatkan birds, however, appears to embrace but very few forms which do not occur regularly in one or the other part of the peninsula. There are apparently four causes of this peculiarity of the list, the first being that comparatively few irregular visitors find their way to it on account of its isolated position; second, that no general migration route between countries to the north and south seems to pass through the region; third, that the extreme districts which adjoin neighboring regions are entirely unexplored; and fourth, that, since Steller's time, no ornithologist who was a hunter himself has resided in the country for more than a few months. In thickly settled countries, where all the common birds are known, every unusual and rare visitor is soon found out and reported (cf. 165 occasional visitors, against 211 regular inhabitants of the British ornithology); but not so in Kamtschatka, where the 175 names may practically be regarded as representing the number of species actually belonging to the fauna.

But not all of these throw particular light upon the relationship of the ornithology, except in a general way. Many forms are so generally distributed over large areas and show so little variation that they are less fit to illustrate those features of the geographical distribution, which are of special interest. Others again are so closely limited in their distribution by the character of the localities they inhabit as to give very unreliable material for comparison. This is eminently true of many water birds, a great many of which in their distribution characterize the faunal areas of the ocean and not those of the land. They will therefore have to be considered separately. It will be seen that in this case, at least, the habits have a considerable influence upon the geographical distribution; the old-fashioned system, chiefly based upon teleological characters, may therefore, in this connection, offer some advantages over those aiming at morphological characters for their basis. For this purpose we shall partly apply a division of the birds into "swimmers," "waders," "game birds," "birds of prey," "picarions," and "perchers," in the old sense of these appellations, a course which, in some measure, will facilitate a comparison of some of the results here arrived at with those of earlier writers.

The old observation that the proportional number of species of water birds (swimmers and waders) increases toward the Arctic region is confirmed by the following table, which shows that of all the birds oc-

curring in Kamtschatka the species of water birds are more numerous than those of the other divisions together :

TABLE IX.

70 swimmers, or.....	40. per cent.
29 waders, or about.....	16.6 per cent.
3 game birds, or about.....	1.7 per cent.
15 birds of prey, or about.....	8.6 per cent.
6 picarians, or about.....	3.4 per cent.
52 perchers, or about.....	29.7 per cent.

Recalling what we said above in regard to the peculiarity of birds living at the sea characterizing the marine regions rather than the terrestrial provinces of the earth, we at once direct our attention to the 70 species of Kamtschatkan "swimmers" or "*natatores*" of some systematists.

The swimmers are divisible into two categories, marine and fluviatile *natatores*, the former group being, of course, the one of interest in the present connection. It embraces the following species:

TABLE X.—*Kamtschatkan Marine Natatores.*

1. <i>Uria lomvia arra.</i>	18. <i>cachinnans.</i>
2. <i>troile californica.</i>	19. <i>kamtschatkensis.</i>
3. <i>Cephus columba.</i>	20. <i>canus.</i>
4. <i>carbo.</i>	21. <i>Rissa tridactyla pollicaris.</i>
5. <i>Brachyramphus marmoratus.</i>	22. <i>brevirostris.</i>
6. <i>kittlitzii.</i>	23. <i>Gavia alba.</i>
7. <i>Synthliboramphus antiquus.</i>	24. <i>Stercorarius pomarinus.</i>
8. <i>Simorhynchus pygmæus.</i>	25. <i>Diomedea albatrus.</i>
9. <i>crystalinus.</i>	26. <i>Fulmarus glacialis glupischa.</i>
10. <i>pusillus.</i>	27. <i>Puffinus tenuirostris.</i>
11. <i>Cerorhinca monocerata.</i>	28. <i>Oceanodroma leucorhoa.</i>
12. <i>Cyclorhynchus psittaculus.</i>	29. <i>furcata.</i>
13. <i>Lunda cirrhata.</i>	30. <i>Eniconetta stelleri.</i>
14. <i>Fratercula corniculata.</i>	31. <i>Somateria v-nigra.</i>
15. <i>Larus glaucescens.</i>	32. <i>spectabilis.</i>
16. <i>glaucus.</i>	33. <i>Phalacrocorax urile.</i>
17. <i>Larus schistisagus.</i>	34. <i>pelagicus.</i>

Of these thirty-four species there are only two, viz, *Cephus carbo* and *Larus kamtschatkensis*, which have not been observed on both sides of the Pacific Ocean. The peculiar character of these birds is furthermore evident from the fact that most of them are exclusively Pacific in their distribution, only seven species, viz,

<i>Larus glaucus,</i>	<i>Oceanodroma leucorhoa,</i>
<i>canus,</i>	<i>Eniconetta stelleri,</i> and
<i>Cavia alba.</i>	<i>Somateria spectabilis,</i>
<i>Stercorarius pomarinus.</i>	

being inhabitants of the Atlantic shores too. In other words, about



80 per cent. of the marine natatores are peculiar to the Pacific. Even more striking, perhaps, is the proportion of the genera, since of twenty genera not less than six, or 30 per cent., are peculiar.

Not less remarkable is the fact that nearly all the Pacific forms are to be found among the marine natatores, since of the one hundred and forty-two species which belong to other categories only one, viz, *Arquatella couesi*, a wader, can be designated as strictly and exclusively Pacific.

If we now look at the remaining swimmers, fluviatile and fluvio-marine, we will find that the great majority of them, or 70 per cent., are Circumpolar or Palæartic, only the following eleven species being exceptions:

TABLE XI.—*Fluviatile Natatores not Circumpolar nor Palæartic.*

Colymbus holbœllii.	Cygnopsis cygnoides.
Sterna camtschatica.	Eunetta falcata.
Anser segetum middendorffi.	formosa.
albifrons gambeli.	Oidemia americana.
Branta canadensis hutchinsii.	deglandi.
nigricans.	

Of these more than one-half (six) are species which are also generally distributed in America. While, therefore, these forms indicate a certain influence of that continent, the character and real insignificance of this influence is manifested by the fact that in the other divisions only two species are American, viz, one wader and one percher, *Pelidna alpina pacifica* and *Acanthis hornemannii exilipes*. The number of American forms is surprisingly small indeed.

While thus the American element is smaller than might, perhaps, be expected, the Circumpolar and Palæartic forms are quite predominant, as a matter of course, making not less than 43.4 per cent. of the whole number of species, or nearly 52.5 per cent. of all the species, minus those of the water birds which are peculiarly Pacific. (Table IV.)

Table XII is prepared to show at a glance the number and percentage of the species of each division as contained in the different ornithogeographical categories.

TABLE XII.

	Swimmers.		Waders.		Game birds.		Birds of prey.		Picarians.		Perchers.		Total number.	Per cent. of 175 species.
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.		
Circumpolar .....	21	30.	5	17.	1	33.3	6	40.	0	0.	6	11.5	39	22.3
Palearctic .....	11	15.7	7	24.	1	33.3	6	40.	0	0.	12	23.1	37	21.1
Pacific .....	27	38.6	1	3.5	0	0.	0	0.	0	0.	0	0.	23	16.
American .....	6	8.6	1	3.5	0	0.	0	0.	0	0.	1	2.	8	4.6
Siberian .....	0	0.	4	14.	0	0.	0	0.	0	0.	5	9.6	9	5.1
East Asiatic or peculiar	5	7.1	11	38.	1	33.3	3	20.	6	100.	28	53.8	54	30.9
Total number.....	70		29		3		15		6		52		175	

The preponderance of East Asiatic and peculiar forms, both on the whole, and especially in those groups which are of most value for the study of the geographical distribution, is clearly demonstrated by this table. We are, therefore, justified in taking the birds contained in this category as a basis in attempting an analysis of the Kamtschatkan ornis, and a comparison of it with that of adjacent countries.

Referring to Table VII, page 338, for an enumeration of the species, the geographical relations of which we are going to discuss here, we may at once tabulate those forms which we regard as peculiar to the peninsula.

TABLE XIII.—*Species peculiar to Kamtschatka.*

Urogallus parvirostris kamtschaticus.	Picoides albidior.
Astur candidissimus.	Pica camtschatica.
Haliaeetus hypoleucus.	Pyrrhula pyrrhula kamtschatkensis.
Dryobates purus.	Parus kamtschatkensis.
immaculatus.	Sitta albifrons.

It will be seen that this enumeration only comprises residents and none of the several migratory birds which have not yet been reported from any other country, or which breed nowhere except in Kamtschatka. Some one might urge that a species which only breeds in Kamtschatka is peculiar to that country. This is true to a certain degree, but our knowledge of the localities where many or most of the species in question breed, or do not breed, is at present so imperfect as to make the above selection advisable.

The other residents (the exact number of which, as compared with that of the migrants, cannot be ascertained at present), are nearly all Circumpolar or Palearctic species of wide distribution. Most of these are species which retain a great uniformity all over their enormous range, except a few ones, for instance, *Coccothraustes*, *Parus ater*, *Ægy-*

*thalos caudatus*, and *Lagopus muta*, which we suspect to be really distinguishable, not having had the opportunity of a personal inspection of specimens.

All the peculiar forms attributed to Kamtschatka, according to Table XIII, are very closely related to Palæarctic forms, with the exception of *Halicæetus hypoleucus*, the status of which is somewhat doubtful, so as to justify us in excluding it from the present discussion. But these forms belong to a class quite different from those mentioned above, being, as they are, of considerable variability, so as to possess representative conspecies or subspecies in the different provinces of the Palæarctic region.\*

We have therefore simply found what we, *a priori*, might have expected, viz, that those variable forms which in other countries have been modified, more or less, would show corresponding modifications when occurring in a country of so peculiar a character and so great isolation as the Kamtschatka Peninsula.

The character and amount of this modification is remarkable in several respects. In every instance it consists in an increase of the white color as compared with the nearest allied forms. In fact, *all the peculiarly Kamtschatkan birds possess a greater amount of white than any of their allies, wherever these may reside*. So extreme is this tendency towards whiteness that one species, *Astur candidissimus*, has become entirely white, while another, *Parus kamtschatkensis*, is nearly so.

The example of the Kamtschatkan ornithology shows conclusively that the theory of climatic conditions producing the geographical subspecies, races, or whatever they may be styled, does not hold good, at least as far as the increase of the white color at the cost of the others, especially of black, is concerned. It was already recognized long ago, as far back as Gloger's earliest days, that the Siberian ornithology generally showed a tendency toward an increase of the white color. A similar tendency seemed to obtain in forms living nearer the Arctic, and consequently it was concluded that the white color was due to the increased cold. Finding now that the peculiar Kamtschatkan forms are considerably whiter than in any other part of Siberia, the natural inference would be that Kamtschatka had a climate much severer than any other place. Since we know that such is not the case, however, the logical conclusion is that the theory of the cold being the direct cause of the increase

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\* It is interesting to remark in this connection, that all the peculiar forms (with the above exception) have nearly allied representatives in Northwestern Europe.

of the white color must be erroneous. Nor can it be the northerly position, for these white forms are found at 53° north latitude. The peculiarities of a continental climate will not suffice for an explanation, since Kamtschatka is a peninsula surrounded by great sheets of water on nearly all sides.

It may be well to remark that this increase of white is not in the nature of a bleaching or fading of the darker color. They are simply replaced by pure white, and the parts of the body which in the allied forms are white have this color still purer and more dazzling in the Kamtschatkan forms. In the same manner the other colors seem to be purer and, in many instances at least, to be more intense also. The color which seems to suffer most reduction is the black one, but, as remarked, it is only in extent, not in intensity. Without offering any theory for the solution of the question, at present, I would only call attention to the fact that, while the black color of the feathers is due to a pigment, the white color is not, it being caused by the accumulation of colorless air-filled cells. In respect to the changes within the individual feathers we know as yet next to nothing; and not until it has been ascertained what are the causes and the nature of the changes in the individual feather, can a trustworthy theory be advanced concerning the modifications of the color in the species generally.

As already indicated, the rest of the resident species are widely distributed Circumpolar and North-Palaearctic forms which consequently occur in the neighboring countries as well, and therefore are of little interest in the present connection. A few words only need be said about three of these species. The Raven of Kamtschatka has been separated as peculiar under the name of *Corvus corax kamtschaticus*. Not having seen specimens we are unable to appreciate the alleged differences from the common stock. This may be our fault, or that of the description, but we should not be surprised if the race ultimately should prove to be valid, and only remark that the Raven has not yet been found in Japan proper, specimens having only been obtained in the Kuril Islands. The other species worthy of a few remarks is *Leucosticte brunneonucha*. A bird which has been called by that name is well known from Japan, and the National Museum possesses specimens from Vladivostok, on the Asiatic mainland, on the opposite side of the Japan Sea. It is reported from the Kuril Islands, and also from the eastern coast of the Kamtschatkan Peninsula. The genus *Leucosticte* is Asiatic and American in its distribution, and most of the species show a great



tendency to split up into geographical subspecies or races. We have not had an opportunity of comparing Kamtschatkan specimens with those from more southern localities, and shall therefore abstain from any further remarks beyond calling attention to the importance of having a very careful and minute comparison made, and to the fact that Pallas's "*Passer arctous* var.  $\beta$ , 1" from the Kurils, has not been rediscovered yet. The third species alluded to is *Surnia ulula*, which is not known from Japan. Descriptions of Kamtschatkan specimens indicate some differences, chiefly increased amount of the white color, which may ultimately secure for them recognition as a race.

When now directing our attention to the migratory summer visitors, their distribution and their migration routes, we sadly miss satisfactory information as to the ornithology to the north and east of Kamtschatka. Several travelers have collected on the western and northern shores of the Okotsk Sea; but, in the first place, they remained only a short time in a few localities, and there is no special list from that region with sufficient details concerning localities, &c. Still worse is the fact that what scanty information we have is next to worthless. Middendorff and v. Schrenck are the chief collectors in that region, but, unfortunately, they are also the chief sinners in "lumping" allied forms, so that for the solution of questions of this character it is impossible to tell with certainty which forms they had before them, except perhaps in a few cases (cf. later on in regard to the Swallows, p. 347). No example could more strikingly illustrate the deplorable results of that kind of science, and none could more forcibly demonstrate the necessity of those nicer distinctions which ornithologists of the other school, with becoming toleration, have styled "hair-splitting."

Fortunately, the ornithology of the country to the south of Kamtschatka is in a better condition, thanks to Capt. Thomas Blakiston's more than twenty years of intelligent collecting and study in Japan. The Kuril Islands, it is true, are still very little known, but also from there we have, through Mr. Blakiston, received much valuable information.

As a matter of course, most of the summer visitors to Kamtschatka occur also in Japan, either breeding, transient, or wintering, and when the specimens from the two countries are absolutely identical it may be safe to assume that the Kamtschatkan birds migrate southward directly to Japan along a route following the Kuril chain of islands. There are, however, a number of species regularly occurring in Kamtschatka as summer visitors which do not pass through Japan on their

way southward. Once in a while a single straggler is likely to be captured in the latter country, but they do not occur there regularly twice a year when going south and north. Nor will the assumption of insufficient observations help us explain the absence of these species from the Japanese fauna, several of the forms being so conspicuous that it is absolutely impossible they could have been overlooked if regularly passing through, as will be seen by an inspection of the table. A few forms, nearly related to species breeding in Japan, may, perhaps, have been overlooked in the latter country, and are therefore in the table indicated by a ? in front of the name.

TABLE XIV.—*Summer visitors to Kamtschatka which do not pass through Japan on their way southward or northward.*

<i>Sterna paradisæa.</i>	? <i>Chelidon kamtschatica.</i>
? <i>Actodromas temminckii.</i>	<i>Lanius cristatus</i> (?)
<i>Pseudototanus guttifer.</i>	<i>Erythrosterina albicilla.</i>
<i>Pavonella pugnax.</i>	<i>Anthus gustavi.</i>
? <i>Cuculus peninsule.</i>	<i>Budytes flavus leucostriatus.</i>
<i>Calcaurus lapponicus.</i>	? <i>Phyllopsenstes homeyeri.</i>
<i>Carpodacus erythrinus grebnitskii.</i>	<i>Cyanecula suecica</i>
<i>Chelidon tytleri.</i>	

It is doubtful whether *Butalis sibirica* should not be included in this list, as it does not seem to be common in Japan. As it has been taken there, however, it has been thought safer to exclude it.

From the above list is also omitted *Emberiza schæniclus*, since we do not know the exact status of the Kamtschatkan birds. Taczanowski assures us that they are typical, but we are nevertheless by no means certain that they do not belong to the form occurring in Japan.

The migration route over the Kuril Islands and Japan seems to be so natural that it is greatly perplexing to find that it is not the only one for all the birds of Southern Kamtschatka going south in autumn and returning north in spring again. But while we are forced to admit that they take another way, the fact is an additional evidence in favor of the theory of comparatively narrow and limited routes.

It is at present impossible to fix the direction of this migration route in general, and we shall indulge in no guess-work.

One species, however, may perhaps be traced part of the way, and may therefore merit detailed consideration, since its history seems to contain some valuable hints. We refer here to *Chelidon tytleri*, which is known from Kamtschatka, Dauria, and India. Messrs. Middendorff

and v. Schrenck usually mix such forms together under one name which we regard as species or subspecies worthy of separate names (*cf.* also the remarks above, on p. 345). So also in the present case, as the eastern *Chelidones* are lumped together as *Hirundo rustica* var. *rufa*. Usually it is nearly impossible to extricate the observations belonging to the different forms, but in this case the difference between *Ch. gutturalis* and *Ch. tytleri* was too great for even v. Schrenck to ignore altogether, though he by no means suspects them of being separable, much less understands the importance of keeping them separate\*.

Fortunately his remarks enable us to decide which forms he and Middendorff collected at two very important localities. Speaking of the "*Hirundo rustica* var. *rufa*," which he found throughout the Amur Valley (Reise Amurl. I, p. 387), he observes that it was "much paler than the old male among Middendorff's specimens from Udschij Ostrog, and only slightly darker than the old male of the European Barn Swallow. \* \* \* The black band of the fore neck is only narrow and contains some rusty brown spots."†

This description is quite sufficient for identifying the Amur Valley bird as *Ch. gutturalis*, while on the other hand, the remark plainly shows that the bird Middendorff collected at Udschij Ostrog, at the mouth of the Uda Valley, is *Chelidon tytleri*. This determination is extremely interesting since the valleys of the two rivers Amur and Uda are close together, only being separated by the Bureja Mountains, but the direction of the Amur and Ussuri is southern, while Uda comes from the west. The Stanovoj Mountains, which until this point run close to the shore of the Okotsk Sea, make here a sudden bend to the westward, leading over to Dauria and Transbaikalia. According to Middendorff (Isepiptesen Russl., p. 125) Vossnessenski met "*Hirundo rustica* var. *rufa*" at Ajan. We also know that *Ch. tytleri* is common on the western coast

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\*That v. Schrenck writing as he did, before the theory of evolution was fairly developed and understood, and before the recent theories of the bird migration, which are so closely connected with the former, had been conceived, is perhaps not so very surprising. That Taczanowski, however, still, in 1883, refuses to recognize the difference between *gutturalis* and *tytleri* (= *saturata*) (*cf.* his foot-note on p. 356, Bull. Soc. Zool. France, 1883, in regard to the latter form), and fails to see the necessity of tracing the geographical distribution of each one separately, is a matter both of surprise and regret.

† "Viel blässer als das alte Männchen unter den Middendorffschen Exemplaren von Udschij Ostrog, und nur wenig dunkler als das alte Männchen der europäischen Rauchschwalbe. \* \* \* Das schwarze Band der Kropfgegend ist nur schmal und trägt einige rostbraune Flecke."

of Kamtschatka. We know that it does not travel southward over the Kuril Islands and Japan. It seems, then, a pretty safe conclusion, that the Swallow, at least, crosses the Okotsk Sea from some point on the western coast of Kamtschatka, and that when arriving on the opposite coast of the Okotsk Sea it meets the Stanovoj Mountains, it follows the eastern slope of that range southward, turning westward at Udskij Ostrog where the mountains also turn westward.

I have remarked above that this case may offer a hint as to how the other species migrate, which do not pass over Japan. I do not mean to say, however, that the other species probably follow exactly the same route; in fact, I do not intend to propose any theory as to them, since what we know about them is too fragmentary. To illustrate this I may mention *Carpodacus erythrinus grebnitskii*. Middendorff met it at Udskij Ostrog and v. Schrenck in the Amur Valley. But as the species breeds there, it is—with our present knowledge—impossible to say whether the Kamtschatkan individuals migrate along the Uda only, or if they also go by the Amur route. If only the Amur birds had a single character of their own, no matter how slight, no matter how keen and trained the eye of the expert must be to discover it, what an advantage! And still there are people who call the search for such fine distinctions “hair-splitting!” Could we possibly get more forcible examples to illustrate the absolute necessity of diligently practicing this noble art of “hair-splitting” than the above ones of *Chelidon tytleri* and *Carpodacus grebnitskii*?

To the north, or rather the northeast of Kamtschatka, lies a country larger than Great Britain, which is totally unknown, at least as far as its birds are concerned. Roughly speaking, it is situated between 60° and 66° north latitude, and between 195° and 180° west longitude, being the whole river area of the Anadir and its numerous tributaries. Although bordered to the northwest by the northern arm of the Stanovoj Mountains, this vast area is undoubtedly inhabited by a considerable number of Siberian forms of migratory birds, but as we know absolutely nothing of the ornis of the region its relation to that of Kamtschatka can only be guessed at.

Still further to the northeast is the Tschuktschi Peninsula, the ornithology of which is a little better known. We have scattered notes by the many travelers who stopped a few days in Plover Bay. Norden-skiöld, wintering at Pitlekaj, has furnished valuable observations cover-



ing nearly a year. Finally the Russian Transit-of-Venus Expedition brought home a few species of birds from Tschukotskij Noss.

Scanty as this material is, both on account of the limited extent of the explorations and the northern situation of the country (64 to 67° north latitude), it is better than nothing, and will suffice for some interesting observations. It will be necessary first to give a list of the summer visitors of that region, which are of importance in the present connection. We have, consequently, left out all the strictly American forms which in summer visit the Tschuktschi Peninsula.

TABLE XV.—*Palæarctic Summer Visitors (Land Birds and Fluvialile Waders) known to occur on the Tschuktschi Peninsula.*

Arenaria interpres.	Anthus gustavi.
Charadrius squatarola.	japonicus (†)
dominicus fulvus.	cervinus.
Ægialitis hiaticula (†)	Budytes flavus leucostriatus.
Eurynorhynchus pygmæus.	Motacilla ocularis.
Eudromias morinellus.	Phyllopeustes borealis.
Actodromas acuminatus.	Turdus iliacus (†)
temminckii.	naumanni (†)
Pelidna ferruginea.*	Saxicola œnanthe.
Calcarius lapponicus.	

In spite of the meagerness of this list, it confronts us at once with the very important fact that it contains a number of species which have not yet been obtained in Kamtschatka, and most of which, probably, do not occur there regularly, viz :

Ægialitis hiaticula (†)	Motacilla ocularis.
Eudromias morinellus.	Turdus iliacus (†)
Pelidna ferruginea.	naumanni.
Eurynorhynchus pygmæus.	Saxicola œnanthe.

In this connection I wish to recall what I have said previously in this work (p. 283 and p. 303) in regard to *Budytes leucostriatus* and *Phyllopeustes borealis*, viz, that there seems to be a slight difference between the stock inhabiting Alaska (and the opposite shore of Asia) and the one which passes the summer in Kamtschatka, indicating that the former never touches the latter country during their migrations.

\* = *Tringa subarquata* GÜLDENST. Brünnich's name has the priority as will be seen from the following list of the chief synonyms :

1764.—*Tringa ferruginea* BRÜNN., Orn. Bor., p. 53.

1775.—*Tringa subarquata* GÜLD., Nov. Comm., Petrop., XIX (p. 471, pl. 18).

1809.—*Numenius pygmeus* BECHST., Naturg. Deutschl., IV, p. 148.

1826.—*Trynga falcinella* PALL., Zoogr. Ross. As., II, p. 188.

We know for certain that none of the above species migrate southward along the American coast, not even those which regularly visit Alaska in summer. They must, therefore, migrate south through some part of Northeastern Asia, since they do not stay near Bering Strait in winter. That all of them should have been overlooked in Kamtschatka is not probable. It may, at least, be taken for granted that they do not regularly pass up and down the eastern coast twice a year.

It is, in this connection, a significant fact that these same birds do not regularly occur in Japan either, with the possible exception of two, viz, the birds which in Table XV are called *Ægialitis hiaticula* and *Turdus naumanni*. The former is not found in Japan; on the other hand, the nearly allied *Ægialitis placida* is common in winter about Yokohama, and the bird which Nordenskiöld brought home from the winter quarters of the "Vega" may have been this species and not the true *hiaticula*. The true *Turdus naumanni* TEMM. is included in the Japanese fauna, but Blakiston and Pryer say that it "does not seem to be abundant." It is to be remarked that Middendorff met this species on the western shore of the Okotsk Sea, at Ajan, and in the Stanovoj Mountains ( $54\frac{1}{2}^{\circ}$  and  $59\frac{1}{2}^{\circ}$  north latitude), but that he erroneously calls it *Turdus ruficollis*.

In regard to *Eurynorhynchus pygmæus* it must be observed that, although several specimens have been obtained in Japan, it is not known to occur there regularly. Still the fact that this bird, in spite of its most extraordinary bill, has escaped notice in other places until recently, makes it less safe to base any conclusions upon the negative evidence of its not having been recorded from a given locality. This species needs close watching everywhere in Eastern Asia, for not only is it a rare and curious bird, but it is confidently expected that considerable light will be thrown upon the migrations of that region when the route of the Spoonbilled Sandpiper shall have been mapped out.

The migratory inhabitants of the Tschuktschi Peninsula, which in fall go south to winter in some part of Eastern or Southern Asia, are most likely to follow the southern coast of the peninsula westward, or to cross the Bay of Anadir, in both cases reaching the great river system of Anadir. A glance at the map will convince us that they do not cross the range of the Stanovoj Mountains, which here separate the Anadir system from that of the Kolima. The direction of this mountain range is southwest, and parallel with it is another mountain sys-

tem along the coast. Between these and in the same direction runs the river, notably the tributary Orlovka. A route following the latter points directly towards Penschinsk at the innermost northeastern corner of the Okotsk Sea. The Stanovoj Mountains, here approaching the coast, bend westward and run parallel with the coast, but at some distance from the sea, as far as Okotsk; but at the latter place, whence the coast bends southwest again, that lofty mountain chain moves out close to the shore. At about 55° north latitude, the mountains again turn westward, the valley of Uda leaning on their southern slope. Since we know that the birds alluded to do not move southward from Penschinsk, through Kamtschatka, and since their escape westward is effectually prevented by the snow-clad Stanovoj Mountains, the route between the mountains and the coast becomes the only available road to the south. Arriving at Uds kij, they have the choice of at least two routes.

We shall now take one of the above species as an illustration of the hypothesis here mapped out, selecting for that purpose *Motacilla ocularis*, the Wagtail, with gray back in both sexes and at all seasons. We remark at the outset that one specimen of this species has been taken in Kamtschatka\* and another one on Bering Island; but these were evidently stragglers, as was the specimen which was collected by Mr. Belding at La Paz in Lower California. This species is a regular breeding bird on the Tschuktschi Peninsula, and all the various parties which have collected at Plover Bay obtained or observed it. It is true that we know of no authentic record of this species, as distinguished from the other eastern white Wagtails, having been collected at any intermediate point, but from v. Schrenck's description of the specimens which Middendorff collected at Uds kij Ostrog it is clear that the latter are true *ocularis*. But there seems to be no other possible way than that indicated above, when the birds do not migrate over Kamtschatka and Japan. From Uds kij Ostrog they must follow the same route to Dauria and Baikal which we have indicated on a previous page when discussing the migration of *Chelidon tytleri*. The evidence is that the species is common in the districts just mentioned, while it is missing in the Amur Valley and farther east, it being undoubtedly a black-backed form that occupies the Amur district. This close analogy with

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\* Mr. Taczanowski now considers his previous identification erroneous, referring the specimen in question to *M. lugens*, with which he wrongly identifies *M. japonica*. Cf. Dyb. and Tacz., B. S. Z. F. 1884, Extr., p. 11.

the Swallow is very interesting and suggestive. Still more light may be thrown upon the subject if we consider the distribution and migration of allied forms. *Motacilla lugens* is the species which breeds over the greater part of the Kamtschatkan Peninsula. We also know it to breed on the Kurils and on Yesso, Japan. Concerning its distribution in the latter country we quote the following from Captain Blakiston (Amend. List B. Jap., p. 54): "On the last [Yesso], however, it appears to breed but sparingly, and has not been observed on the main island, or anywhere in Southern Japan during that season. In September and October it is numerous on migration in Yesso, but I believe none winter there. To the southward, we have winter specimens from Yokohama, Kobé, Nagasaki." I think there is no danger in assuming that the birds which "in September and October are numerous on migration in Yesso" come from Kamtschatka. In now directing the attention to the birds living at the Amur, I may repeat what I emphasized when speaking of the purple finch: "If only the Amur birds had a single character of their own, no matter how slight, no matter how keen and trained the eye of the expert must be to discover it, what an advantage!" Now, whether such a character exists I do not know, since I have no Amur specimens, but I really suspect that it does. I take my suspicion from v. Schrenck's description, which distinctly says, that his Amur specimens differ both from Middendorff's examples and from the Kamtschatkan ones, being in a measure intermediate between them.\* I think there are good reasons for the belief that the birds in question will turn out to be entitled to a name, as *Motacilla lugens amurensis* (SEEBOHM), the author of which, perhaps, after all did not "commit so great a crime" in creating the last name as he himself fears. But it must be left to future investigations to decide whether there exists such a "migration-route race," as friend Palmén would call it.

We shall now apply Palmén's theory that the migration routes indicate the ancient ways by which the species originally immigrated into a country as a test to the cases of the Wagtail and the Swallow. We are, then, probably justified in taking the present center of distribution of *Motacilla ocularis* and *Chelidon tytleri* as the starting point from whence

\* "So sehen wir also die Amur-Exemplare der Var. *lugens* in ihrer Färbung in jeder Beziehung den Uebergang von den dunkelsten, am prägnantesten schwarz und weiss gezeichneten Form des maritimen Ostasiens, wir meinen Kamtschatka's, der Kurilen und Japan's, zu der viel helleren und mehr grauen Form des continentalen Ostasiens's." Schrenck, Reise Amurl., I. p. 340.



they gradually invaded those outlying regions where we have made their acquaintance. It will suffice for our present purpose to start from the region east of Lake Baikal, the so-called province of Transbaikalia. The effort of the species to extend the limits northward and eastward forced them to move eastward gradually along the southern slopes of the Jablonnoj and Stanovoj Mountains, finally, by degrees, reaching the Okotsk Sea at Udskij. From here they only had the narrow slip of land between the sea and the high Stanovoj Mountains, which they could not cross. Year after year the pioneers advanced a little farther to the northeast. Finally the swallow reached a latitude beyond which it was not comfortable for it to proceed. But a glance at the map (p. 359) will show us that the sea separating it from Kamtschatka is too insignificant an obstacle for the swift swallow, which found suitable quarters and plenty of food in the mosquito-ridden peninsula, where it found no very nearly related competitor. The wagtail, on the other hand, could stand the northern climate better, and pushed on until the outposts reached the shores of Berings Strait, across which they will probably continue their emigration before long. That *Motacilla ocularis* in reaching Penschinsk did not extend southward over the peninsula may be explained by the fact that it found Kamtschatka already occupied by the closely allied *Motacilla lugens*.

On a former occasion I have made the remark that Kamtschatka is not only interesting on account of the birds it possesses, but, perhaps, even more so on account of those which are absent from its ornithology. To illustrate this more fully we shall undertake a comparison with the avifauna of the district at the mouth of the Amur River and at Udskij Ostrog, giving in a table all the species especially mentioned as collected by v. Schrenck and Middendorff in the former localities, which are situated at about the same latitude as Petropaulski, and not known to occur in Kamtschatka. Such forms are excluded, however, which may be regarded as representing each other, as for instance, the corresponding races of *Urogallus*, the different forms of woodpeckers, &c. I have retained his nomenclature without any changes, since in many cases it is difficult to decide, without specimens, the exact name of the species which he collected.

TABLE XVI.—*Species collected at the Mouth of the Amur River and at Uds kij Ostrog, unknown in Kamtschatka.*

Tringa cauntus.	Corvus dauricus.
crassirostris.	Garrulus glandarius.
Fulica atra.	infaustus.
Anas galericulata.	Emberiza pithyornus.
Ardea stellaris.	rutila.
cinerea.	personata.
Tetrao bonasia.	pusilla.
canadensis var. franklinii (= <i>falci-</i>	Fringilla spinus.
<i>pennis</i> ).	Passer montanus.
Columba risoria (accidental at the Lower	Carpodacus roseus.
Amur?).	Muscicapa cinereo-alba.
turtur var. gelastis.	luteola.
Milvus niger var. melanotis.	Lanius phœnicurus (= <i>Superciliosus</i> .)
Strix uralensis.	Certhia familiaris.
passerina.	Cinclus pallasii.
bubo.	Accentor alpinus.
Alcedo ispida var. bengalensis.	Phyllopneuste sibirica (= <i>Orcopneuste fus-</i>
Upupa epops.	<i>cata</i> ).
Yunx torquilla.	superciliosa.
Picus martius.	Regulus cristatus.
leuconotus.	Turdus naumanni.
Alauda alpestris.	Lusciola erythronota.
Corvus japonensis.	

It is true that several of the species here enumerated reach their northern limit at the mouths of Amur and Uda, as for instance *Fulica atra*, *Aix galericulata*, *Botaurus stellaris*, *Ardea cinerea*, &c., but it is not less true that the southern part of Kamtschatka is situated fully as far south as the localities mentioned, and that these very species also inhabit Northern Japan.

Still more remarkable is it that several of the species which are common inhabitants of Northern Japan, and which reach a much higher latitude on the western shore of the Okotsk Sea than the mouth of the Uda River, nevertheless characterize the Kamtschatka fauna by their absence.

It is furthermore to be remarked that these missing forms by no means belong to species of restricted distribution. A glance at the above list (Table XVI) shows that the following Circumpolar or Palæ-arctic genera (and subgenera, if we admit such a term), inhabiting Northern Japan and the western shore of the Okotsk Sea, are unrepresented in Kamtschatka :

TABLE XVII.

Tringa (may have been overlooked, however).	Coloens.
Fulica.	Garrulus.
Botaurus.	Perisoreus.
Ardea.	Spinus.
Bonasa.*	Passer.
Turtur.	Certhia.
Milvus.	Cinclus.
Glaucidium.†	Accentor.
Bubo.	Reguloidea.
Otocoris (the occurrence in Japan is doubtful).	Regulus.

As a supplement to the above we give the names of a few Circumpolar and Palaearctic genera (and subgenera) which occur in Northern Japan without reaching Kamtschatka, viz :

TABLE XVIII.

Podiceps (= <i>Tachybates</i> ).	Coturnix.
Vanellus.	Circus.
Rallus.	Caprimulgus.
Porzana.	Sturnus.
Gallinula.	Hirundo (= <i>Cotile</i> ).
Ardetta.	Troglodytes.
Herodias.	Pratincola.

A comparison with the following list of genera which inhabit Kamtschatka shows beyond dispute that it is not the severity of the climate that excludes most of the above genera, since they are able to stand it just as well as members of following groups, which occur there regularly :

TABLE XIX.

Colymbus.	Hypocentor.
Gallinago.	Chloris.
Querquedula.	Pyrrhula.
Ennetta.	Loxia.
Spatula.	Clivicola.
Urogallus.	Chelidon.
Pandion.	Lanius.
Surnia.	Buteo.
Cuculus.	Erythrosterna.
Micropus.	Acrocephalus.
Alanda.	Locustella.
Nucifraga.	Ianthia.
Pica.	Melodes.

\* I have included such forms, the reported occurrence of which in Kamtschatka is extremely doubtful, since their occurrence on the western shore of the Okotsk Sea probably has in most cases caused the false statement of their being part of the Kamtschatkan ornithofauna.

† *Uta* is left out, since its reported occurrence in Kamtschatka is by no means improbable.

But if it is true then that Table XIX disproves the climate as the cause of the absence of representatives of the genera contained in Tables XVII and XVIII, what can be the reason of such an extraordinary phenomenon ?

Evidently we have to look for an explanation in the way by which the peninsula became inhabited. Kamtschatka is one of the most typical and well defined peninsulas on the globe, and the climatological and physical conditions of the part connecting it with the continent are such as to make it a true island, zoologically speaking. Besides, there seems to be reason to assume that it has been a real island at no very distant period. The usual maps, it is true, indicate a high mountain ridge at the narrowest point of the peninsula, connecting the mountains of the latter with the orographical systems on the continent to the north. But I have heard Mr. Kennan, the celebrated traveler, who has traversed those regions in company with the Koriaks, denounce the maps as entirely wrong in that respect. He said that the country at the point in question is flat from sea to sea. From the observations I made on Bering Island, I have evidence that the latter island, at least, has been subject to a considerable rise during recent periods, and there are reasons to believe that this rise of land has taken place in the region generally. Under these suppositions the narrow neck of the peninsula has once been submerged. Looking apart from the connection to the north there is only one regular way by which Kamtschatka can have been invaded by species which do not voluntarily cross wide seas in search for new homes, and this way is by the Kuril Islands from Japan. The character of these islands, however, is such as to form a barrier rather than a highway to all species which need trees and woods as an essential condition for their existence. Besides a glance at Tables XVII and XVIII shows how surprisingly many forms have not availed themselves of extending their limits northwards over the Kurils, to which the treeless nature of these islands is no obstruction. We have seen above that some migrating birds enter Kamtschatka by some other route than from the extreme north or south, a route by which, therefore, the species in all probability have originally invaded the country, but the Table XVII is plain evidence demonstrating that it is not frequented by a great many forms which might reasonably be expected.

This fact of so many birds staying away from a country of the size, climate, and resources possessed by Kamtschatka is not satisfactorily explained by the present isolated position alone. It requires the hy-



pothesis that this isolation has existed since it first began to be inhabited by its present land-ornis, and also that this immigration commenced at no very distant period. The probable cause of this comparatively late colonization, whether due to the country having undergone a glacial period, or whether volcanic phenomena have anything to do with it, is not in our line to discuss, these being questions for the geologists to solve.

That so many of the resident birds have developed into distinct forms is no argument against the theory of a comparatively recent colonization, since all are nearly related to forms inhabiting neighboring countries, and since this specialization is chiefly only an intensification of the general tendency of the birds inhabiting the whole region of which Kamtschatka only forms a province. If considering these facts in connection with the nearly absolute isolation of the forms in question, no assumption of a very long period seems to be needed in explanation.

The question how these residents originally happened to populate the country should, perhaps, be discussed briefly before closing these remarks.

Looking at the absence of many generally distributed northern Circumpolar and Palæartic forms of the resident ornis, for instance, *Perisoreus*, *Garrulus*, *Certhia*, *Regulus*, *Cinclus*, *Bonasa*, &c., one can hardly escape the impression that those species which now reside permanently in Kamtschatka originally came there accidentally. Like so many other islands Kamtschatka probably owes its resident ornis to storms having blown the first pairs over from countries across the sea. This population has been going on since it first became inhabitable, and continues so even to-day. That explains in a measure the different degree of abundance and specialization, those forms which have only recently made their appearance being less numerous and less modified.

Having now discussed the Kamtschatkan avifauna in its relation to the surrounding countries, the conclusion seems quite justified that the peninsula forms a very well circumscribed ornitho-geographical province, remarkable not only for a number of peculiarly modified forms, but also for a surprising absence of many of the most characteristic forms of the Northern Palæartic and Circumpolar ornis.

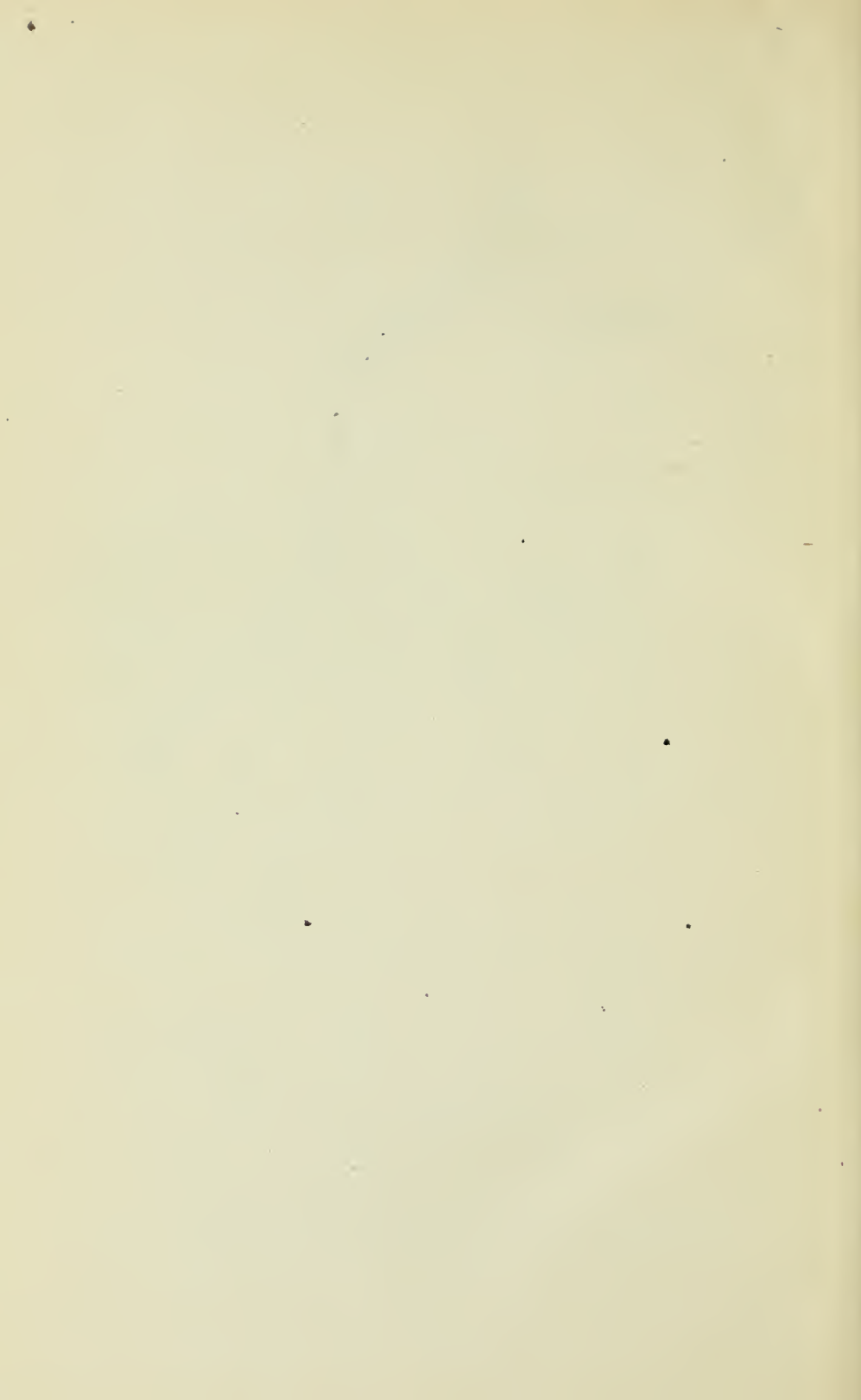
It may finally be interesting to give a condensed comparison with a province of similar size and position at the opposite side of the Palæartic continent. Great Britain is situated between nearly the same latitudes as Kamtschatka, taking a somewhat similar position on the Atlantic side

as does Kamtschatka on the Pacific. Table XX is intended to show the difference between the two avifaunas. The part relating to the British birds is compiled from the recent list published by the British Ornithologists' Union, with the exclusion of all the species which are enumerated as "occasional and accidental visitors." This category has not been recognized in the Kamtschatkan list, since it is thought that their number is too small to affect the general result.

TABLE XX.

Superfamilies.	Kamtschatka.	British Islands.
Colymboideæ .....	2	3
Alcoideæ .....	17	6
Larideæ .....	15	16
Procellarioideæ .....	5	4
Scolopacoideæ .....	28	29
Gruoideæ .....	1	5
Anatoideæ .....	29	27
Ardeoideæ .....	0	1
Phalacrocoracoideæ .....	2	3
Tetraoideæ .....	3	8
Columboideæ .....	0	4
Accipitroideæ .....	12	14
Strigideæ .....	3	4
Cuculioideæ .....	2	1
Alcedinoideæ .....	0	1
Picoideæ .....	3	4
Caprimulgoideæ .....	0	1
Micropodoideæ .....	1	1
Passeroideæ .....	52	79
	175	211







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[All the figures are natural size unless otherwise stated.]

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\* Having since discovered that *Hirundo cinerea* is preoccupied by Latham in 1790 for another species, I propose to call the American variety *Clivicola riparia maximiliani*, Prince Max von Wied being the first author to distinguish it. I may add that this form has proportionately larger feet than the European race, while, on the other hand, the latter has a longer wing than its American representative.

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\* Dall's specimen is No. 41040, U. S. Nat. Mus., Petropaulski, Aug. 20. An examination shows that it in no way differs from Scandinavian examples.



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<i>ruficollis</i> .....	350	(Tantalus).....	138
<i>turtur gelastis</i> (Columba).....	354	<i>velvetina</i> (Melanetta).....	174
<i>Tylorhamphus cristatellus</i> .....	32	(Oidemia).....	174, 175
<i>tytleri</i> (Chelidon).....	269, 271, 323, 330, 338, 346, 347,	<i>vera</i> (Linaria).....	257
.....	348, 351, 352	<i>violaceus</i> (Graculus).....	186
(Hirundo).....	269	(Pelecanus).....	181
(Hirundo <i>rustica</i> ).....	269	(Phalacrocorax).....	181, 184, 187
U.		<i>virginianus</i> (Charadrius).....	104
<i>ulula</i> (Suruia).....	320, 337, 345	<i>virginus</i> (Charadrius).....	104
<i>umbellus</i> (Bonasa).....	112	<i>v-nigra</i> (Somateria).....	173, 318, 337, 340
<i>undulata</i> (Scolopax).....	132	<i>vulgaris</i> (Coecostraustes).....	322
<i>uniclavus</i> (Gallinago).....	110	(Otus).....	320, 329
<i>unicolor</i> (Plyrgilus).....	248		
<i>Upupa epops</i> .....	354	W.	
<i>uralensis</i> (Sitta).....	321	<i>warneki</i> (Larus).....	82
(Strix).....	354	<i>wiemuthi</i> (Parus).....	297

	Page.		Page.
wilsonii (Gallinago).....	110	Xema sabinii.....	315
(Lobipes).....	140	Xenus guttifer.....	124
X.		Y.	
xanthodryas (Phyllopneuste).....	304, 325, 338	Yunx torquilla.....	354
(Phyllopseustes).....	304, 305		
(Phyllopseustes borealis)....	306	Z.	
(Phylloscopus).....	304	Zonotrichia musica .....	247





PLATE I.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Lunda cirrhata*, ♀ ad., summer. U. S. Nat. Mus. No. 89087; Bering Island, May 11, 1882.
- FIG. 2. *Lunda cirrhata*, ♂ ad., winter. U. S. Nat. Mus. No. 92920; Bering Island, January 19, 1883.





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PLATE II.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Lunda cirrhata*, pullus. U. S. Nat. Mus. No. 92929; Bering Island, September 6, 1883.
- FIG. 2. *Lunda cirrhata*, juv. U. S. Nat. Mus. No. 92930; Bering Island, September 24, 1882.
- FIG. 3. *Lunda cirrhata*, juv., winter. Bering Island, February 24, 1883.
- FIG. 4. *Lunda cirrhata*, jun., winter. U. S. Nat. Mus. No. 92922; Bering Island, February 12, 1883.

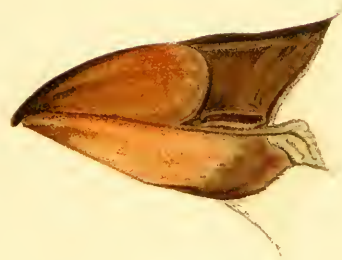




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PLATE III.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Fratercula corniculata*, ♀ ad., summer. U. S. Nat. Mus. No. 89089; Bering Island, May 21, 1882.
- FIG. 2. *Fratercula corniculata*, ad., winter. Bering Island, February 24, 1883.
- FIG. 3. *Fratercula corniculata*, ♂ jun., winter. U. S. Nat. Mus. No. 92932; Bering Island, February 24, 1883.





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## PLATE IV.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Simorhynchus pygmæus*, ♂ ad., winter. U. S. Nat. Mus. No. 92960; Bering Island, December 29, 1882.
- FIG. 2. *Simorhynchus pygmæus*, ♀ ad., summer. U. S. Nat. Mus. No. 92972; Bering Island, May 6, 1883.
- FIG. 3. *Simorhynchus pusillus*, ♂ ad., summer. U. S. Nat. Mus. No. 92980; Bering Island, December 30, 1882.
- FIG. 4. *Simorhynchus cristatellus*, ♀ ad., summer. U. S. Nat. Mus. No. 89096; Bering Island, May 16, 1882.
- FIG. 5. *Simorhynchus cristatellus*, ♀ ad., winter. U. S. Nat. Mus. No. 92958; Bering Island, March 1, 1883.
- FIG. 6. *Cyclorrhynchus psittaculus*, ♀ ad., summer. U. S. Nat. Mus. No. 92946; Bering Island, May 9, 1883.



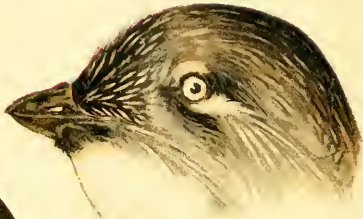
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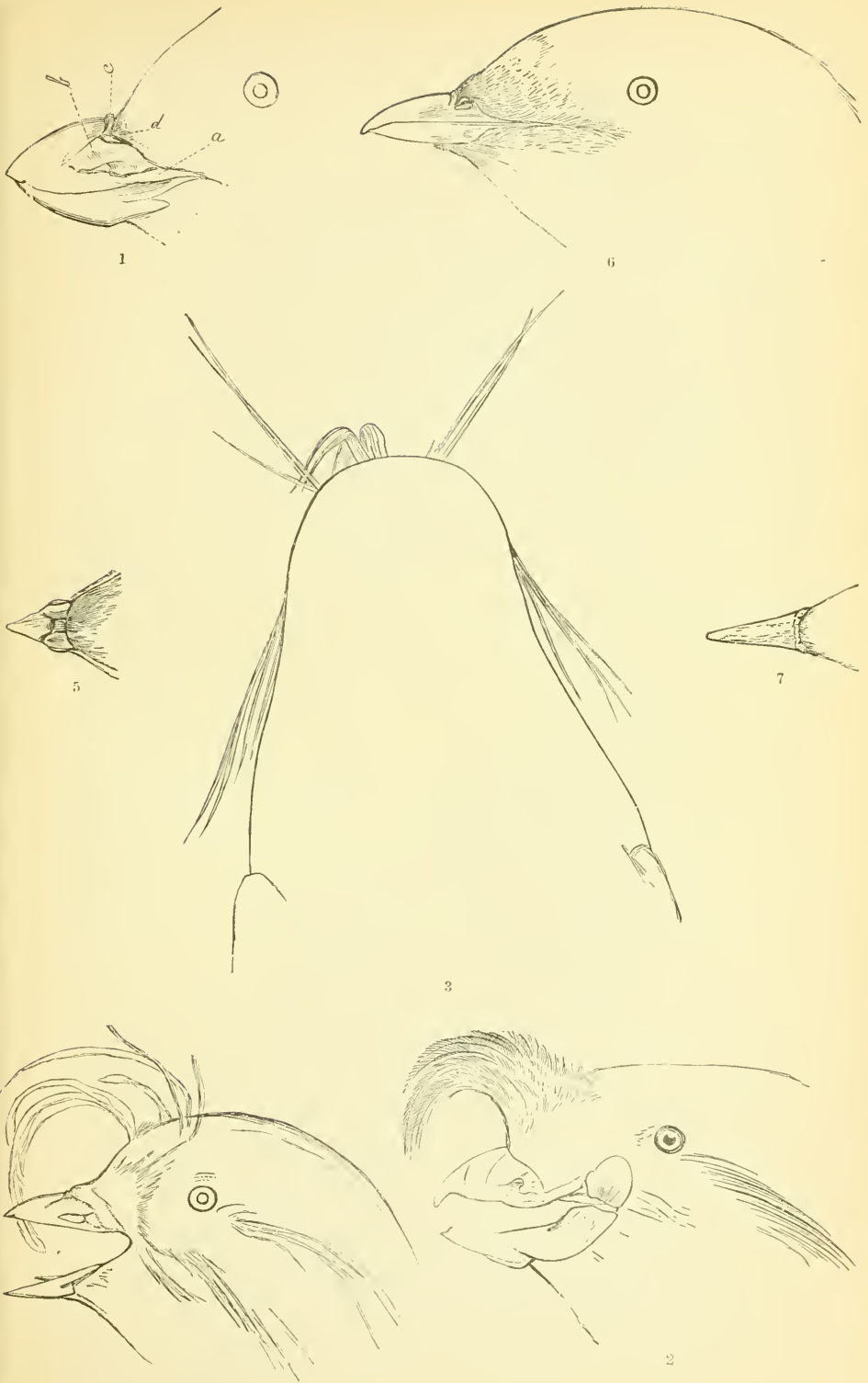




PLATE V.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Cyclorhynchus psittaculus*, ♀ ad., summer. U. S. Nat. Mus. No. 89095; Bering Island, July 11, 1882. For explanation of letters see p. 41.
- FIG. 2. *Simorhynchus cristatellus*, ♂ ad., summer. U. S. Nat. Mus. No. 92954; Bering Island, June 4, 1883. Mouth opened to show the outline of the rictus.
- FIG. 3. *Simorhynchus pygmaeus*, ♂ ad., winter. U. S. Nat. Mus. No. 92960; Bering Island, December 29, 1882. Head seen from behind to show the position of the lateral crests.
- FIG. 4. *Simorhynchus pygmaeus*, ♂ ad., winter. U. S. Nat. Mus. No. 92970; Bering Island, January 16, 1883. Mouth open for comparison with Fig 2.
- FIG. 5. *Simorhynchus pusillus*, ♂ ad., winter. U. S. Nat. Mus. No. 92980; Bering Island, December 30, 1882. Bill from above.
- FIG. 6. *Synthliboramphus antiquus*, ♂ ad. U. S. Nat. Mus. No. 92985; Bering Island, January 3, 1883.
- FIG. 7. Same specimen. Bill from above.



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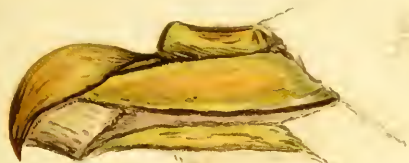




PLATE VI.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Fulmarus glacialis glupischa*, ♂ ad., white phase, winter. U. S. Nat. Mus. No. 92908; Bering Island, February 7, 1883.
- FIG. 2. *Fulmarus glacialis glupischa*, ad., dark phase, summer. U. S. Nat. Mus. No. 92910; Bering Island, May 4, 1883.
- FIG. 3. *Larus schistisagus*, ♂ ad. U. S. Nat. Mus. No. 92885; Bering Island, May 5, 1883.
- FIG. 4. *Larus kamtschatchensis*, ♂ ad. U. S. Nat. Mus. No. 92889; Bering Island, May 21, 1883.



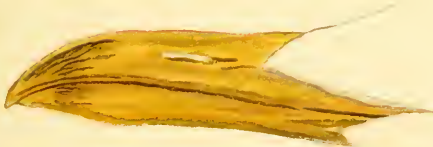
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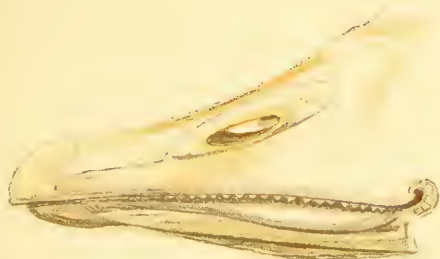
PLATE VII.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Anser segetum middendorffi*, ♂ ad. U. S. Nat. Mus. No. 92824; Bering Island May 10, 1883.
- FIG. 2. *Anser albifrons gambeli*, ♀ ad. U. S. Nat. Mus. No. 92826; Bering Island, May 10, 1883.
- FIG. 3. *Somateria v-nigra*, ♂ ad. U. S. Nat. Mus. No. 92848; Copper Island, July 3, 1883.



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PLATE VIII.

[Bulletin No. 29, United States National Museum.]

- FIG. 1. *Phalacrocorax pelagicus*, ♀ ad. U. S. Nat. Mus. No. 92833; Bering Island, April 26, 1883.
- FIG. 2. *Phalacrocorax urile*, ♂ ad. U. S. Nat. Mus. No. 92877; Copper Island, July 14, 1883.
- FIG. 3. *Phalacrocorax urile*, juv. U. S. Nat. Mus. No. 92878; Copper Island, July 25, 1883.





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