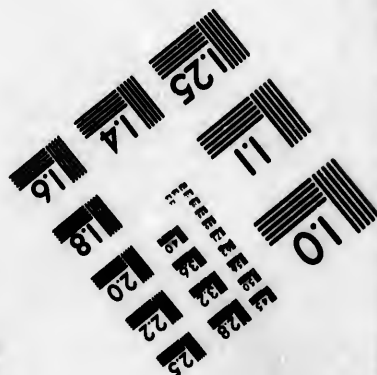
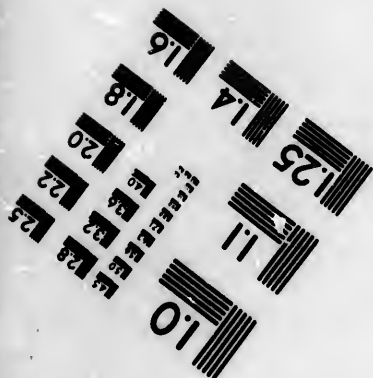
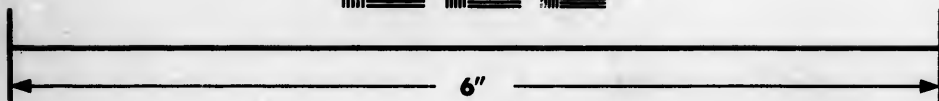
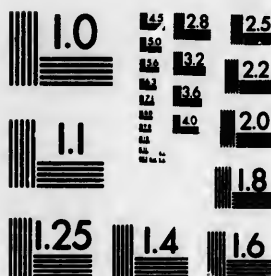


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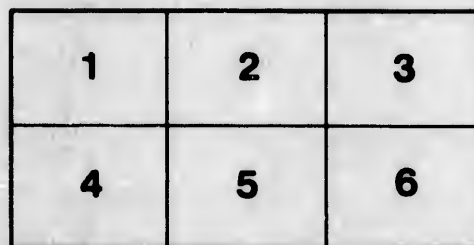
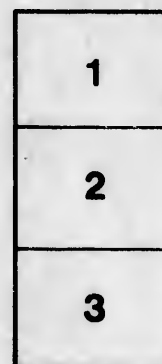
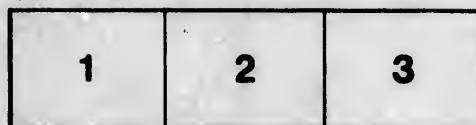
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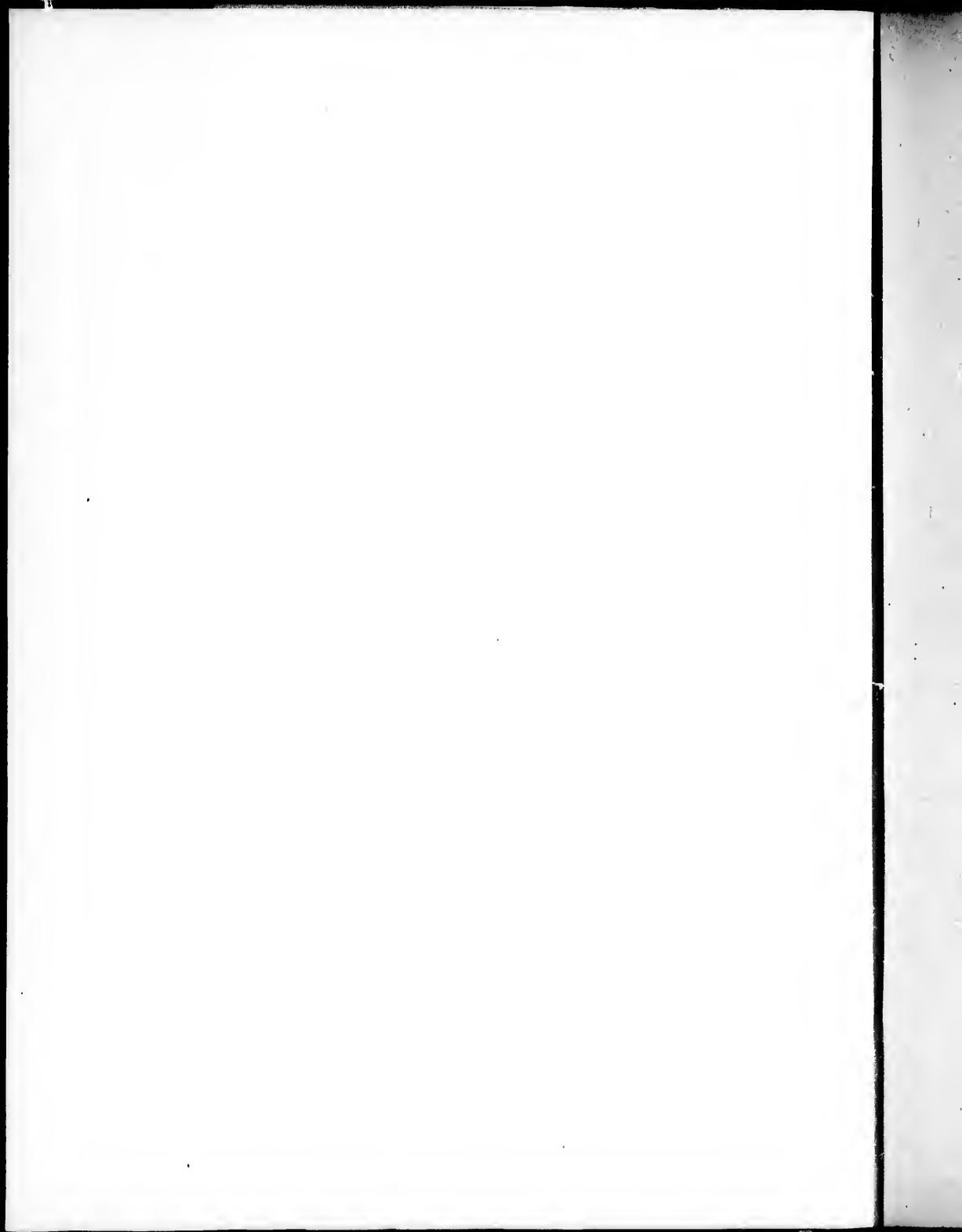
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UNITED STATES
EXPLORING EXPEDITION.

DURING THE YEARS

1838, 1839, 1840, 1841, 1842.

UNDER THE COMMAND OF

CHARLES WILKES, U.S.N.

MAMMALOGY
AND
ORNITHOLOGY.

BY

JOHN CASSIN,

MEMBER OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA; OF THE AMERICAN PHILOSOPHICAL SOCIETY;
OF THE NATIONAL INSTITUTE; OF THE NATURAL HISTORY SOCIETY OF CHARLESTON; OF THE LYCEUM
OF NATURAL HISTORY OF NEW YORK; OF THE NATURAL HISTORY SOCIETY OF MONTREAL;
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INTRODUCTION.

IN 1851 I was engaged, by the Honorable Joint Library Committee of Congress, to superintend the preparation of Plates for the Atlas of Mammalogy and Ornithology of the United States Exploring Expedition; and subsequently to prepare the present volume. In both of these departments of Natural History, large and highly interesting collections were made, and much new and valuable information obtained by the naturalists of the Expedition. My object has been to notice, in this volume, every species of interest, with careful descriptions of such as were previously unknown; and to give all the information to be obtained from the recorded observations and journals of the naturalists, which have been at my disposal; and I have appended a complete Catalogue of the collections in these two classes of animals.

Not having accompanied the Expedition, my sources of information have been exclusively those designated above, and especially I am indebted to the kindness of Charles Pickering, M.D., one of the naturalists of the Expedition, whose volumes have added so much of the highest value to its series of publications. In addition to the branches of Natural History with which this distinguished naturalist was especially charged, he made notes of observations in all other departments; from which has been derived some of the most valuable material of the present volume; and with great liberality and kindness, he copied and collated, for my greater convenience, a large amount of manuscript notes on quadrupeds and birds, made on the voyage, and now

for the first time published. Much of the most valuable portion of the present volume has been thus contributed by this gentleman.

From the notes and observations of Mr. Titian R. Peale, another of the naturalists of the Expedition, much also has been derived; and in fact every facility has been most promptly afforded by all parties attached to the Expedition, or in charge of the collections. To the gentlemen of the Academy of Natural Sciences of Philadelphia, and especially to Dr. Thomas B. Wilson, and to Professors Joseph Henry and Spencer F. Baird, of the Smithsonian Institution, I avail myself of the present opportunity of tendering my deep sense of obligation for indispensable privileges and facilities in the libraries and museums of the Institutions mentioned, and personally for much valuable advice and assistance.

The Plates of the Atlas to the present volume were colored at the establishment of Mrs. Lavinia Bowen, Philadelphia, and I deem it but justice to say that they are, in the particular of representing the colors of species accurately, highly creditable. I most cheerfully bear testimony to her exceeding carefulness and ability in this important feature in zoological illustrations. Many of the drawings were made by Mr. Peale

JOHN CASSIN.

ACADEMY OF NATURAL SCIENCES,
PHILADELPHIA, May 10th, 1858.

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M A M M A L O G Y.

MAMMALOGY.

1. CLASS MAMMALIA.

1. ORDER QUADRUMANA.—The Four-handed Mammals.

1. FAMILY VESPERTILIONIDÆ.—The Bats.

1. GENUS VESPERTILIO, LINN. Syst. Nat. I, p. 46 (1766).

1. VESPERTILIO CALIFORNICUS, *Bachman*.

Vespertilio californicus, BACHM. Jour. Acad. Philad. VIII, p. 285 (1842).

SEVERAL specimens, which we consider as undoubtedly of this species, are in the collection of the Expedition, and were obtained in Oregon and California. Generally, they agree with the description by Dr. Bachman cited, but the largest slightly exceed his measurements.

According to Mr. Peale, this bat was found in all parts of Oregon visited by members of the Expedition, and also at San Francisco, California; but we find nothing recorded by either of the naturalists of the Expedition relating to its manners or habits. It appears to belong strictly to the same group as *V. subulatus*, Say, and may be a younger age of that species.

2. VESPERTILIO SEMICAUDATUS, Peale.

Vespertilio semicaudatus, PEALE, Zoology, U. S. Exp. Exp. Vincennes, Quadrupeds, p. 23 (1st ed. 1848).

Atlas, Mammalogy, Plate I, Fig. 1. Adult.

V. parvus, alis elongatis, membrana interfemorali magna, cauda brevi, fuliginosus, subtus pallidior, membranis fuscis. Long. 3 unc.

FORM.—Small, but with the wings long, legs long, interfemoral membrane large, naked, and attached to the tail except at its end, which projects from the upper surface; the tail extending across not more than half the width of this membrane. Muzzle blunt; lips somewhat produced or pendant; ears obovate, somewhat pointed; tragus short, rounded; fur dense, long.

DIMENSIONS.—Male. Total length (specimen in spirits), from tip of nose to outer edge of interfemoral membrane (which is beyond the end of the tail), about three inches; from tip of nose to end of tail, two inches; extent of wings, about nine inches; leg, about one and a half inches; tail, about six-tenths of an inch; ear, about four-tenths of an inch.

COLORS.—Entire pilage sooty brown, with a tinge of dark fulvous, paler on the under parts, membranes pale brown. Iris black.

HAB.—Samoan or Navigator Islands. Specimen in Nat. Mus. Washington City.

This bat is remarkable for its large interfemoral membrane, which may be said to almost completely absorb the tail. That appendage traces about half the width of this membrane, and at its tip is detached from it on the upper surface, leaving about one-tenth of an inch free. From the point of detachment, two diverging lines are readily seen in the prepared specimen, which continue to the outer edge of the membrane.

We find nothing recorded by the naturalists of the Expedition, in relation to this remarkable bat, except that Mr. Peale observes:

"This species was found at the Samoan Islands, and at Upolu was not uncommon."

In addition to the preceding species of *Vespertilionidæ*, other small species are noticed by both Dr. Pickering and Mr. Peale, as occurring at localities not previously ascertained to be inhabited by any known species of this family.

At the Bay of Islands, New Zealand, a small bat is mentioned, but no specimens were obtained. According to Mr. Peale, it appeared to be about eight inches in extent of wings, and was insectivorous.

In the Island of Hawaii, another species was found to be common, though the naturalists of the Expedition were not successful in securing specimens. Of this bat, Mr. Peale gives the following notice:

"At Kaa-la-kea-kua, on the Island of Hawaii, memorable as the place where the renowned circumnavigator Cook perished, a species of bat, which we believe new to naturalists, was quite common; it measures about twelve inches across the wings, is of a ferrugineous gray color, the interfemoral membrane is large, and includes the tail, which is about the length of the body. It has the general aspect and color of *Vespertilio noveboracensis*, but is larger."

Dr. Pickering also mentions bats, of which no specimens were obtained, noticed in the Island of Madeira, and at the Cape de Verd Islands. He records the fact, that a species of this family appeared around the vessels of the Expedition as they were approaching the latter, and at a distance from them of forty miles.

2. GENUS MOLOSSUS, Geoff. St. Hil. Ann. Mus. Paris, VI, p. 150 (1805).

1. MOLOSSUS AURISPINOSUS (Peale).

Dysops aurispinosus, PEALE, Voy. Vincennes and Peacock, Zoology, p. 21 (1st ed.).
Molossus rugosus, D'ORBIGNY, Voy. dans l'Amer. Merid. Mammifères, Pl. x, fig. 3?

Atlas, Mammalogy, Plate I, Fig. 2. Adult.

Læte castaneo-fuscus; subtus pallidior. Membranis pallide purpureo-brunneis, interfemorali sericea, brunnea, pedibus fere albis. Long. 4½ unc.

FORM.—Muzzle broad; lips wrinkled and large; nostrils round, each on the outer edge of a disk, which is edged with very short rigid bristles; ears large, connected in front, rugose, and having each on its anterior margin, which is recurved, six or eight very short spine-like protuberances; wings long; toes of the hind feet with long recurved bristles. Interfemoral membrane including nearly half of the tail, velvety; tail moderate, or rather small. Teeth thirty: incisors in upper jaw, two; canines, one on each side; molars, five on each side. Lower jaw with four very small incisors; canines, one on each side; molars, five on each side. Fur of the entire body short, dense, and very fine.

DIMENSIONS.—Total length, about four and a half inches; extent of the wings, fourteen and a half inches; tail, one and eight-tenths of an inch, of which about one inch is beyond the interfemoral membrane.

COLOR.—Entire pilage, above and below, fine light chestnut-brown, or snuff-color, lighter on the under parts of the body. Membranes of the wings light purplish-brown; ears light brown, with some parts purplish; interfemoral membrane silky-brown. Bristles of the hind feet nearly white. The whole body having a silvery or frosty appearance in some lights.

HAB.—Brazil, Specimen in Nat. Mus. Washington City.

It is not without very considerable doubts and misgivings, that we retain the present bat as a previously undescribed species. It much resembles *Molossus rugosus*, as cited above, in all respects except color, in which, however, it does not differ from that species in a greater degree than we have seen specimens of the common *Molossus rufus* of South America differ from each other. Our present specimen is, moreover, a male, and that described and figured by D'Orbigny as above, was a female. We retain it solely on account of its peculiarity of color. It is also evidently nearly related to *Molossus velox* of authors, also a South American species, and is very probably identical with one or the other of the species mentioned, though we have not at hand a sufficiently extensive collection in this difficult family for comparison or for deciding the question.

Mr. Peale states, with reference to this species:

"This remarkable bat flew on board the U. S. Ship Peacock, off the coast of Brazil, on the 18th of November, when the ship was about one hundred miles from land, south of Cape St. Roque. When caught, it did not utter any audible sound, but was violent in defending itself at first; soon, however, it became sufficiently tame to allow itself to be handled, provided no violence was offered; at night, it became much more active than it was during the day, and uttered a single sharp impatient squeak, whenever it found that it could not escape from the cage."

Of the genus *Molossus* (Geoff. St. Hil.), to which this species belongs, there are not less than eighteen or twenty species, the greater part of which inhabit South America and the West Indies. There are others, which are natives of the old continent. They are designated by some authors, as "Bulldog Bats," on account of the breadth and strength of their jaws and peculiar physiognomy. A few species have been ascertained to inhabit the Southern United States, and are described by Mr. William Cooper, in the Annals of the New York Lyceum of Natural History, IV, p. 64, accompanied by figures (same volume, Pl. III).

Mr. Peale's name, *aurispinosus* we consider objectionable, as scarcely expressing the idea intended, which appears to have been *spinous-eared*. It is quite too near meaning *golden-spined*. Moreover, the spinous processes on the ears in this species, are by no means peculiar. In the plate of the species described by Mr. Cooper, in the Annals of the New York Lyceum, as above cited, this character is represented very conspicuously, and, undoubtedly, with the most entire truthfulness.

3. GENUS PTEROPUS, *Brisson*, Rêg. Anim. (1756).

General characters similar to those of other groups of the family *Vespertilionidæ*, or bats. The species of this genus are, however, the largest of the animals of this family.

1. PTEROPUS SAMOENSIS, *Peale*.

Pteropus samoensis, PEALE, Zool. Exp. Exp. Vincennes, Quadrupeds, p. 20, 1st ed. (1848).

Atlas, Mammalogy, Plate II. Adult.

P. poliocephalo affinis at minor. Capite breviusculo, griseo, gula occipiteque saturatioribus, dorso castaneo-fusca, pilis elongatis albidis, flavidisque intermixtis, subtus castaneo-fuscus, pilis flavidis. Auriculis parvis, obtusis, ovatis.

Resembling *P. poliocephalus* of Australia, but smaller.

FORM.—Head rather short; ears small, ovate, obtusely pointed; pilage coarse and wool-like, especially on the under parts. Wing-membranes slightly furred along the course of the bone, most observable on the under surface; hind claws rather large, strongly curved, flattened.

DIMENSIONS.—Male. Total length from tip of nose, about nine inches; extent of wings, about forty inches; forearm, five and a half inches; thumb with claw, two inches; tarsus, two and a half inches; longest toe with claw, nearly one and a half inches. Female smaller.

COLORS.—Entire head gray, darker on the throat and on the occiput running into the dark reddish fulvous of the neck behind and upper part of the back. Other upper parts, from a transverse line across the back at the insertion of the wings, dark chestnut-brown, the pilage mixed with long yellowish-white hairs. Entire under parts dark chestnut-brown, mixed with numerous yellowish hairs. Wing-membranes dark. Irides brown.

HAB.—Samoan or Navigator Islands. Specimen in Nat. Mus. Washington City.

This species is nearly related to the Australian *Pteropus poliocephalus*, Temminck, Mon. Mamm. II, p. 66, figured by Gould, in Mammals of Australia, I, Pl. (plates not numbered), but is smaller and otherwise distinct.

Numerous specimens of the present fine species are in the collection of the Expedition, and exhibit but slight differences among themselves in any character. In this species the fulvous ring, which entirely

encircles the neck in *P. poliocephalus*, is interrupted in front and scarcely apparent, though as strongly defined on the neck behind as in that well-known species. It is about one-third smaller.

Mr. Peale observes:

"This species was first discovered in the Island of Tutuila, and, subsequently, in all the islands of the Samoan Group. We obtained numerous specimens, and found the young animals somewhat lighter-colored than the old ones, but in other respects there is but little variation in color or size. It is the least gregarious and most diurnal in its habits, of any of the genus which we saw; they are frequently abroad at noonday, and fly with the two hind feet together, which makes them appear to have tails. They are very destructive to all kinds of fruit, and are usually silent when feeding."

Respecting this species, we find the following in Dr. Pickering's journal:

"Common everywhere in the Islands of Manua, Tutuila, Upolu, and Savai, and according to report, very destructive to the bread-fruit. I have myself seen it feeding on the *Pupaya* (*Carica papaya*), for though perhaps essentially a nocturnal animal, it is often abroad by daylight. Its flight is then seen to be very different from that of the smaller *Cheiroptera*, rather lofty, with slow flapping of the wings, much like that of a heron, and occasional short intervals of sailing. At a distance a stranger would hardly distinguish it from a large bird; but on its alighting, the difference is very striking;—it pitches over the branch so as to catch it with its hind feet, and, closing its wings, swings suspended with its head downwards.

"I did not examine the stomachs of any specimens of this animal, but there is reason to suppose that its food is exclusively vegetable. In captivity it is exceedingly ferocious and untameable, and several that we had, died in a short time. In the evening, their quarrelsome screams may often be heard from the tops of the cocoa trees, sufficiently loud and harsh to be quite disagreeable. On one occasion, I witnessed a battle between one of these animals and a heron, which, however, was soon decided, the latter abandoning the contest."

Having access to no specimens of *Pteropus poliocephalus*, and having regarded it as possible that the present might be that species in an immature age, our examination has been greatly facilitated by the kindness of that accomplished and distinguished naturalist, JOHN GOULD, Esq., of London, who most liberally and promptly supplied

specimens at our request, and for which we beg leave to express our deep sense of obligation. Mr. Gould's specimens enabled us to fully determine the distinct character of the present species as above described.



CRANIUM OF *P. SAMOENSIS*.

2. *PTEROPUS KERAUDRENIUS*, Quoy and Gaimard.

Pteropus keraudreni, QUOY and GAIM. Voy. Uranie, Mamm. p. 51 (1824); Voy. Uranie, Atlas, Zool. Pl. 3.

There is in the collection of the Expedition a single specimen which appears to be this species, though it is lighter in color than is represented in the plate of Quoy and Gaimard above cited, and there is a mixture of gray in the pilage of the head not mentioned in their description. We have, however, no doubt of its identity, and have, consequently, given it the present name without hesitation. It was obtained in the Feejee Islands.

Of this species, Mr. Peale observes:

"We found a species of bat very common at the Feejee Islands, which agrees with the descriptions above quoted;—the native name is 'Beka,' which is also the name of a closely allied species inhabiting the Island of Tongatabu.

"In habits and strong odor, nearly all the species of this genus are alike. Any of them may be discovered by the odor emitted as they hang pendant from the high branches of the trees in humid forests, this included, although it is not thought to be so disagreeably strong as that of the Island of Tongatabu."

3. *PTEROPUS MACKLOTII*, Temminck.

Pteropus macklotii, TEMM. Mon. Mamm. II, p. 69, Pl. XXXV, fig. 5, head (1835 to 1841).

Pteropus vociferus, PEALE,* Zool. U. S. Exp. Exp. Vincennes, Quadrupeds, p. 19 (1st ed. 1848).

Though very considerable difficulties present themselves in the investigation of the animals of this genus, we have no doubt of the identity of the species as above referred to.

In allusion to this bat, Mr. Peale observes :

"At the Island of Mangai, in the Straits of Balabac, our attention was arrested by the constant screams of this animal, which sounded like the distress cry of a Norway rat, but louder, and soon led us to its diurnal resting-places, which were found to be amongst the lofty roots of a species of *banyan* or fig tree, fifty feet from the ground. There, secreted in holes or sometimes suspended, they spend the day, not quietly, but in constant quarrels, at the season we saw them, which was in the month of February, and the strong odor emitted by them was quite perceptible to us when passing the trees which they frequented."



CRANIUM OF *P. MACKLOTII*.

Mr. Peale gives the following in relation to the habits and general history of the animals of this genus :

"In the course of a long and laborious voyage among the islands of the Pacific and Indian Oceans, we had frequent opportunities of

* "Hair of the head, neck, and body, soft, woolly, and of a rufous brown color, darkest on the sides; back, dark brown, the hair short, straight, and smooth. Wings gray in the middle, the bloodvessels darker and distinctly visible; snout long, narrow; the nostrils bifurcated; cheek-pouches spacious; no visible scrotum. Irides brown.

"Total length from the end of the nose to the anus, eight inches; extent of the wings, thirty-four and a half inches; forearm, four and seven-tenths inches; thumb, including the nail, two and three-tenths inches; nail, seven-tenths of an inch; ear, one inch long, three-quarters of an inch wide. Male.

"Dental formula: incisors, 4; canines, 2; molars, 12 = 34." (Peale, as above.)

becoming familiar with some of the bats belonging to the genus *Pteropus* (Roussettes of the French naturalists). In the Friendly, Feejee, and Samoan or Navigator's Islands, they are numerous, each group having its peculiar species. Their spectral appearance is one of the characteristics in the wild and varied scenery; their strong odor taints the atmosphere of the otherwise fragrant forests, and will always be remembered by persons who have visited their native haunts.

"The *Pteropi* are all more or less gregarious, most active in twilight, and when at rest, hang from the branches of trees with their heads downwards, using their wings as cloaks to shelter their bodies from the wind, rain, or sun. When they fly, as they have no interfemoral membrane, they hold their two hind feet together, which makes them appear to have a tail. They climb with great facility along the under side of the branches, and are very destructive to both wild and cultivated fruits, tasting and rejecting until the ripest and best are found. We never heard any species accused of destroying animal life. The species of Australia are migratory, being seen only in those seasons when peaches and other fruits are ripe and abundant, but of them we did not obtain specimens.

"At Singapore, we obtained some skins from the Malay peninsula, which are supposed to be *P. javanicus*, Desmarest, or *P. edulis*, Cuvier. They have a very small false molar tooth in the upper jaw, which, it seems, has not been observed in the specimens from the Island of Java. A specimen from that island was kept alive in the Philadelphia Museum for several years. It was perfectly tame and gentle towards persons whom it knew, but disliked strangers. During the voyage from Batavia to Philadelphia, it was fed on boiled rice sweetened with sugar, and on its arrival at the Museum, eat every kind of fruit that happened to be in season, and once in a while was indulged in picking the bones of a boiled fowl, which it did with avidity. It was always most active in the morning and evening, and slept at noon and midnight, never resting in any other position than with its head downwards, hanging by its hind feet."

2. ORDER FERÆ.—Rapacious Quadrupeds.—Beasts of Prey.

1. FAMILY URSIDÆ.—Bears.

1. GENUS URSUS, *Linn. Syst. Nat. I, p. 60 (1766).*1. URSUS HORRIBILIS, *Ord.*—The Grizzly Bear.

Ursus horribilis, ORD, Guthrie's Geog. II, p. 291 (1815); SAY, Long's Exp. II, p. 52 (1823).

Ursus cinereus, DESMAR. Mamm. p. 165 (1820).

Ursus candescens, H. SMITH, Griff. Cuv. II, p. 229, V, No. 320 (1826).

"*Ursus ferox*, LEWIS and CLARKE," Richardson, Faun. Bor. Am. I, p. 24.

Faun. Bor. Am. I, Plate I. Aud. and Bach. Quad. of N. A. Plate CXXXI; oct. ed. II, Plate CXXXI.

This powerful and formidable animal, comparatively well known since the possession by the United States of California and Oregon, is frequently alluded to by the naturalists of the Expedition. Their notes now to be given possess high interest as contributions to the history of this species.

We find in the journal of Dr. Pickering, several allusions to this animal, from which we introduce the following:

"According to Dr. Marsh, the Grizzly Bear is the only species found here, but the Black Bear of the United States is occasionally met with in some parts of New Mexico, where the skin is highly prized. The food of the California Indians is almost the same as that of the bear, and varies with the season in the same manner. Skins are sometimes seen nearly or fully as large as that of an ox. One lassoed, dragged three horses.

"Sometimes, it is said, this animal will not kill a man even after he is entirely in its power. Dr. Marsh states that it will rarely attack unless encountered unexpectedly in the brush. An anecdote is told of one which had seized a man and covered him with brush and leaves, only patting him down and covering him again as he attempted to rise, and after watching him awhile, finally went away, much to the

gratification of the prisoner. It is a mistake to suppose that this bear does not climb, though apparently not very expert at it. It ascends the oaks in search of acorns, and will sometimes break off large branches. Dr. Marsh does not consider it by any means a dangerous animal, though possessing such great strength. The gait of the individual seen by myself was exceedingly clumsy, and well justified the common proverb, yet it made out to get over the ground with considerable rapidity. Sometimes, it is said, three, four, or a larger number are seen feeding together like so many horses.

"No one, it is confidently asserted, has ever seen a gravid female bear, and the young are unusually small in proportion to the size of the adult animal. Formerly, according to Dr. Marsh, the Grizzly Bear was very abundant in California, so much so, that it was to be found in almost every valley; and in travelling, the Indians kept on the hills and other high ground, very carefully avoiding the favorite resorts of this animal.

"This bear feeds on acorns and other fruits, and is said also to dig up the roots of the *Tula* (*Scirpus lacustris*). It is also said to feed at times on grass."

Mr. Peale's observations on this animal are as follows:

"It is curious that this animal should not be found on the Columbia River near its mouth. In our journey south through Oregon, the first seen were on the Umpqua River, from which they seemed to increase in numbers until we arrived in California. Six were killed in one day by our hunters as we descended the Sacramento River, although their meat was not wanted; elk, deer, and antelopes being plentiful and affording much better food, unless the bear is very fat, which was not then the case. This destruction arose from a dislike to the animal justly considered the most dangerous on the continent.

"The principal food of the Grizzly Bear in California, is acorns, which are abundant and appear to be very nutritious; the Indians subsisting in a great measure on the same kind of food. Both Indians and bears ascend the trees to thrash down the acorns, which is about as effectually done by the one as the other. From the accounts of previous travellers, it has been supposed that the Grizzly Bear could not climb: it will not perhaps attack a person who has retreated for safety to a tree, but it certainly does sometimes climb and shakes the acorns from the trees, as we had frequent opportunities of witnessing the traces of destruction left, and there is little difficulty in distinguishing

the tracks of this species from those of the Black Bear (*Ursus americanus*), which is said to inhabit the same country."

2. GENUS MELES, Briss. Règ. Animal (1756).

1. MELES LABRADORIA (*Gmelin*).—The American Badger.

Ursus labradorius, Gm. Syst. Nat. I, p. 102 (1788).

Aud. and Bach. Quad. of N. A. Plate XLVII; oct. ed. I, Plate XLVII.

Apparently a common animal of Oregon, though we have not the facilities for comparing specimens from the western and northern regions of the American continent. We find no specimens in the collection of the Expedition, and it is alluded to only in the journal of Dr. Pickering.

Dr. Pickering gives the following interesting note on this species, under date of 7th of September, 1841:

"This day while on a short excursion alone, I fell in with a badger about sunset. It retreated across some marshy ground, and I fired at it without effect. After passing over some hills for about one-third of a mile, it turned and made a stand, and I thought would allow me to approach, but as I came near, it bristled up, yet made no threatening demonstrations and retreated backwards into its burrow, keeping just at a sufficient distance to be out of my reach. I now in my turn feigned a retreat, when it immediately came out again a few yards, affording another opportunity of a shot, but at too great a distance, and whether injured or not it regained its burrow and did not again appear. It uttered no cry whatever, and was so slow in its movements that I found no difficulty in closely pursuing it, though over unfavorable ground.

"Curiosity to observe the strange intruder on its solitary haunts, was evidently the motive that had wellnigh drawn this animal to destruction; and I have had frequent opportunities of observing that the same indication of intelligence is much more strikingly exhibited by the *Mammalia* in general (even in the *Cetacea* and *Phocidæ*), than in the other classes of the animal kingdom.

"The white stripe down the middle of the face was very conspi-

cuous in this specimen, but its color seemed more brown than I remembered to have seen in skins at home, and more resembling the color of the *Arctomys empetra*. When the animal bristled up, the hair on the shoulders and adjoining parts stood out laterally. Dr. Marsh confirms Richardson's account of the difficulty of drawing this animal out of its burrow, and states that unless quite dead it is almost impossible."

2. FAMILY CANIDÆ.—The Dogs.—The Wolves.

1. GENUS LUPUS, *Swainson*, Cab. Cy. Quad. p. 360 (1850).

1. LUPUS GIGAS, *Townsend*.—The Buffalo Wolf.

Lupus gigas, TOWNSEND, Jour. Acad. Philad. Quarto, II, p. 75 (1835).

Atlas, Mammalogy, Plate III, Fig. 1. Adult.

This wolf is described by Dr. Townsend, as a distinct species, as above, and apparently with entire propriety. It is larger than the common wolf of North America (*L. occidentalis*), and is, we believe, the largest species of the genus *Lupus*.

This species is regarded by Mr. Peale as identical with *L. occidentalis*, and also by Audubon and Bachman, in *Quadrupeds of North America*, III, p. 281 (octavo edition III, p. 279); but its characters are too constant and strongly marked to justify the supposition that they are merely those of a variety, or derived from unusually large specimens of that species. That it is a distinct and comparatively well marked species, is the opinion of nearly all American naturalists; amongst whom we have much satisfaction in designating Col. George A. McCall, late Inspector-General in the United States Army, whose ample opportunities for observing this wolf in its native wilds, and whose accurate scientific knowledge, render his conclusion of especial value. Col. McCall's observations on this species, are published in both editions of Audubon and Bachman's *Quadrupeds of North America* as above cited, and with Dr. Townsend's paper in the *Journal of the Philadelphia Academy*, and Mr. Peale's observations given below, embrace the history of this species, so far as has yet been given by naturalists.

The specimen in the collection of the Exploring Expedition is not so large as Dr. Townsend's specimens in the Museum of the Philadelphia Academy, but is clearly the same animal. Like the common wolf of North America, this species varies much in color and presents nearly similar differences in specimens.

Mr. Peale's description and remarks which we regard as relating to this species, are as follows:

"The size is greater than that of the Pyrenean Wolf, which it resembles. General color, brown; fur beneath the hair, cinereous. Nose, back of the ears, front of the legs, and sides of the tail, ferruginous; throat and abdomen, cinereous; cheeks, light yellowish-gray; forehead, darker gray; the hairs black, with a white bar nearest the roots; nape, pale ferruginous gray; hairs of the back, white one-third of their length from their roots, the rest black, with an obscure fulvous bar; tail, very dark above, and black at the tip, ferruginous beneath, paler on the sides; terminal hairs white at the roots, the rest glossy black. Fore legs tawny, in front ferruginous, with a narrow black line; under part of feet and claws, blue-black; the nails short and but slightly bent. Hind legs and feet less robust; the flanks ferruginous; whiskers sparse, black. Ears lined with cinereous hair. Teeth, large and strong; the two middle incisors of the upper jaw, trilobate; two outer incisors of the lower jaw, bilobate."

"Total length (dried skin), five feet two inches; tail, one foot eight inches; from the end of the nose to the eye, four and three-quarter inches; nose to ear, nine and a half inches; ear, four and a half inches; terminal hairs of the tail, five inches; claws of the fore feet, nine-tenths of an inch; spurious (thumb) nail, more curved, eight-tenths of an inch; claws of the hind feet, one inch; between the front angles of the ears, three and a half inches; upper canine teeth, one and two-tenths of an inch; lower canine teeth, one inch."

"The drawing for Plate III, was taken from a specimen obtained at Puget Sound, Oregon. It had killed a calf by a single bite which had divided its spine, and was subsequently poisoned with strychnia on its return to devour the victim. Figure 2, on the same plate, was drawn from a living animal taken when young in North Carolina; both specimens were about the same size, and, notwithstanding the wide difference in locality (the entire continent of North America, from northwest to southeast), few persons, we believe, could distinguish one from the other."

As we have said above, Dr. Townsend's specimens are the larger, but they preserve precisely the characters of those in the collection of the Expedition. All naturalists, except Mr. Peale, who have seen this animal in its native wilds, coincide in the conclusion that it is a species entirely distinct from the common Wolf of North America.



CRANIUM OF LUPUS GIGAS.

2. LUPUS OCCIDENTALIS (*Richardson*).—The Common Wolf of North America.

Canis lupus occidentalis, RICH. Faun. Bor. Am. Mamm. p. 60 (1829).

Atlas, Mammalogy, Plate III, Fig. 2. Adult.

This well-known species is frequently alluded to by the naturalists of the Expedition, as occurring at various points in Oregon and California. It apparently inhabits the whole of the temperate regions of North America. Though, like its congener of the old world, presenting much variety in color, no reliable characters of more than one species appear to have been determined by naturalists.

In color and general appearance this wolf much resembles the preceding, the most obvious difference being the greater size of the latter.

The relative size of the two species may be readily perceived from the cuts of the *crania* here given.



CRANIUM OF LUPUS OCCIDENTALIS.

3. LUPUS OCHROPUS (*Eschsch.*).—The Coyote.—The Western Prairie Wolf.

Canis ochropus, ESCHSCHOLTZ, Zool. Atlas, Pl. III, p. 1 (1829).

Lyciscus cogottis, SMITH, Nat. Lib. Mamm. IX, p. 164 (1839).

Canis latrans, SAY?

Eschsch. Zool. Atlas, Plate II. Nat. Lib. Mamm. IX, Plate VI.
Voy. Sulphur, Zool. Mamm. Plate X.

This is the *Coyote*, or *Prairie Wolf* of the countries west of the Rocky Mountains, and is recognized by much the majority of late authors as a species distinct from the *Lupus latrans* (Say), or *Prairie Wolf* of the countries on the eastern slope of the great mountain range that we have just mentioned.

The characters distinguishing the several real or supposed species of the wolves of North America, are apparently very obscure and unreliable, and certainly not agreed on by naturalists. The diversity of opinion is so considerable as to be quite perplexing to one who is compelled to treat the subject gravely, and adopt a name peremptorily for a species before him. The late Dr. Samuel George Morton, a profound and most indefatigable naturalist, entertained an opinion that there were numerous species of wolves in North America, several of which had escaped the attention of zoologists; in which he coincided with the views of various other writers. As an offset to that opinion, we here record the fact that, within the hour of writing this, we have had a conversation with one of the most accomplished naturalists* in America, and quite as well acquainted with American quadrupeds as Dr. Morton or any one else, in which he expressed a conviction that all the North American Wolves are varieties only of two species.

There is, perhaps, in the Zoology of North America, no greater difficulty than in determining the species, if such they are, of the wolves. Whether that now before us is identical with the *Canis latrans* of Say, or not, we shall not at present venture to decide; preferring, however, to give it as recognized by nearly all naturalists, as a distinct species. It is, nevertheless, certainly nearly allied to that animal, and may be identical specifically, but a marked variety.

The naturalists of the Exploring Expedition differ in regard to the

* Major John Leconte, late of the United States Army.

point to which we have alluded. Dr. Pickering regards the animal of Oregon and California now before us, as specifically distinct from the *Canis latrans*, but expresses a suspicion that it may be the young of the common wolf (*Lupus occidentalis*). He first mentions it at Puget Sound, under date of 21st of July, 1841:

"A third species, apparently of *Lupus*, is found here, and of which I have seen skins. It is called here 'the Prairie Wolf,' but is not the species usually meant by that name (*Lupus latrans*). Its colors are much the same as in the large wolf, of which it may be the young."

Under date of 22d of August, at which time a party to which he was attached from the Expedition were engaged in a boat voyage up the Sacramento River, he says:

"A specimen of the *Coyote* was shot to-day by Mr. Hammersly. It is very similar to the small wolf of Oregon, but the head in this specimen appears to be longer and the snout more pointed. The colors are very nearly the same, the tail reaches a little below the joint of the *tibia* and *tarsus*, and is blackish at the tip. The voice of this animal is a bark, very much like that of a dog, and also a prolonged howl. It is certainly not the same as the *Lupus latrans*."

Subsequently, we find in the journal of Dr. Pickering:

"The *Coyote*, I am assured by Dr. Marsh, is the same animal as that of the Upper Mississippi, and inhabits the entire intermediate country to the Pacific Ocean, but he thinks it not the same as the Prairie Wolf of more southern states on the same river."

Mr. Peale regards the animal of Oregon and California as identical with *Canis latrans*, Say, under which name he thus alludes to it:

"In Oregon, we saw this wolf wherever the country partook of a 'prairie' character, or in other words, where the forests were not extensive; but it is not so abundant there as in the Buffalo country east of the Rocky Mountains. As we journeyed south into California, following the waters of the Sacramento River, we found it increasing in numbers. In California, thousands of cattle are annually slaughtered for their skins and tallow only, the bodies of which are left for the vultures and Coyotes, and as a consequence of food in plenty with but trifling molestation, these wolves have multiplied and have become very bold thieves. They frequently entered our camp at night and stole venison, geese, or whatever food was left within their reach, and on one occasion, they carried off a Grizzly Bear's skin from the door of a tent in front of a fire. They are very

cowardly, always running from dogs, few however of which will attack them.

"The Prairie Wolf varies greatly, both in size and color, but its jackal-like voice, half bark, half howl, sometimes approaching a scream, is so different from that of the rest of the North American Wolves, that most persons would recognize it as the same, whether heard on the plains of the Missouri, or the pastures of California."



CRANIUM OF LUPUS OCHROPUS.

2. GENUS VULPES, *Briss. Rêg. Anim.* (1756).—The Foxes.

1. VULPES VIRGINIANUS (*Schreb.*).—The Gray Fox.

Canis virginianus, SCHREBER, *Saugh.* III, p. 585 (1778).

Aud. Quad. of N. A. Plate XXI; oct. ed. I, Plate XXI.

This animal appears to be abundant in Western America, being brought in nearly all collections made in that part of this continent. We find in the collection of the Expedition, several fine specimens which cannot be distinguished from others obtained in the Southern States, on the Atlantic. This species, therefore, appears to inhabit nearly the entire temperate regions of North America, extending its range, as is not unfrequently the case with species of quadrupeds, and birds also, farther north on the Pacific than on the Atlantic.

Mr. Peale mentions this species as follows:

"This animal was obtained at Puget's Sound, in Oregon, and was observed several times in the forests which lay in our route to California, but never in the prairie country."

2. VULPES VELOX (*Say*).—The Swift Fox.

Canis velox, SAY, *Long's Exp.* II, p. 339 (1823).

Aud. Quad. of N. A. Plate LII; oct. ed. II, Plate LII.

Noticed by the naturalists of the Expedition as occurring in Oregon.

Mr. Peale observes :

"At Fort Vancouver, on the Columbia River, we saw the skins of this animal which were there considered uncommon. Further south on our journey to California, we had several opportunities of seeing it. The burrows of this species are always in the prairies and never in the forest or 'brush,' like those of the preceding or Gray Fox."

3. VULPES MAGELLANICUS (*Gray*).

Canis magellanicus, GRAY, Proc. Zool. Soc. London, 1836, p. 88.

Voy. Beagle, Zool. Mamm. Plate V.

This large species, though but recently known to naturalists, is peculiar to the southern and western countries of South America, and is remarkable not only for its larger size than is usually met with in this genus, but for its apparent fearlessness of man. It is stated by Molina, in Nat. Hist. of Chili, that it will run boldly towards a man, stopping within a short distance and surveying him leisurely. Specimens from Tierra del Fuego are in the collection of the Expedition; and others from Chili are also in the National Museum, collected by Lieutenant Gilliss, during the stay in that country of the United States Astronomical Expedition, under his command. Dr. Pickering mentions this animal at Tierra del Fuego, in February, 1839:

"This fox is not uncommon. One was seen by myself, and others by several members of our party. Several specimens have been obtained; one of which showed considerable boldness, in attacking a seaman of the crew of the Vincennes, as he was carrying wood. This animal looks something like the figures of the Prairie Wolf, and appears to present somewhat more of the habits of the wolves than of the foxes."

3. FAMILY SORECIDÆ.—The Shrews.—The Moles.

1. GENUS SCALOPS, Cuvier, Règ. An. I, p. 134 (1817).

1. SCALOPS ÆNEUS, Cassin.

Scalops æneus, CASSIN, Proc. Acad. Philad. VI, p. 299 (February, 1853).

Atlas, Mammalogy, Plate VIII, Fig. 3. Adult.

S. aquatico æqualis. Castaneo-æneus nitens, vertice saturatiore, naso fusco, pedibus brunneis, unguiculis phalangique ultimo nigris.

FORM.—About the size of *S. aquaticus*; nose long, pointed; claws of fore feet very strong; tail moderate, or rather small; fur thick, compact. Upper jaw, after the two incisors, with seven false molars on each side, which are pointed and nearly equal, except the last, which is double the size of either of the others and has a small exterior basal lobe. Molars three; the first, with four external lobes, the anterior being very small; the second, large and pointed; the third short, blunt and deeply emarginate; the fourth lobe also blunt and short. Besides these, the first molar has one interior and one posterior lobe; second molar with three short external lobes, the intermediate one emarginate; third molar with two short external lobes, the posterior one emarginate, and two interior and one posterior lobe. Lower jaw with two incisors on each side, the anterior of which is the shorter; these are followed by six false molars, which are pointed and nearly equal in size, except the last, which is larger, and furnished with a minute posterior lobe at its base. Molars three, each deeply sulcate on the external surface, and composed of two large external lobes and three smaller and shorter internal lobes.

DIMENSIONS.—Total length (of specimen in spirits), about five inches; head, two inches; fore foot, one and one-eighth of an inch; hind foot, one and a half inches; tail, one and a quarter inches; first and fifth toes of fore foot equal; second, shorter; first and fifth toes of the hind foot equal; other three nearly equal to each other.

COLORS.—Entirely shining brassy-brown, very glossy, and in some lights appearing to be almost metallic; darker on the top of the head, and lighter and more obscure on the chin and throat; nose dusky; feet brownish; nails and last joint of the toes black; palms dusky; soles of the hind feet dark-brown; tail light-brown, thinly furnished with scattering hairs.

HAB.—Oregon. Specimen in Nat. Mus. Washington.

This is the most beautiful species of mole yet discovered in America, and is colored differently from any other with which we are acquainted. The entire pilage is of the richest silky-brown, presenting a gloss or lustre rarely observed in such a high degree in quadrupeds. In its dentition and other general characters, this animal is a strict congener of *Scalops townsendii*, but is smaller and not of the same colors. Its black claws are entirely peculiar and characteristic, and afford a character by which it can be always recognized with facility.

We find nothing recorded by the naturalists relating to the history of this interesting species, though the credit of its discovery is due to the Expedition, in the collection of which the specimen yet remains unique, and in good preservation.

This mole has no white on the under parts of the body as in *S. townsendii*, and is smaller than that species.

2. SCALOPS TOWNSENDII, *Bachman*.

Scalops townsendii, BACHMAN, Journal Philad. Acad. VIII, p. 58.

Aud. and Bach. Quad. of N. A. Plate CXLV; oct. ed. III, Plate CXLV.

One very fine and characteristic specimen is in the collection of the Expedition. It was obtained in Oregon, and presents no characters, nor have we any facts in relation to this species, other than have been given by the authors above referred to, unless, indeed, we may except the curious statement made by Mr. Peale, that it devoured *dried peas* eagerly, a habit quite unusual in an insectivorous animal.

Mr. Peale observes with reference to this species:

"The provisions furnished to our party travelling from Oregon to California, consisted in part of peas and tallow; the peas were carried in bags, which were suffered to lie on the ground when we encamped,

and were sometimes discovered by the 'Ground Moles,' which were so eager to devour them that they were easily captured, and proved to be of this species. They form long burrows near the surface of the ground, similar to those of the Mole of the eastern portion of our continent (*Scalops canadensis*)."

We make this extract *verbatim* from Mr. Peale's printed volume (p. 30). Possibly the peas of our voyagers had become infested with insects which proved attractive to our handsome *Scalops*, rather than the peas themselves!

4. FAMILY PHOCIDÆ.—The Seals.

1. GENUS LOBODON, Gray, Zool. Voy. Erebus and Terror, Mammalia, p. 5 (1844).

1. LOBODON CARCINOPHAGA (*Homb. et Jacq.*)

Phoca carcinophaga, HOMBRON and JACQUINOT, Zool. Voy. Astrolabe and Zelee, Mammalia, Pl. X (name on plate).

Stenorhynchus terridens, OWEN, Ann. and Mag. Nat. Hist. XII, p. 331 (1843).

Halichærus antarcticus, PEALE, Zool. Exp. Exp. Vincennes, Mammalia, p. 30 (1848).*

A very fine specimen of this species is in the collection of the Expe-

* "Four posterior molar teeth in both jaws double-rooted, their crowns many-lobed; canine teeth, stout, curved, of a moderate length, and channelled on the inside; cutting-teeth, short, simple, curved.

"The general form of the body, short and full; the forefeet very short, covered with hair beneath; the five claws nearly equal in length and thickness, but slightly curved, and reaching beyond the intercarpal membrane; hind feet triangular in form when expanded; nails, long, flat, straight, middle one of the five smallest, the outer ones largest and nearly equal in size, all reach beyond the intertarsal membranes; tail, flat, short, round, with but a slight point at the extremity; nose, covered with hair, excepting a very small spot between the nostrils, which are situated in front of the snout, and are linear in form; whiskers and tuft of bristles above the brow, large, flattened, undulated on the edges, and of a pale yellow color or white. Hair, very stout, close set and flat, the points curve forward when dry, and give the skin a velvety appearance.

"Length from the nose to the end of the tail, four feet; hind toes reaching three and three-quarter inches beyond; fore leg, measured along the front, four and three-tenths inches; nails, one and two-tenths of an inch; hind feet, measured from the body, six inches; outer nails, one and one-tenth of an inch; middle nails, seven-eighths of an inch; whiskers, four and a half inches; eyebrows, two and four-tenths inches.

"Dental formula: incisors, $\frac{1}{2}$; canine, $\frac{1}{2}$; molars, $\frac{3}{2}$ $\frac{3}{2}$ = 34."

dition, but the following short note by Mr. Peale is our only information relating to it :

"This species inhabits the Antarctic Ice. The specimen was obtained on the 10th of March, at Deception Island. It appears from the teeth to be an adult, and is the most perfect specimen brought home by the Expedition."



2. GENUS CYSTOPHORA, Gray?

1. CYSTOPHORA, — ?

We find in Dr. Pickering's journal, the following notice of the appearance of an animal of this family, on the coast of South America, between Rio de Janeiro and the Rio Negro. This notice is of high interest on account of locality :

"1839, January 20th. At nine A.M., a Seal appeared about the bows of the vessel, easily keeping ahead, and frequently coming to the surface. Our distance from the nearest land was one hundred and thirty-five miles, though the water was green, as if on soundings.

"When swimming below the surface this animal might almost have been mistaken for a Shark, except that its body was much more flexible in turning, and another remarkable difference was, that it appeared to swim entirely by means of its pectoral flippers, the tail being extended and apparently inactive."

3. ORDER CETACEA.—The Aquatic Mammals.

1. FAMILY DELPHINIDÆ—The Dolphins. The Porpoises.

1. GENUS DELPHINUS, Linn. Syst. Nat. I, p. 108 (1766). The Dolphins.

1. DELPHINUS OBSCURUS, Gray. Spic. Zool. p. 2 (1828).

Delphinus cruciger, QUOY and GAIM. Voy. Uranie, Zool. p. 87 (1824)?*Delphinus bivittatus*, LESSON, Voy. Coquille Zool. I, p. 178 (1826)?*Delphinus fitzroyii*, WATERHOUSE, Voy. Beagle, Mamm. p. 25 (1840).*Phocæna australis*, PEALE, Zool. Exp. Exp. Mamm. p. 33 (1848).

Atlas, Mammalogy, Plate V, Fig. 1.

Voy. Beagle, Mamm. Plate X; Voy. Coquille, Mamm. Plate IX?
Voy. Uranie, Mamm. Plate XI?

This species, which appears to be an abundant animal of the coasts of South America, is stated by Mr. Peale to have been "harpooned in the South Atlantic Ocean, off the coast of Patagonia, on the 12th of February." It appears to be liable to very considerable variation of colors, or rather of the distribution and extent of the white color of the under parts, and, consequently, of the dark of the upper parts also. It has been frequently described by authors, and its correct nomenclature and synonymy would not, we think, be ascertained without some difficulty and very considerable expenditure of time.

Mr. Peale's description is as follows:

"Snout, back, and all the fins, dark slate-color; sides, paler or gray, a white lateral line commences opposite the posterior edge of the dorsal fin and reaches the tail; beneath white, which joins the gray of the sides by an undulated line.

"Total length, seven feet; greater diameter, opposite the dorsal fin, eighteen inches; pectoral fin, sixteen inches; dorsal fin, seventeen inches; across the tail, twenty inches.

"Dental formula: $\frac{3}{2} \frac{1}{2}, \frac{3}{2} \frac{1}{2}, = 120$."

HAB.—South Atlantic Ocean, Coast of Patagonia.

2. DELPHINUS PECTORALIS (Peale).

Phocaena pectoralis, PEALE, Zool. Exp. Exp. Mamm. p. 32 (1st ed. 1848).

Atlas, Mammalogy, Plate V, Fig. 2.

Coerulescenti-niger, macula alba pectorali utrinque ante pinnas pectorales, vitta frontali pallide purpureo-nigra, abdomine pallide roseo-albo. Labris rubescenti albo marginatis.

Having no specimen, we transcribe Mr. Peale's description of this species:

"Color, blue-black, a white spot on each side of the breast in front of the pectoral fins; a frontal band of light slate-color extends a short distance behind the eyes; vent and abdomen, light reddish-white; lips, margined with reddish-white.

"Total length, eight feet eight inches; greatest diameter, twenty-one inches; dorsal fin, measured along the front edge, fourteen inches; pectoral fin, sixteen inches; tail, twenty-five and a half inches in diameter; from the end of the snout to the corner of the mouth, eleven and a half inches; eye, from the end of the snout, thirteen inches.

"Dental formula: $\frac{23}{23}$, $\frac{23}{23}$, = 92?

"Sixty of these animals were driven on shore by the natives at Hilo Bay, Island of Hawaii, at one time. They were considered dainty food, and yielded a valuable stock of oil. Only one lower jaw was saved as a specimen. It is more rounded than usual at the extremity; the teeth are stout, project outwards, and are worn nearly even with the gums, showing that our specimen was an old animal, and probably of the maximum size."

This species appears to be related to both *D. obscurus* and *D. Heavisidii*, Gray, and belongs to the same subgeneric group, if not specifically identical with one or the other. It more strongly resembles the latter, but we have failed to recognize it as a described species from the lower jaw above alluded to, and a drawing, from which our plate has been prepared.

3. DELPHINUS ALBIMANUS, Peale. Zool. Exp. Exp. Mamm. p. 33
(1st ed. 1848).

Delphinus novæ zeelandiæ, QUOY and GAIM. Voy. Astrolabe, Mamm. p. 149 (1830)?

Atlas, Mammalogy, Plate VI, Fig. 1.

This species was captured by the Expedition on the coast of Chili. Its locality, therefore, is widely different from that of the species of which we have cited the name provisionally and inquiringly as a synonyme, and which, as its name implies, is from the coast of New Zealand. We are, however, inclined to suspect that they are identical, on grounds which will be apparent on comparison of our plate with that in the Zoological Atlas of the Voyage of the Astrolabe, Mammifères, Pl. XXVIII, fig. 1, 2, or in Schreber's Saugthiere, Pl. CCCLVII. The small circular openings on the throat of *D. novæ zeelandiæ*, represented in the plate of the Voy. Astrolabe, just cited, and particularly in fig. 2, and called "pores," by Messrs. Quoy and Gaimard,* we regard as very probably the work of a parasitic animal infesting it. The fact that these orifices are placed with entire irregularity is, in our opinion, fatal to the supposition that they are a character of the animal. Their absence in the present species is probably a consideration of no moment in the question of identity. The dentition of the two species is stated by their describers as exactly the same.

The following are Mr. Peale's description and remarks on this animal:

"Snout, head, back, tail, and dorsal fin, blue-black; belly and pectoral fin, white; sides, pale tawny; eye, small, brown, and surrounded with a black ring which joins the black of the snout; body, between the dorsal fin and tail, very much compressed.

"Total length, six feet six inches; snout, five and three-quarter inches; dorsal fin, measured along the front edge, nine and a half inches; along the posterior edge, nine inches; tail, six inches long, sixteen and a half wide; pectoral fin, eleven and a half inches long, four inches wide; from the end of the snout to the eye, twelve inches;

* "On remarque, sous la mâchoire inférieure, des pores formant de petits anneaux; et sur le corps, de petites plaques de stries blanches assez régulièrement contournées." Voy. Astrolabe, Mamm. p. 150.

body, six inches; above the tail, when most compressed, one and a half inches wide; circumference in front of dorsal fin, forty and a half inches.

"Dental formula: $\frac{4\frac{1}{2}}{4\frac{1}{2}}, \frac{4\frac{1}{2}}{4\frac{1}{2}}, = 180$.

"Weight estimated to be 150 pounds.

"The specimen was a female. Its uterus contained a single foetus, which was a male, of a reddish flesh color, and about nine inches long. The stomach contained fragments of cephalopode mollusca only. It was harpooned from the bows of the U. S. Ship Peacock, on the coast of Chili, latitude $27^{\circ} 16' S.$, and longitude $75^{\circ} 30' W.$, on the twelfth of June."

For the present we continue the name proposed by Mr. Peale for this animal, but have little doubt that it ought to be superseded by the prior designation of Messrs. Quoy and Gaimard.

4. DELPHINUS BOREALIS (Peale).

Delphinapterus borealis, PEALE, Zool. Exp. Exp. Mamm. p. 35 (1st ed. 1848).

Atlas, Mammalogy, Plate VII, Fig. 2.

Forma elongata, rostro parum producto. Color nigro, macula lanceolata alba pectorali, quæ in lineam angustam ad caudam proceditur.

"Form, elongate; snout, slightly produced; color, black, with a white lanceolate spot on the breast, which is extended in a narrow line to the tail."

"Length, four feet."

HAB.—North Pacific Ocean.

Having no specimens for examination, we cite Mr. Peale's description of this interesting species. From his figures, however, to be found in the Atlas to the present volume as above cited, it appears to us probable that it does not belong to the genus *Delphinapterus*, or to the group of which *D. Peronii* is the type. In color and general appearance this species appears to resemble *D. hastatus*. F. Cuvier, Schreber, Sangthiere, VII, Pl. CCCLI; Reichenbach, Cetaceans, Pl. X, fig. 29,

30, notwithstanding that it has no dorsal fin. It may be the young of a species of *Beluga*.

From *Delphinus hastatus* the present species appears to differ essentially in size, and it is without the large hastate spot on the abdomen which characterizes that animal, and it does not belong to the same generic group.

To this species, Mr. Peale alludes as follows:

"While in the water it appears to be entirely black, the white line being invisible. It is remarkably quick and lively in its motions, frequently leaping entirely out of the water, and from its not having a dorsal fin, is sometimes mistaken for a Seal.

"Specimens were taken in the North Pacific Ocean, latitude $46^{\circ} 6'$ $50''$, longitude $134^{\circ} 5'$ W. from Greenwich. Great quantities of a species of *Anatifa* were floating on the surface of the sea, on which they were probably feeding. Two, which had been struck and badly wounded with the harpoon, escaped, but the others did not leave the ship as the *Delphinus* usually do when one of their number is wounded."

From the latitude and longitude given by Mr. Peale, it will be found that the land nearest to the point at which this animal was obtained, is the coast of Oregon. It is, therefore, to be regarded with additional interest as entitled to admission into the Fauna of the United States.

This species appears to resemble *Delphinapterus* only in the absence of the dorsal fin, in which respect it also resembles *Beluga*, of which it is probably a species.

2. GENUS *LAGENORHYNCHUS*, Gray, Voy. Erebus and Terror, Mamm.
Pl. XXXIV (1846).

1. *LAGENORHYNCHUS CÆRULEOALBUS* (Meyen).

Delphinus cæruleoalbus, MEYEN, Nov. Act. Nat. Cur. XVI, p. 609 (1832).

Delphinus albirostratus, PEALE, Zool. Exp. Exp. Mamm. p. 34 (1st ed. 1848).

Atlas, Mammalogy, Plate VI, Fig. 2.

Though Mr. Peale's figures, from which those in the plate of the Atlas to this volume have been prepared, differ in some measure from the figures of *D. cæruleoalbus*, in the distribution of the light and dark colors, we have no doubt of the identity of the present animal with that species. The figures of the latter to which we more especially

allude, are that of its first describer in Nova Acta Physico-medica Academiæ Cæsaræ Leopoldinæ Carolinæ Naturæ Curiosorum, XVI, Pl. XLIII, fig. 2, and those in Schreber's Saugthiere, Pl. CCCLXIII, and in Reichenbach's Cetaceans, Pl. XIV, fig. 43.

Mr. Peale describes the present species as follows:

"Form elongate, the dorsal fin being nearest the head; color, dark blue-gray, the fins and back nearly black; a dark line connects the corners of the mouth with the pectoral fins; front and sides dark gray, covered with small vermicular white spots; end of the snout, white; commissure of the lips, pale yellow.

"Total length, six feet seven inches; perpendicular diameter at the dorsal fin, thirteen inches.

"Dental formula: $\frac{40}{40}, \frac{40}{40} = 160$?"

"Taken in the Pacific Ocean, latitude $2^{\circ} 47' 5''$ S., longitude $174^{\circ} 13'$ W. of Greenwich, on the 22d of August."

We find no specimen in the Collection of the Expedition.

2. LAGENORHYNCHUS LATERALIS (Peale).

Delphinus lateralis, PEALE, Zool. Exp. Exp. Mamm. p. 35 (1st ed. 1848).

Atlas, Mammalogy, Plate VII, Fig. 1.

Forma robusta, corpore pone pinnam dorsalem valde compresso. Colore pallide purpurascenti-cinereo, subtus albo, linea laterali saturatiore maculis marginata, colorem corporis superiorem ab inferiore secernit.

"Form, thick; snout, small; body, much compressed behind the dorsal fin; color, light purplish-gray; beneath white, a dark lateral line edged with spots separates the colors of the upper and under parts of the body; a separate line, paler in color, branches from the lateral line opposite the pectoral fins, and passes downwards and backwards, another connects the eyes and pectoral fins; snout, fins, black."

"Total length, seven feet six inches.

"Dental formula: $\frac{41}{41}, \frac{41}{41} = 164$?"

"Caught on the 13th of September, in the Pacific Ocean, latitude 13° 58' N., longitude 161° 22' W."

This is the description by Mr. Peale, to which we can add nothing. We find no specimen in the collection of the Expedition, but from the figure and description as above cited, this species does not appear to intimately resemble any other. From the latitude and longitude given, it appears to have been captured at sea, some degrees south of the Sandwich Islands.

3. GENUS DELPHINAPTERUS, *Lacepede*, Hist. Nat. des. Cétacées, p. 243 (1804).

1. DELPHINAPTERUS PERONII (*Lacepede*).

Delphinus peronii, LACEP. Hist. Nat. Cét. p. 316 (1804).

Voy. Coquille, Zool. Pl. IX, Fig. 1; F. Cuv. Cétac. Pl. XV, Fig. 2.

Dr. Pickering records the capture of this species on the western coast of South America, in latitude 50° 35'.

4. ORDER GLIRES.—The Gnawing Mammals.

1. FAMILY CASTORIDÆ.—The Beavers.—The Water Rats.

1. GENUS CASTOR, *Linn.* Syst. Nat. I, p. 78 (1766).

1. CASTOR AMERICANUS, *F. Cuvier*.—The American Beaver.

Castor americanus, F. CUV.

Castor fiber, LINN. Syst. Nat. I, p. 78; Harlan, Godman et al. auct. Amer.

Castor fiber, americanus, Rich. Faun. Bor. Am. Mamm. p. 105.

Castor canadensis, KUHL.

Aud. and Bach. Quad. N. A. Plate XLVI, Oct. ed. I, Plate XLVI.

The Beaver does not appear to have come under the notice of either of the naturalists of the Expedition, neither in Oregon nor California, but we find recorded in the journal of Dr. Pickering, memoranda of information derived from residents in those countries, which are of interest. At Fort Okanagan, he mentions:

"It is said here, that the Beaver was formerly of common occurrence in all the streams, and that the Indians trapped it to some extent. The fact that it is now almost extinct is attributed to the introduction of traps of better construction, and to the unremitting destruction of this animal for the sake of its skin. It is said to be yet occasionally seen."

In California, he states:

"I am informed by Dr. Marsh that the *Tule* districts abound in Beavers, and that from the peculiar character of those localities it is very difficult to take them in traps. It is said, too, that this animal is found on the Sacramento River, but no sign of it was seen by our party, so far as our boat voyage extended."

2. GENUS FIBER, *Cuvier*, Reg. An. I, p. 192 (1817).

1. FIBER ZIBETHICUS (*Linn.*). The Muskrat. The Musquash.

Castor zibethicus, LINN. Syst. Nat. I, p. 79 (1766).

Aud. and Bach. Quad. of N. A. Plate XIII, Oct ed. I, Plate XIII.

This animal is mentioned by the naturalists of the Expedition as having been observed in Oregon, and the same has been done by other travellers. We are not aware, however, that any specimens from Western North America have ever reached the collections in the Atlantic States, or that any comparison with the common species of the Eastern United States has ever been made, which, from Mr. Peale's statement below given, relating to the size of western specimens, we regard as quite important for the more exact determination of the species.

This species, if indeed it is identical with the well-known *Fiber zibethicus* of the Eastern States, appears to inhabit the entire coast of Oregon and Russian America, and is given by Pallas, in *Zoographia Rosso-Asiatica* (I, p. 144), as an inhabitant also of Siberia.

Mr. Peale states :

"Muskrats, the name by which these animals are best known in the United States, were seen by the Expedition, in Oregon. Along the Columbia River they are quite common, but it was remarkable that all the specimens seen there, were smaller than those found on the Atlantic coast.

"The only specimen preserved, was one obtained on the Willamette River, which having been destroyed by the exposure incident to a long journey on pack-horses, prevents our showing any specific difference, which the difference in size inclines us to suspect."

2. FAMILY ARCTOMURIDÆ.

1. GENUS ARCTOMYS, Schreber, Saugth. IV, p. 721 (1792).

1. ARCTOMYS MONAX (Linn.). The Ground Hog. The Hoary Marmot.

Mus monax, LINN. Syst. Nat. I, p. 81 (1766).

Mus empetra, PALLAS, Nov. Sp. Quad. e. Glirium Ordine, p. 75 (1777).

Arctomys monax et Arctomys empetra, AUCT.

Rich. Faun. Bor. Am. Mamm. Plate IX; Aud. and Bach. Quad. U. S. Plate II, Oct. ed. (pl. 1).

Dr. Pickering mentions this animal as having been observed in Oregon, and thinks it the same specifically as the common species of the United States. There being no specimens in the collection, we introduce it for the purpose of citing his observations, which occur under date of 7th of June, 1841 :

"Arrived at Fort Okanagan just too late to see some specimens of 'the Siffleur,' which were partly cooked, and I was at the time much disposed to regret it, under the impression that it was a species with which I was not acquainted. Three specimens were, however, brought in by an Indian the next day, and proved to be identical with the Wood Chuck of the United States (*Arctomys monax*), so far as I could remember the character of the latter, or certainly presenting no striking difference.

"General form, thick and heavy; ears, small and rounded; tail,

about half the length of the body. About the mouth and nose, light gray; rest of the head brownish, and darker than the body; weight, five to seven pounds; female had five teats on each side. I could only learn from the Indian that he brought these specimens from 'afar off,' but it is very probably this animal, the holes of which we have found frequer 'ly in the open country, though perhaps some may have been of the Badger. It is worthy of remark, that we did not find any of these west of the Coast Range."

2. GENUS APLODONTIA, *Richardson*, Zool. Jour. IV, p. 334 (1829).

1. APLODONTIA LEPORINA, *Richardson*.—Zool. Jour. IV, p. 335 (1829).

Arctomys rufa, HARLAN, Faun. Am. p. 308 (1825)?

Rich. Faun. Bor. Am. Plate XVIII; Aud. and Bach. Quad. of N. A. Plate CXXIII, Oct. ed. II, Plate CXXIII.

Though fine specimens of this remarkable animal are in the collection, we prefer citing a description by Mr. Peale, which appears to have been made very soon after they were obtained. At present, the colors have in some degree faded; a result to be expected, nearly twenty years having elapsed since these specimens were obtained. Mr. Peale's description and observations are as follows:

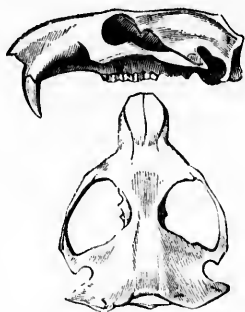
"General form rounded, thick, and short, with a flat and broad head, the whole covered with fur and hair intermixed; the former fine, half an inch long, dark plumbeous tipped with umber-brown; the hair from eight-tenths to an inch in length, very thin, and of a brown color at the roots and tips, but much inflated and black in the middle; very glossy, and at certain angles reflecting light of a cobalt-blue color; whiskers, tufts of bristles, on the ulna and cheeks, white; ears very small, rounded, and nearly covered with fur; eyes, small; nose, large, tumid; tail, scarcely perceptible; fore feet, larger and stronger than the hind; the claws strong, curved, compressed; the thumb with a flattened, blunt nail; hind feet, with the three middle toes nearly equal; the outer and inner toes almost equal; the inner one being shortest; the nails less curved, and less compressed than those of the fore feet. Incisors, very strong, and of a clear yellow color.

"Length of the head and body, fourteen and two-tenths inches; tail, including the hair, one and four-tenths; hair at the end of

tail, one inch; head, from the nose to the ear, two and three-tenths inches; to the eye, one and four-tenths of an inch; whiskers, three and a half inches; longest claw (fore foot), six-tenths of an inch; thumb, including the nail, three-tenths of an inch; nail, two-tenths of an inch; hind foot (almost plantigrade), two and two-tenths inches; middle toe, nine-tenths of an inch. Male."

"The specimens were obtained at Nisqually, Puget Sound, Oregon, where it is quite a common animal, and their skins much prized by the Indians for making robes, used in the place of blankets. The occipital portion of the skull is remarkable in form, from its great breadth and flatness."

Dr. Pickering also mentions this animal as frequent at Puget Sound, and known to the inhabitants as the "Rat des Bois."



CRANIUM OF APLODONTIA LEPORINA.

3. FAMILY MURIDÆ.—The Mice and Rats.

1. GENUS MUS, Linn. Syst. Nat. I, p. 79 (1766).

1. MUS DECUMANUS, Pallas.—The Norway Rat.

Mus decumanus, PALL. Nov. Sp. Quad. Glirium, p. 91 (1766).

The occurrence of the common Rat in the islands of the Pacific Ocean, and at various other localities, is noted by the naturalists of the Expedition. It appears, in fact, to have followed the course of commercial enterprise and voyages of discovery throughout the world,

and apparently maintains its specific characters in such a variety of climates and under such various circumstances, as to present quite appreciable difficulties to the theories of some of the earlier naturalists in relation to climatal influence.

Mr. Peale remarks :

"The common brown or Norway Rat was observed at the Hawaiian and some other islands in the Pacific Ocean, where it has been introduced by commercial intercourse with Europe and America. It was observed to retain its partiality for the habitations of mankind, with all its burrowing and destructive habits, but does not seem to multiply so rapidly as it does in countries where the cereal grains are grown or dealt with as matters of commerce. We did not find it on islands uninhabited by mankind."

The collection of specimens of this common animal, especially in unusual or little visited localities, ought, by no means, to be neglected when opportunities are presented to voyagers and naturalists. Such collections furnish materials for investigations involving very important zoological principles and doctrines, and are the most reliable sources of information and demonstration.

2. *MUS EXULANS*, Peale.

Mus exulans, PEALE, Zool. Exp. Exp. Mamm. p. 47 (1st ed. 1848).

Mus penicillatus, GOULD, Proc. Zool. Soc. London, 1842, p. 12?

Mus jaobae vel decumanoides, WATERH. Voy. Beagle, Mamm. p. 34 (1840)?

Atlas, Mammalogy, Plate IV, Fig. 1. Adult.

This is a species of Rat, named by Mr. Peale as above, and so much resembling the common *Mus decumanus* in all characters, except size, that we have not thought a detailed or technical description necessary, especially as our figure correctly represents it. It is mentioned by the naturalists of the Expedition as inhabiting the Coral Islands and others of the Pacific Ocean, and in addition to its smaller size, is represented as possessing quite different habits from the common Rat. No technical description is given by Mr. Peale, but his observations on this animal are of much interest, and are as follows :

"Nearly all the Coral Islands visited by the Expedition, were found to be inhabited by Rats, so like the common brown or Norway Rat

(*M. decumanus*), that they might be pronounced a diminutive variety, had we not found them inhabiting islands many thousands of miles apart, but still retaining their somewhat peculiar habits, with but little variation in size. The females have two pectoral and four abdominal teats. In the arrangement and color of the teeth, the texture and color of the hair, the *scutæ* of the tail, general form, and in most specific characters, excepting size, the animal resembles the brown or Norway Rat."

"This species was seen on but one 'high' island, Tahiti. It seems to prefer the low coral islets. It constructs a nest in the 'tussucks' of grass, and makes shallow burrows, like an *Arvicola*. Its food consists principally of the fruit of the *Pandanus*, evincing but little carnivorous appetite, as various species of land-crabs abound near their haunts without being much disturbed, and the neighboring shores afford abundant *Mollusca*, the empty shells of which would betray the fact, if such was the food of this Rat."

"The animal before us has, decidedly, the habits of an *Arvicola*. It is generally to be found in pairs, and when pursued is soon fatigued and easily captured, but unlike the Norway Rat, it utters no cry, although it resists pertinaciously and bites severely. When pursued, it sometimes endeavors to escape by ascending a tree, should any be near."

Mr. Peale gives the following table of measurements of specimens of this species obtained at the various localities mentioned.

| | DOG ISLAND. | | DISAPPOINTMENT ISLAND. | | WAKE'S ISLAND. | | HULL'S ISLAND. | | TAHITI. | |
|----------------------------|----------------|--------|---------------------------|--------|-------------------|--------|-------------------|--------|---------|--------|
| | Male. | | Female. | | Female. | | Female. | | Female. | |
| | In. | 10ths. | In. | 10ths. | In. | 10ths. | In. | 10ths. | In. | 10ths. |
| Length of head and body, . | 5 | 3 | 6 | 5 | 5 | | 5 | 2 | 5 | 4 |
| " tail, | 5 | 3 | 5 | | 5 | 3 | 5 | 3 | 4 | 8 |
| " head, | 1 | 5 | 1 | 4 | 1 | 4 | 1 | 6 | 1 | 9 |
| " ears, | | 6 | | | | 6 | | 6 | | 6 |
| " fore-arm, . . . | | 8 | 1 | | | 9 | | 9 | | 9 |
| " fore-paw, . . . | | 5 | | | | 5 | | 5 | | 5 |
| " tibia, | 1 | 2 | | | 1 | 4 | 1 | 3 | 1 | 2 |
| " hind foot, . . | 1 | 1 | | | 1 | 1 | 1 | 1 | 1 | 1 |

Specimens from various localities are in the collection of the Expedition. Though we are not without suspicion that this animal is either

one or the other of the species the names of which we have provisionally inserted as synonyms, we have not at the present time the facilities for making an examination of a satisfactory or conclusive character in this extensive and difficult genus. The same remark applies equally well to the succeeding species.

3. *MUS VITIENSIS*, Peale.—The Feejee Rat.

Mus vitiensis, PEALE, Zool. Exp. Exp. Mamm. p. 49 (1st ed. 1848).

Atlas, Mammalogy, Plate IV, Fig. 2.

This is another species, very considerably resembling the common rat, but differs in several characters, amongst which may be mentioned the comparatively longer tail and the different texture of the pilage, and also its apparently uniformly smaller size. It was observed inhabiting the Feejee Islands, and though specimens in good preservation are in the collection of the Expedition, we think it necessary to give Mr. Peale's description and notes only, which, with our plate, are sufficient for the identification of the species:

"M. cauda caput corpusque longitudine superante, forma tenui et gratiosa, pilis subtilibus, longis, speciem sericam gerentibus, colore, supra sepice brunneo, infra prope albo, pedibus magnis, albis, pollice brevi ungue complanato, cauda pallide gilva, cum squamis brunneis exiguis quæ pilis subtilibus sericis vestiuntur, oculis mediocribus nigris, auribus magnis, rotundatis et molliter serico-pilosus, laniariis parvis et flavido albis. Femina.

"Tail, longer than the head and body; form, light and graceful; hair, fine, long, and silky in texture; color, sepia brown above, nearly white beneath; feet, large, white; thumb, short, with a flattened nail; tail, pale flesh-color, with very small brown scales, and covered slightly by fine silky hairs; eyes, of a moderate size, black; ears large, rounded, and covered with silky hairs; incisors small, and of a yellowish-white color.

"Length of the head and body, three and one-tenth inches; tail, three and four-tenths inches; head, one and one-tenth of an inch;

ears, four-tenths of an inch; fore-arm, half an inch; paw, four-tenths of an inch; tibia, nine-tenths of an inch; hind foot, nine-tenths of an inch. Female."

"Male. Length of head and body, four inches; tail, four and a half inches."

"This animal is a great pest in most of the houses on the Feejee Islands. It makes its nest in the thatched roof, being an excellent climber, and sallies forth at night in such numbers as to be exceedingly troublesome. To us, strangers, their gambols overhead, in the thatch, were so noisy as to banish sleep, and their attacks on our pockets and packs, containing edibles provided for our excursions, were so vigorous, that cloth and buttons or willow baskets afforded no protection from them.



"The natives have a very simple and ingenious contrivance to save provisions from their attacks. It is an implement suspended from the roof, as represented above, which, being sometimes fancifully carved, led some of our officers, not acquainted with its use, to suppose it to be a household deity."

4. *MUS MUSCULUS*, Linn.—The Mouse.

Mus musculus, LINN. Syst. Nat. I, p. 83 (1766).

Like the common rat, the mouse is mentioned as having been noticed at nearly all points visited by the Expedition, and presents another remarkable instance of the adaptation of a species to a great variety of climates and temperatures. We find no specimens in the collection, but the obtaining of such, from various and widely distant localities, especially from those at which this little animal had long since been introduced, would evidently be of high interest, as affording precise demonstration of the real value of climatal and other extraneous influences.

Mr. Peale mentions this animal as follows :

"The common mouse seems to keep pace with the progress of civilization, and may be considered a parasite of our race. We saw it in Chili, in Peru, at the Sandwich Islands, New Zealand, and on the Columbia River, in Oregon. In all these localities, as with us in the United States, it frequents the habitations of mankind only, and that always to the exclusion of any small native species of mice, which may have previously partaken of the same abode."

In addition to the localities given by Mr. Peale, this little animal is mentioned by Dr. Pickering as having been observed at the Feejee Islands, and at San Lorenzo, in Peru.

2. GENUS *HESPEROMYS*, Waterhouse.1. *HESPEROMYS LEUCOPUS* (*Rafinesque*).—The White-footed Mouse.

Musculus leucopus, RAF. Am. Month. Rev. Oct., 1818, p. 444.

Mus sylvaticus, FORSTER, Phil. Trans. London, LXII, p. 380 ?

AUD. and BACH. Quad. N. A. pl. 40.

There are, in the collection of the Expedition, various specimens from Oregon and California, all of which have been referred to this species by Mr. Peale. Though certainly partaking of the general characters of the animal of the Eastern States, we have doubts of their specific identity ; nor can we, with any certainty, regard them

as either of the species described by that very accomplished mammalogist, Major John Le Conte, or other American naturalists.

All the specimens of the Expedition are unfortunately in spirits; immersion in which for nearly twenty years has, very probably, so materially injured the colors, that at present we do not deem it expedient to undertake an extended or minute comparison, for which, moreover, we have not the necessary collections nor experience in this department of Zoology. Examination of specimens of the animals of this group, from Western North America, will amply repay the naturalist.

The following, by Mr. Peale, is the only notice we find on record by the naturalists of the Expedition :

"This species of mouse was met with in considerable numbers on the west coast of America, from Puget's Sound in the north, to the Bay of San Francisco, in California, south. It probably inhabits the country much further in each direction."

3. GENUS DRYMOMYS, *Tschudi*, Fauna Peruana, Mamm. p. 178 (1845).

1. DRYMOMYS PARVULUS, *Tschudi*.

Drymomys parvulus, TSCH. Faun. Per. p. 178 (1845).

Mus peruvianus, PEALE, Zool. Exp. Exp. Mamm. p. 51 (1st ed. 1848).*

Tsch. Faun. Per. Mamm. pl. 13, Fig. 1.

Several specimens from Peru present no characters other than as stated by Tschudi, but vary considerably in size. This animal appears to form a distinct genus or subgenus, as above designated, though, in general appearance, much resembling other animals of its family.

Mr. Peale alludes to the present animal as follows :

* "Upper parts yellowish-brown, inclining to tawny on the sides; feet, throat, and under parts of the body, white; tail long, slender, pale flesh-color, with a brown line on the upper surface; eyes small, black; ears large, round, and naked; a small tuft of white fur behind the ears, which is invisible when they are thrown back. The posterior extremity of the body small; the tail long and slender; presenting as a whole a peculiar contour.

"Length of the head and body, two and three-tenths inches; tail, three and one-tenth inches; head, nine-tenths of an inch; ear, half an inch; forearm, half an inch; foot, three-tenths of an inch; tibia, eight-tenths of an inch; hind-foot, seven-tenths of an inch." (Peale, as above.)

"The specimens were obtained near Callao, Peru. Their nests were found in the fences, built of *adobes* or sun-dried bricks, and consisted of fine grass, feathers, &c."

4. GENUS ARVICOLA, *Lacépède* (1803).—The Field Mouse.

1. ARVICOLA OCCIDENTALIS, *Peale*.—The Western Field Mouse.

Arvicola occidentalis, *PEALE*, Zool. Exp. Exp. Mamm. p. 45 (1st ed. 1848).

Atlas, Mammalogy, Plate VIII, Fig. 2. Adult.

Pilis molissimis et tenuissimis, extremitatibus superioribus rufis sine ulla nigra admistione. Auribus sub pilis occultis, cauda subcompressa, supra et subtus concolore rufa. Long. 6 unc.

FORM.—Head large, blunt; upper incisors not grooved; eyes small; ears rather large, but nearly concealed by the long hair; antitragus rather small, semicircular. Thumb of fore foot rudimentary, with a compressed blunt nail; third and fourth toes of the fore foot nearly equal; fifth, shorter than the second. Hind foot with the thumb or first toe about half as long as the second; third and fourth, very nearly equal; fifth, rather more than half the length of the fourth. Tail slightly compressed laterally and covered with short hair; bristles of the muzzle rather numerous and long. Ears covered with hair on their outside only. Feet covered with short hair. Hair, especially on the upper parts, very fine and soft.

DENTITION.—In the upper jaw, the first molar presents five triangles, one anterior, two exterior, and two interior; the second presents four triangles, one anterior, two exterior, and one interior, with a posterior rounded lobe; the third presents five triangles, one anterior, two exterior, very small, two interior, and ends in a trefle or three-lobed figure, the exterior lobe of which is nearly obliterated, and leaves a plane space from the end of the tooth to the posterior triangle. The line of teeth in the upper jaw exhibits, externally, nine salient and nine re-entering angles, the two last of each, small; internally, ten

salient and eight re-entering angles, exclusive of the interior emargination of the trefle. In the lower jaw, the first molar commences with a trefle, then follow six triangles, two exterior, three interior, and one posterior; the second presents five triangles, two exterior, two interior, and one posterior; the third is narrowed anteriorly, and formed of five triangles, two exterior very small, two interior and one posterior. The line of teeth in the lower jaw presents externally eleven salient angles, including the exterior lobe of the trefle, and nine re-entering angles, including the concavity of the side of the trefle; internally, eleven salient, the two penultimate very small, and eleven re-entering angles, including the interior lobe and the emargination of the side of the trefle. This dentition is precisely similar to that of *Arvicola riparius*, Ord.

DIMENSIONS.—Total length (specimen in spirits), from tip of nose to end of tail, about six inches; head, one inch and a quarter; fore leg, three-quarters of an inch; hind leg, one and a half inches; tail, two inches.

COLORS.—Entire pilage of the upper parts glossy rufous, darkest on the middle of the head and back; under parts grayish-white, palest on the abdomen. Fur on all parts dark-lead color at base, and only tipped with the colors just stated. Feet and tail reddish-brown, nearly uniform with the color of the upper parts of the body. Incisors, on their anterior surface, pale orange-yellow.

HAB.—Puget Sound, Oregon. Specimen in Nat. Mus. Washington.

This is one of the most handsome little animals of its family, and bears some general resemblance to *Arvicola riparius*, but is very readily to be distinguished. We find in the notes of the naturalists of the Expedition nothing relating to it, further than that it was obtained at Puget's Sound, Oregon.

2. *ARVICOLA CALIFORNICUS*, Peale.—The California Field Mouse.

Arvicola californicus, PEALE, Zool. Exp. Exp. Mamm. p. 46 (1st ed. 1848).

Atlas, Mammalogy, Plate VIII, Fig. 1. Adult.

Subvariegatus rufescenti-fusco et nigro. Corpore brevi et robusto, pilis

speciem hirsutiei habentibus, revera tamen mollibus et levibus. Auribus submagnis, pene sub pilis occultis. Cauda supra fusca, subtus fusco-cinerea. Long. 6 unc.

FORM.—Body short and thick; head large, blunt; upper incisors not grooved; eyes small; ears rounded, rather large, but almost concealed under the fur; anti-tragus large and semicircular. Thumb of the fore-foot rudimentary, with a compressed blunt nail; third and fourth toes of the fore foot, nearly equal; fifth, rather shorter than the second. Hind foot, with the first toe, about half as long as the second; third and fourth, very nearly equal; fifth, rather more than half the length of the fourth. Tail cylindrical; feet and tail covered with short hair. Bristles of the muzzle or whiskers long and numerous. Pilage, especially on the upper parts, composed of long and rather coarse hair and fur, and presenting a rather marked hirsute appearance.

DENTITION.—Generally similar to that of the preceding, but differs as follows: In the upper jaw, the second internal triangle of the first molar and the internal triangle of the second are each furnished with a small, sharp, posterior lobe. In the lower jaw, the first tooth is formed of nine triangles; one anterior, which may rather be called an oval, one posterior, three exterior, and four interior. The line of the teeth in the upper jaw differs in having internally nine salient and eight re-entering, and in the lower jaw in having externally ten salient and nine re-entering, and internally twelve salient and eleven re-entering angles.

DIMENSIONS.—Total length (specimen in spirits), from tip of nose to end of tail, about six inches; fore leg, three-quarters of an inch; hind leg, one and a half inches; head, one and a quarter inches; tail, one and three-quarter inches.

COLORS.—Plumbeous at base of pilage, very glossy; above and on the sides uniform reddish-brown, mixed with black; cheeks paler; under parts much lighter and inclining to brownish-gray. Tail above, brown, beneath cinereous. Feet grayish-brown; incisors on their anterior surface pale orange-yellow; whiskers pale-brown or gray.

HAB.—San Francisco, California. Specimen in Nat. Mus. Washington.

About the size of the preceding, but very different in color. Of this species fine specimens are in the collection of the Expedition, and, like those of the preceding, are as yet the only ones that have found their way to our collections. Of this animal, Mr. Peale remarks:

"It is not uncommon at the Bay of San Francisco, California, in all moist and grassy situations, but from the form of the tail we infer that it is not aquatic in its habits, like the *Arvicola occidentalis*, to which it is nearly allied."

That this little species has escaped the attention of late naturalists and collectors, we regard as quite remarkable, especially seeing that the "Bay of San Francisco" has become rather a well-known locality, zoologically and otherwise, since the above was written. Such appears to be the fact, however, and we have, as yet, seen no other specimens than those in the collection of the Expedition.

3. ARVICOLA MONTANUS, Peale.

Arvicola montanus, PEALE, Zool. Exp. Exp. Mamm. p. 44 (1848).

A species under this name is described by Mr. Peale, as above cited, but of which we find no specimens in the collection of the Expedition, nor is there a drawing of it amongst those made by him, nor a citation of a plate in his printed book. We suppose, therefore, that the specimens were lost, and can only, under the circumstances, quote the description alluded to:

"*A. forma rotundata, capite magno, auribus mediocribus et vellere pene vestitis, dentibus flavis, oculis parvis, nigris, pilis subtilibus sericisque, in dorso brunneis nigrisque intermixtis; infra plumbeis cauda pedibusque brevi nitente pilo indutis, mystacibus albis nigrisque; mammis octo, quatuor in abdomine, in pectore totidem.*

"Form rounded; the head large; ears moderate and nearly covered with fur; teeth yellow; eyes small, black; hair fine and silky; that of the back brown and black intermixed; beneath, lead colored; tail and feet covered with short, glossy hairs; whiskers white and black; teats eight in number, four pectoral and four abdominal."

"Total length, six and one-eighth inches, including the tail, which is one and a half inches long.

"Our specimen was obtained on the 4th of October, near the head waters of the Sacramento River, in California."

5. GENUS PEROGNATHUS, *De Wied.*

Cricetodipus, PEALE, Zool. Exp. Exp. Mamm. p. 52* (1st ed. 1848).

1. PEROGNATHUS PARVUS (*Peale*).

Cricetodipus parvus, PEALE, Zool. Exp. Exp. Mamm. p. 53 (1st ed. 1848).

A single specimen of this species is in the collection, which, having remained in spirits for a length of time, very probably sufficient to affect its colors, we deem it most proper to transcribe the description by Mr. Peale:

"Head ovate; the snout elongate, pointed, and covered with hair, excepting the nostrils, which are small and convolute; lips large, tumid, and covered with short hairs; whiskers numerous, white; a tuft of white hairs or bristles on the chin; cheek-pouches spacious, opening outside of the mouth, and reaching from the upper lip to the throat, the cavity extending backwards to the ears, and lined with hair; eyes medium-sized; ears small, round, and fringed with hairs; fore legs small; the feet moderate, margined with bristly hairs; the nails short, curved, excepting that of the thumb, which is orbicular, or resembling the human thumb nail; hind legs long; the feet larger and strong, five-toed, the middle one slightly longer than the rest, inner toe shortest, reaching only to the end of the metatarsal bones of the

* "Head and body nearly equal in size; spacious cheek-pouches outside of the mouth; upper cutting teeth small, narrow, incurved and channelled longitudinally on the exterior; lower cutting teeth narrow, rounded, and approximating at the points; molars with six rounded tubercles on each; ears small, rounded; eyes medium sized; fore legs small, feet with four toes and a thumb, the latter having a flattened nail; hind legs large, strong, the feet having five long toes, each with a distinct metatarsus, tail longer than the head and body.

"Dental formula: incisors, $\frac{2}{1}$; canines, $\frac{0}{0}$; molars, $\frac{3}{3}$ = 16." (Peale, as above.)

others; all the nails short, pointed, and slightly curved; tail long, tapering, and clothed with short silky hairs. Color above sepia-brown, beneath white; a dark line crosses the cheek beneath the eye.

"Length of the head and body, one and nine-tenths of an inch; head, from the nose to the occiput, nine-tenths of an inch; ear, three-twentieths of an inch; tail, two and three-tenths inches; fore leg, from the elbow, nine-twentieths of an inch; fore foot, three-tenths of an inch; tibia, seven-tenths of an inch; hind foot, eight-tenths of an inch; metatarsus, five-tenths of an inch.

"A single specimen of this singular animal was obtained in Oregon, but no notes were furnished by the person who obtained it. The formation of its hind legs leaves but little room to doubt that its habits are similar to those of the jumping mice, *Meriones labradorius* (Richardson), which are inhabitants of the same region. Its singularly large head, which equals its body in bulk, its ample cheek-pouches, long hind legs, and long tail, present a general form which is peculiar and altogether very remarkable. On dissection, the stomach was found to contain a pulpy matter, which appeared to be the remains of a bulbous root. The liver is very large, and consists of five foliaceous lobes; we were not able to detect any gall-bladder. The specimen is a female, and presents the rudiments of a fourth molar tooth in each side of the lower jaw, which would eventually have replaced the front ones, already much worn."

4. FAMILY SCIURIDÆ.—The Squirrels.

1. GENUS SCIURUS, Linn. Syst. Nat. I, p. 86 (1766).

1. SCIURUS FOSSOR, Peale.—The Digger Squirrel.

Sciurus fossor, PEALE, Zool. Exp. Exp. Mamm. p. 55 (1st ed. 1848).

Sciurus Heermanni, LECONTE, Proc. Acad. Philad. VI, p. 149 (1852).

Sciurus Clarkii, H. SMITH, Griff. Cuv. III, p. 189 (1827)?

Atlas, Mammalogy, Plate IX. Adult.

S. supra e nigro alboque intermixtis griseus, subtus albus, auribus magnis

breviter pilosis, naso nigro, cauda disticha, albo-marginata, corpore non brevior.

FORM.—Large and rather heavy, somewhat resembling *S. cinereus*. Hairs rather long and coarse; whiskers shorter than the head; ears large (not fringed), subtriangular, rounded at the tip, covered on both sides with short hair. Tail long; legs strong and robust.

DIMENSIONS.—Total length (of skin) from tip of nose to end of tail, including the hair on the latter, about twenty-six inches; head, three and a quarter inches; tail including hair, fourteen inches; length of ear, one inch; fore foot, two inches; hind foot, three inches; hair at end of tail, two and three-quarter inches. Incisors, two in each jaw; molars, five in the upper and four in the under jaw on each side.

COLORS.—Body above light gray; hairs gray at base, then black, with bands of white near the middle, becoming duller and gray towards the point, and some hairs pure black. A small spot towards the top of the nose and an obscure line over the eye, black; whiskers black; ears gray; incisors on their exterior surface, dark orange, beneath white. Hair of the tail black, with gray at base and tipped with white, rather lighter on its under surface.

HAB.—Oregon and California. Specimen in Mus. Acad. Philadelphia, and Nat. Mus. Washington.

This fine species has now been brought by several naturalists from California, the first of which was Dr. A. L. Heermann, whose specimen was described by our esteemed friend, Dr. John L. Leconte, one of the most accomplished and eminent of American naturalists, as above cited. There was at that time no copy of Mr. Peale's volume in the city of Philadelphia, and from the fact that a part only of the Government edition of one hundred copies was distributed and no other published, its contents were necessarily but little known. Dr. Leconte was, however, the first to inform us that his, and the species described by Mr. Peale, were identical.

Mr. Peale observes with reference to this animal:

"In the southern parts of Oregon, there is a large species of pine

(*Pinus Lambertii*, Douglas), which produces a cone about fifteen inches long and eighteen in circumference. The gum or resin which exudes where this tree has been wounded, is sweet, tasting like manna, which it also resembles in appearance and in its gentle purgative qualities. The fruit of this pine furnishes food for the natives, as well as to the subject of this description, which is one of the largest of the American Squirrels.

"This species was found by our party wherever we saw the above-mentioned pine. It digs holes in the ground, to which it retreats when pursued or shot at, although it is able to climb with great facility. In this respect it greatly resembles our common ground squirrel (*Tamias Lysteri*, Ray), but does not so habitually live on the ground, being most frequently seen in the pine trees."

Dr. Heermann's specimens, now in the Museum of the Philadelphia Academy, are rather smaller than those in the collection of the Expedition, but are evidently the same specifically. We entirely coincide in the suspicion expressed by Messrs. Audubon and Bachman, in *Quadrupeds of North America*, III, p. 342, that this species may be *Sciurus Clarkii*, H. Smith, as above cited.

5. FAMILY HYSTRICIDÆ.—The Porcupines.

1. GENUS HYSTRIX, *Linn. Syst. Nat. I*, p. 76 (1766).

1. HYSTRIX DORSATA, *Linn.*—The North American Porcupine.

Hystrix dorsata, LINN. *Syst. Nat. I*, p. 76 (1766).

Hystrix pilosus, RICHARDSON, *Faun. Bor. Am. Mamm.* p. 214 (1829).

Hystrix hudsonius, AUCT.

Aud. and Bach. *Quad. of N. A.* Plate XXXVI; oct. ed. I, Plate XXXVI.

The North American Porcupine does not appear to have been observed by the naturalists of the Expedition, but according to Mr. Peale its quills were obtained in Oregon.

Mr. Peale observes with reference to this species:

"The 'quills' of this species of porcupine were obtained from some

Indians, whom we met while crossing the Shasty Mountains, lying between Oregon and California. There can be little doubt of the animal's inhabiting that part of the continent near the Pacific Ocean, about the forty-second degree of latitude, although unknown to be there by the traders and trappers of fur-bearing animals, who occasionally cross that tract of country in search of beavers in Upper California. The Indians from whom we obtained the quills, are generally hostile to white people, and all the surrounding tribes of their own color, and we believe could not have obtained the porcupine quills in trade, because they are not used by the Indians in the south of Oregon for embroidery, as they are in the north."

2. GENUS DOLICHOTIS, *Desmarest*, Mamm. p. 359, 360 note (1820).

1. DOLICHOTIS PATACHONICA (*Shaw*).—The Patagonian Cavy.

Cavia patachonica, SHAW, Gen. Zool. II, p. 226 (1801).

Maru magellonica, LESSON, Cent. Zool. p. 113 (1830).

Shaw, Zool. II, Plate CLXV. Less. Cent. Plate XLII.

Under date of January 30th, 1839, at the Rio Negro, in Patagonia, we find the following note relating to this little animal, in Dr. Pickering's journal :

"The Patagonian Cavy is very common, and usually passes by the name of 'hare.' Its dentition does not differ materially from that of the other cavies (*Chloromys*), at least in the upper jaw, except that the last molar has three lobes instead of two.

"In one of my excursions, I started a party of six of these little animals, which ran away with considerable swiftness, and somewhat to my surprise, keeping strictly in single file. I was told by residents that this was the case when found in companies, for the purpose of adhering to the paths to their burrows. This cavy was said, however, to be most usually found in pairs, though perhaps not at the season of our visit. On another occasion I found four together, two of which took refuge in their burrows, while the others disappeared over a ridge. The gait of this animal reminded me of that of a hare, but it has a peculiar and rather awkward limp. Its burrows are large,

and it frequently has for a companion a species of burrowing owl, of which specimens have been obtained.

"A young specimen brought living on board had a whistling cry, not loud. It made no attempt to bite."

3. GENUS CAVIA, *Gmelin*. Syst. Nat. I, p. 120 (1788).

1. CAVIA PORCELLUS (*Linn.*).—The Guinea Pig.—The Variegated Cavy.

Mus porcellus, LINN. Syst. Nat. I, p. 79 (1766).

Cavia aperea, ERXLEBEN, Mamm. p. 348 (1777).

Cavia cobaya, Gm. Syst. Nat. I, p. 122 (1788).

Cavia obscura, LICHTS. Verz. p. 3 (1823).

Dr. Pickering observes with reference to this animal:

"From information derived from residents, I am inclined to suppose that the native country of the 'cuy' or guinea pig, extends to the mountains or forests of Eastern Peru, and is not exclusively Guiana or Brazil, as has been supposed. It is a common domestic animal throughout Peru."

4. GENUS LAGOTIS, *Bennett*, Trans. Zool. Soc. London, I, p. 59 (1835).

1. LAGOTIS PALLIPES, *Bennett*.—The Visacha.

Lagotis pallipes, BENN. Trans. Zool. Soc. London, I, p. 332 (1835).

Trans. Zool. Soc. London, I, Plate XLII.

In relation to this species, we introduce the following from the journal of Dr. Pickering:

"This animal is very common on all the barren stony hills of Western Peru, even in the immediate vicinity of Lima,—so much so that it is difficult to determine how it finds sustenance, unless it resorts to roots, for instance, the deep-buried bulbs of the *Amaryllis* tribe.

"Its appearance is very nearly that which would be presented by a rabbit with a long tail. It forms burrows, which are frequently also tenanted by a species of burrowing owl. Though here commonly called 'viscacha,' it is entirely different from the animal bearing the same name on the plains of Buenos Ayres."

5. GENUS *DASYPUS*, Linn. Syst. Nat. I, p. 53 (1766).

1. *DASYPUS MINUTUS*, *Desmarest*.—The Patagonian Armadillo.

Dasypus minutus, DESM. Mamm. p. 371 (1820).

From notes in Dr. Pickering's journal, made at the Rio Negro, Patagonia, we introduce the following relating to this species:

"An armadillo is abundant, and is apparently the 'Tatou-pichy' of Azara. Several specimens have been brought on board, which buried themselves in a cask of sand with great facility. They proved to be exceedingly quarrelsome, and fought each other almost incessantly, presenting in their battles some very peculiar and quite ludicrous features. The one likely to be overcome, rolled himself up as a last resort, and waited quietly until the victor desisted. They inflicted no inconsiderable wounds with the nails of the fore feet, directing their exertions to the skin between the dorsal bands, and endeavoring to bite each other's ears. At other times they were more peaceable, making no attempt to bite, and on the floor were rather disposed to be inactive.

"These animals devoured meat with some voracity, masticating it apparently very effectually, and *lapped* water with the tongue, which is rather the contrary of Azara's observation. Another larger species was mentioned by residents, but not seen during the stay of the Expedition."

5. ORDER UNGULATA.—The Hoofed Manimals.

1. FAMILY CERVIDÆ.—The Deers, Elks, Moose, &c.

1. GENUS CERVUS, *Linnaeus*, Syst. Nat. I, p. 92 (1766).1. CERVUS AMERICANUS (*Jefferson*).—The American Elk.

Alces americanus, JEFFERSON, Notes on Virginia, p. 87 (London, 1787).

Cervus strongyloceros, SCHREBER, Saugthiere, V, p. 1074 (1836)?

Cervus major, ORD. Guthrie's Geog. II, p. 292 (1815).

Elaphus canadensis (BRISS.), De Kay, Nat. Hist. New York, I, p. 118.

Schreb. Saugth. V, Plate CCXLVII. Audubon and Bachman, Quad. N. A. Plate LXII; oct. ed. III, Plate LXXVI.

This fine species, well known as the largest of the North American *Cervidæ*, is frequently mentioned by the naturalists of the Expedition as having been observed in Oregon and California. In the latter country it appears to be especially abundant, more so, perhaps, than in any other portion of the United States. Mr. Peale's remarks on this animal are as follows:

“‘Wapiti,’ ‘Wawaskiss,’ ‘Waskeesews,’ ‘Wawaskeesho,’ and as many other Indian names are applied to this animal, as there are tribes of Indians speaking different dialects of language, in the wide belt of country which it inhabits. Elk is the name universally adopted by all who speak the English language in the same districts, where the moose (*Cervus alces*, L.), known by the name of elk in Northern Europe, is seldom, if ever, found.

“It still exists on the upper branches of the Susquehanna River, and thence westwardly, may occasionally be found in all favorable situations, in greater or less numbers, to the Pacific Ocean. Those observed by the members of the Expedition on the mountains south of the Columbia River, were of unusual size and in considerable numbers.

"In California, this animal is very abundant, and commonly frequents the plains, as it does in the country on the upper parts of the Missouri River. Though not generally so large as when found inhabiting mountain districts, we can find no specific character to separate one from the other. They all have the same strong, blunt, canine teeth in the upper jaw only, light-colored rumps, short tails, &c. They go in larger herds than any other deer in America, excepting, perhaps, the caribou (*Cervus tarandus*, L.), and, notwithstanding the specific name, *canadensis*, must not be considered a northern species."

Dr. Pickering frequently mentions this animal in that portion of his journal which relates to California. We take the liberty of introducing the following extracts, which are from his notes made during a boat-voyage up the Sacramento River:

"August 27th, 1841.—At sunset, a bear having been seen on the bank, landed with Messrs. Alden, Sandford, Elliott, and Hammersly, when we immediately discovered a herd of elk, which we endeavored to approach within gunshot, abandoning our proposed search for the bear.

"The herd consisted of perhaps thirty, principally females, or young males, and as they formed themselves into a group, apparently awaiting our arrival, presented a highly imposing appearance. The father or chieftain of the flock maintained in some measure a position in the centre, and his immense horns appeared almost to overshadow the party. At intervals they uttered a short kind of roar, more like barking than the voice of a hoofed animal, and our situation would have been exceedingly precarious, were it the instinct of this animal to attack man. They did not allow us to approach within the range of our fire-arms, but after turning and wheeling around several times, made off at such a rate that, considering the lateness of the hour, we did not deem it prudent to pursue.

"September 2d.—Elk heard whistling, and a young male with two females noticed by a party which landed. Did not allow us to approach within gunshot.

"September 9th.—The velvety covering of the horns of the elk is stated by Dr. Richardson, in *Fauna Boreali-Americana*, to be rubbed off in October. This is evidently dependent somewhat on locality, as here, in California, it was completely gone in the last week of August.

"F. Cuvier's comparison of the cry of this animal to the pronunciation of the vowels a-o-u, is by no means inaccurate, especially if we suppose the sounds so shrill as almost to resemble whistling, by which name it is commonly alluded to by residents and hunters. There is a popular notion here that it is produced through the lachrymal sac, which of course is erroneous.

"The flesh of the elk is highly prized in California, and preferred to venison, notwithstanding statements of authors. F. Cuvier's dimensions of this animal seem to be too small. A specimen killed, appeared to me as fully equalling if not exceeding a cow in height and bulk. The back in this specimen was rubbed and sore from contact with the horns, carried backwards. Tail very short. It was not in my power to make an accurate measurement."

2. CERVUS MACROTIS, Say.—The Mule Deer.

Cervus macrotis, SAY, Long's Exp. II, p. 88 (1823).

Atlas, Mammalogy, Plate X. Adult.

This species is now well established, though it does not appear to have been known to naturalists before the Expedition of Lewis and Clarke, and even since, has been frequently confounded with the preceding and other species. It is apparently more an exclusive inhabitant of the interior of the continent than others.

No specimen of the mule deer is in the present collection, nor does it appear to have been met with in the course of the voyage of the Expedition, but we cite Mr. Peale's description and remarks at length as being a detailed account of this species, the materials for which he evidently derives from observations made during Long's Expedition, to which he was attached. It will be observed, that he especially states the specimen described by him as the same which served for the description of Mr. Say, who was also attached to Major Long's party. The specimen alluded to, was, we believe, formerly in Peale's Museum in Philadelphia:

"Rather larger than *Cervus virginianus*, and having more of the general aspect of *C. canadensis*, destitute of the black submaxillary marks which are always conspicuous in *C. Lewisii* and *C. virginianus*.

Horns larger and more spreading, but having the points turned forward in the same manner; snout more arched, and the lachrymal opening larger; hoofs rounded, the under surface concave; tail pale ferruginous above, destitute of hair beneath, and having a tuft of black hair at the extremity. Color pale ferruginous, darkest on the back, lighter beneath; chin, throat, inside of the thighs and belly, dirty white; hair flattened and undulating; eyelashes and whiskers black; irides dark brown; pupils blue-black and horizontally linear, ears large, almost naked, dark colored externally, and lined with scattered white hairs internally.

"Total length, five feet seven inches; tail, seven and a half inches; black tuft, five and a half inches; height at the shoulder, three feet; at the rump, three feet four inches; circumference, breast, three feet three inches; abdomen, three feet nine inches; space between the horns, two and three-tenths inches; length of the horns by the curve, one foot four and a half inches; lachrymal opening, one inch; ear in length, ten inches; width, four inches; from the base of the ear to the shoulder, one foot; fore leg from the carpal joint to the point of the hoof, one foot one inch; hoof, one and six-tenths of an inch; measured along the commissure beneath, two and a half inches; in width, two inches; hind foot from the *os calcis* to the tip of the hoof, one foot six and a half inches; hoof, one and seven-tenths of an inch; along the commissure beneath, two and a half inches; width, one and six-tenths of an inch; spurious hoofs, eight-tenths of an inch; width, nine-tenths of an inch.

"Dental formula: incisors, $\frac{0}{3}$; canine, $\frac{0}{1}$ $\frac{0}{1}$; molars, $\frac{3}{3}$ $\frac{3}{3}$ = 32.

"The specimen from which our description is taken, was killed on the 1st of August, and is consequently in summer hair. The horns were not fully grown, but are carefully delineated in our plate, and will give a correct idea of their appearance when covered with 'velvet,'—a term used by hunters to express the nature of the short hair which covers the horns of deer when they are growing. It is the same specimen described by Mr. Say, and the drawing for Plate X, is finished from a sketch made on the spot. The landscape and background of the plate being sketched at the same time, are given as characteristic of the country generally inhabited by the mule deer.

"From observation, and all the information collected, we believe this species, in its geographical range, is confined to the Rocky Mountains. It is most abundant on the eastern slope, and delights in rocky

hills covered with cedar and pine trees. By the flattened and concave formation of its hoofs, it is enabled to climb the rocky steep with much greater facility than other species of deer, and for the same reason we infer that it is more at ease in the snowy regions of the mountains."

3. CERVUS LEWISII, Peale.—The Black-tailed Deer.

Cervus Lewisii, PEALE, Zool. Exp. Exp. Mamm. p. 39 (1st ed. 1848).

Cervus macrotis, var. *columbiana*, RICHARDSON, Faun. Bor. Am. I, p. 257 (1829).

Cervus macrourus, HAM. SMITH, Griff. Cuv. V, p. 316 (1827)?

Atlas, Mammalogy, Plate XI. Adult.

Though known since the time of Lewis and Clarke, this species was first accurately described by Mr. Peale. Usually confounded by naturalists with the preceding and other species, it is clearly and evidently distinct, and apparently peculiar to the countries of North America west of the Rocky Mountains.

Mr. Peale's description and observations are as follows:

"Horns shaped like those of *Cervus virginianus*, but more slender, and commonly without the basal antler. General form rounded and compact; color of the hair (in October), yellowish-brown, lighter beneath, not flattened, but slightly undulating, a black or dark-brown band encircling the nose and under jaw; chin, belly, and inside of the legs yellowish-white; a dark line along the middle of the breast; tail curved, covered with hair at all seasons, tufted towards the extremity, black above, and yellowish-white beneath. Feet pale, raw, sienna-colored; hoofs bluish horn-color, narrow and small.

"Dental formula: incisors, $\frac{0}{0}$; canines, $\frac{0}{0}$; molars, $\frac{4}{4} = 32$.

"Specimen killed on Feather River, Upper California: total length, including the tail, six feet one and a half inches; tail, ten inches; height at the shoulder, three feet two inches; at the rump, three feet three inches; from the shoulder to the tail, three feet six inches; from the lower jaw to the shoulder, one foot one inch; ear, length, ten inches; width, three and three-quarter inches; circumference of the neck, one foot; of the chest, three feet eight inches; nose to the occiput, twelve and three-quarter inches; nose to the horns, nine

inches; to the eye, seven inches; lachrymal sinus in length, one inch; in depth, seven-eighths of an inch.

"This specimen was of full size, but had small horns and one basal antler on the right side, which was about three inches long, situated inside and directed upwards and backwards. The skin was lost in descending the Sacramento River.

"Specimen killed at the Bay of San Francisco: horns two-pronged, separated at the base, two inches; at the points, eight and one-quarter inches; length by the curve, fifteen and a half inches; first antler, nine inches; second, two and a quarter inches; fore hoof, in length, two and a half inches; width, one and four-fifths of an inch; hind hoof, in length, two and a half inches; width, one and four-fifths of an inch; spurious hoofs, fore feet, one inch; in width, three-quarters of an inch; spurious hoofs, hind feet, seven-eighths of an inch; in width, three-quarters of an inch.

"This species has a glandular sac, about an inch and a quarter long, opening on the outside of the hind legs, half way between the *os calcis* and the spurious hoof, similar to that in *Cervus virginianus*.

"This deer was first seen and described by our adventurous countrymen, Captains Lewis and Clarke, whose description, published in their journal, in the year 1807, is so accurate, that we subjoin it entire, adding only the scientific names of the other species with which they compared it:

"The black-tailed fallow deer are peculiar to this coast, and are a distinct species; partaking equally of the qualities of the mule deer (*Cervus macrotis*), and the common deer (*C. virginianus*). Their ears are longer than those of the common deer. The receptacle of the eye is more conspicuous, their legs shorter, and their bodies thicker and larger. The tail is of the same length with that of the common deer; the hair on the under side is white, and on its sides and top of a deep jetty black; the hams resemble in form and color those of the mule deer, which they likewise resemble in gait.

"The black-tailed deer never runs at full speed, but bounds with every foot from the ground at the same time, like the mule deer. He sometimes inhabits the woodlands, but more often the prairies and open grounds. It may generally be said that he is a size larger than the common deer and less than the mule deer. The flesh is seldom fat, and in flavor is far inferior to any other species."

"We propose the name *Lewisii*, from the conviction that the above

description, written forty years since on the Columbia River, was intended for the animal now before us. In courtesy, we should have called it *Columbiana*, as suggested by Dr. Richardson, in *Fauna Boreali Americana*, but that name would imply locality, and he has not chosen a correct one.

"The geographic range of this species, by our own observations, appears to be limited on the north by the Columbia River, where a few are sometimes found. South of the Umpqua River, it occupies the country to the entire exclusion of the Virginia deer. It is seldom seen east of the Cascade range of mountains, but abounds in California.

"The black-tailed deer never carries its tail erect when running, and, viewed from behind, shows two narrow white lines of hair, instead of the large, white, and elevated tail of the Virginia deer, seen in the same position. When on the prairies, in long grass, it has a habit which is somewhat peculiar,—that of frequently springing up to a considerable height to get sight of its pursuers. Most of the bucks killed in the mountainous regions of the southern part of Oregon had a basal antler on the inner side of the horn, which was directed upwards and backwards; those killed on the plains in California seldom had it."

FORE FOOT OF *C. MACROTIS*.FORE FOOT OF *C. LEWISII*.

4. *CERVUS VIRGINIANUS*, *Gmelin*.—The Common Deer.

Cervus virginianus, GM. Syst. Nat. I, p. 179 (1788).

Cervus americanus, ERXLEBEN, Syst. Regn. Ac. I, p. 312 (1777).

Cervus mexicanus, GM. Syst. Nat. I, p. 179 (1788)?

Cervus clavatus, HAM. SMITH, Griff. Cuv. V, No. 793 (1827)?

Cervus leucurus, DOUGLAS?

Aud. and Bach. Quad. of N. A. Plates LXXXI, CXXXVI.

This species, perhaps the most interesting of all the quadrupeds of North America, appears to extend its range throughout the entire temperate regions of North America. Though now comparatively rare in the more thickly populated portions of the United States, it is of frequent occurrence wherever the primitive forest affords it the necessary protection, and is highly valuable and important as food to the pioneer settler, or to the traveller.

In Oregon, this species is mentioned by the naturalists of the Expedition as having been frequently seen; and we find no circumstances tending to excite a suspicion that there is any difference specifically, between the animals of the western and the eastern shores of the continent.

Mr. Peale's remarks are as follows:

"Numbers of deer were seen and killed at different times, by the members of the Expedition, while in Oregon. They were found most numerous near the coast of the Pacific Ocean, where their range is up to the fiftieth degree of latitude, and probably much further north. At the Umpqua River, in latitude 43°, they give place to the black-tailed deer (*Cervus lewisii*), our preceding species, which occupies the country south of that parallel, to the almost entire exclusion of the present animal.

"We believe that the same species of deer inhabits all the timbered or partially timbered country, between the coasts of the Atlantic and Pacific Oceans. They vary in size, as all the animals of this genus do, in different feeding-grounds, but they are specifically the same. The names of animals, unless they have some peculiarities of voice, vary among different tribes of Indians, as among white people; but it is curious that the 'sign' for this species is everywhere the same, and equally understood by the Indians of Maine, Florida, and Oregon. It is founded on one of its characteristic actions. When alarmed, this animal always erects its tail, which, being white beneath, is a conspicuous object; and when running, the tail is still kept erect and wagged from side to side. Hence, the sign made by all the Indians who cannot express themselves by words, is to raise the finger or hand to a perpendicular position, and imitating the wagging motion alluded to,—a coincidence observed in Maine and Florida on the east, and on the coast of the Pacific Ocean on the west."

2. GENUS ANTILOCAPRA, *Ord. Jour. du Phys.* (1818).1. ANTILOCAPRA AMERICANA (*Ord.*).—The American Antelope.

Antelope americana, ORD. Guthrie's Geography, II, p. 292 (1815).

Cervus hamatus, BLAINVILLE, *Nouv. Bull. Soc. Philad. Paris*, p. 10 (1816).

Antelope fureifer, HAMILTON SMITH, *Trans. Linn. Soc. London*, XIII, p. 28 (1822).

Faun. Bor. Am. Mamm. Plate XXI. Audubon and Bachman, Quad. of N. A. Plate LXXVII; octavo edition, III, Plate LXXVII. *Trans. Linn. Soc. London*, XIII, Plate II.

We find several allusions to this interesting animal in the notes of Dr. Pickering. Under date of 24th of August, 1841, in California, he says:

"To-day, a small herd of antelopes was seen, and allowed me to approach within gunshot. This animal when living is scarcely so light and graceful as its name would lead us to expect, and, in fact, appeared to me to much resemble the deer in its movements; but its horns look larger proportionately. Of those seen to-day, one only had horns, and nearly all the others appeared to be young. Color the same as in the Missouri species, and apparently in all respects the same animal."

Subsequently, he observes:

"Dr. Marsh assures me that the horns of this animal are shed annually like those of the deer. The small figure representing a front view of this animal, in *Fauna Boreali Americana*, is good, and gives a much better idea of it than the larger. The running figure is bad. Hernandez gives a good description under the name of *Teuthllamacame*. The hair is remarkably coarse, and as if inflated, and is easily detached from the skin. It certainly forms a genus distinct from any of the antelopes of the Old World that I have ever had an opportunity of seeing."

3. GENUS BOS, *Linn. Syst. Nat. I*, p. 98 (1766).1. BOS BUBALIS, *Linn.*—The Indian Buffalo.

Bos bubalis, *LINN. Syst. Nat. I*, p. 99 (1766).

Schreber Saugth. V, Plate CCC.

In that portion of his journal kept at the Philippine Islands, in January, 1842, Dr. Pickering has the following observations relating to this animal:-

"The buffalo is an animal very useful to the natives in these islands, as a beast of burden, and is so employed extensively. Though probably not originally found here, it is said to have escaped to the woods, and to have now become wild. It appears to have been long domesticated by the Malays.

"In form, this animal, though not so tall, is much stouter proportionately and more massive than the ox, and carries its head much lower, in fact, half way to the ground. The horns are differently directed, not rising upwards, and approaching very near to each other at their origin. Its voice is entirely different, and much lower, reminding me in some measure of that of a young colt. The skin is covered with thin straight hair, frequently scarcely perceptible. It is frequently to be seen incrustated with mire, in which it appears to be as fond of rolling as the hog, and is also exceedingly fond of the water. Indeed, it seemed to be the practice to allow it daily the luxury of bathing, which it did by going into the water until almost completely submerged.

"In the Philippines, this animal is led or guided by a cord through its nose, and is used for riding upon as well as in carts. It is apparently very docile generally, under the management of the natives, though occasional exceptions occur. I saw a Malay who had been seriously injured by the horn of a buffalo. It is said to be especially ill-natured towards white men. Its flesh is stated to be hard and coarse, and much inferior to that of the ox.

4. GENUS AUCHENIA, Illiger, Prodröm, p. 103 (1811).

1. AUCHENIA LAMA (Linn.).—The Llama.—The Guanaco.

Camelus Glama, LINN. Syst. Nat. I, p. 91 (1766).

Though several species of this genus have been indicated by naturalists, we are at present unable to determine to which of them the notes in Dr. Pickering's journal, now about to be given, are applicable; and insert them, therefore, as the species was regarded by the earlier naturalists, under the name above given. We find notes at various points in South America, the first of which is at the Rio Negro:

"A species of guanaco is found here, though not mentioned by Azara. Several robes have been obtained, and a living specimen of the young was brought on board, but died almost immediately after its arrival."

Also at Tierra del Fuego:

"Skins of a guanaco were worn by the natives at Good Success Bay, but it was not ascertained that the animal inhabited this region, and probably is not found south of the Straits of Magellan."

Subsequently, in Chili, the species inhabiting that country, probably different from that alluded to at the Rio Negro, came under Dr. Pickering's personal observation in its native wilds; with reference to which we introduce the following from his journal:

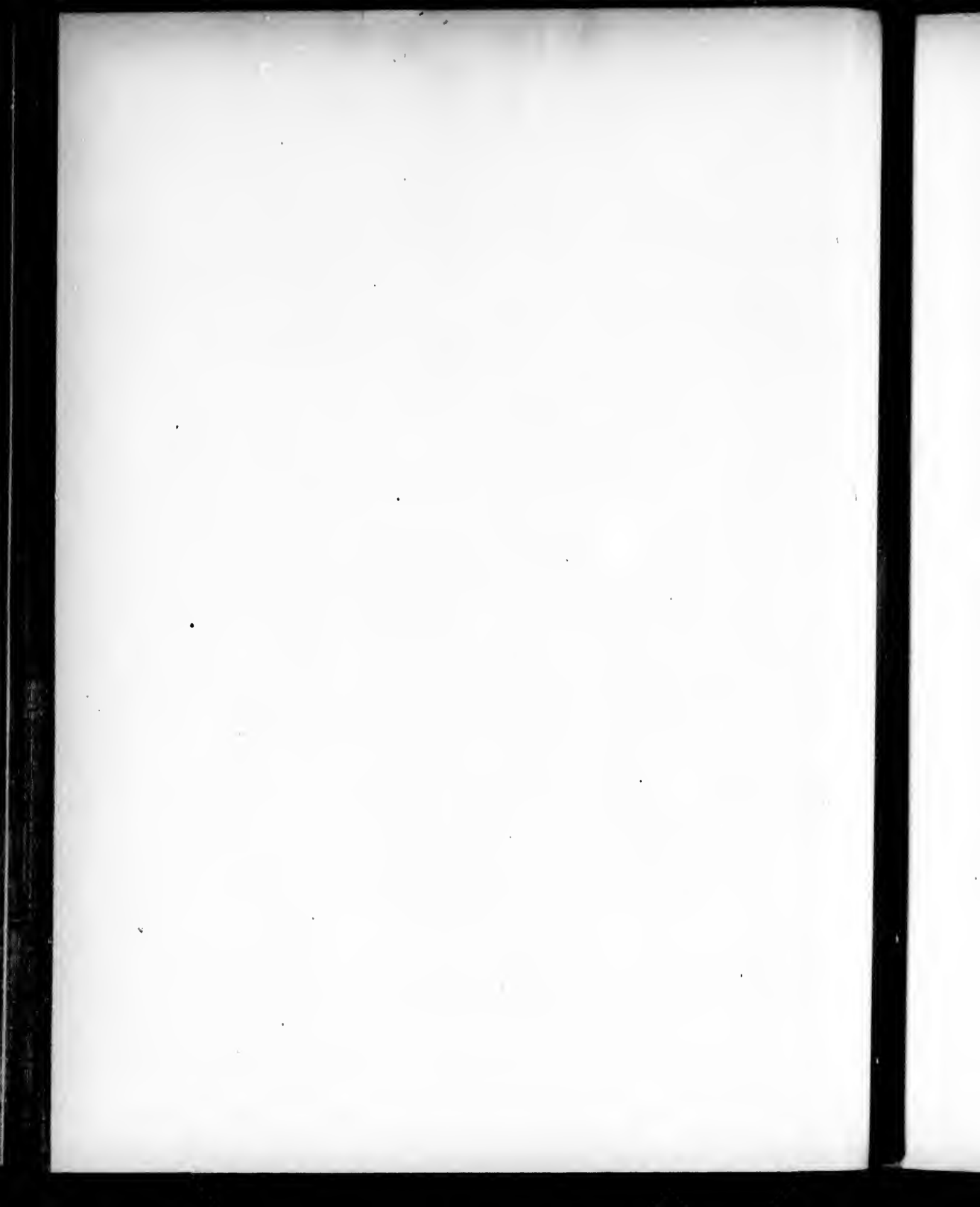
"The Chilian guanaco inhabits a district which may aptly be termed the Alpine desert of the Cordilleras, in which cold and desolate region the herbage is so scanty, that it has very few or no rivals. We saw this animal in large numbers, looking down at us as we passed along the valleys, and apparently scolding in a very peculiar and remarkable voice, which reminded me of a toy called the 'parchment rattle,' and 'locust,' by the boys in Philadelphia.

"This animal was by no means shy, and an instance occurred in which one approached within pistol-shot, from no other motive than curiosity, that I could assign. On another occasion, two crossed my path at about the same distance. The Chilian guanaco appears to me to be an entirely different species from that of the Rio Negro, and

appears to be considerably larger, face blackish, wool on the back very coarse."

In Peru, Dr. Pickering states that although the guanaco was said to be common about the ridges and summits of the Cordilleras, it did not come under his notice.

ORNITHOLOGY.



ORNITHOLOGY.

2. CLASS AVES—BIRDS.

1. ORDER RAPTORES.—Rapacious Birds.

1. FAMILY VULTURIDÆ.—The Vultures.

1. GENUS SARCORAMPHUS, *Dumeril*, *Analyse*, p. 32 (1806).

1. SARCORAMPHUS GRYPHUS (*Linn.*).—The Condor.

Vultur gryphus, LINN. *Syst. Nat.* I, p. 121 (1766).

Vultur magellanicus, SHAW, *Mus. Lever.* p. 1, pl. I (1792).

Vultur condor, SHAW, *Gen. Zool.* I, p. 2 (1809).

Bonap. *Am. Orn.* IV, Plate XXII; Temm. *Pl. Col.* 133, 408, 464; *Zool. Voy. Bonité*, Plate II; Humb. *Obs. Zool.* Plate VIII, IX.

THE Condor was frequently seen by the naturalists attached to the Expedition, and the note-book of Dr. Pickering contains observations relating to its history and general habits, which are of much interest. Availing ourselves of the permission kindly granted by this learned gentleman, we have introduced the following extracts:

“Valparaiso, April, 1839. Two condors, soaring high in the air, were seen during an excursion to Santiago.” This is the first notice that occurs in Dr. Pickering’s *Journal*; afterwards he says, under this date:

“Callao, May 22d, 1839. In its proper home, and where it presents itself in the character of the bold and fearless bird described by writers,

I first observed the condor in the higher valleys of the Cordilleras. Subsequently, I repeatedly observed it among the Amancaes Mountains, near Lima; occasionally, along the sea-shore, and once saw not less than twenty perched together on the ground, near the city just mentioned.

"The flight, or rather the sailing of the condor is exceedingly majestic, and frequently so slow that its progression is scarcely perceptible; the bird, in the meantime, is perfectly motionless, and apparently makes no exertion whatever, unless to turn its head or incline its tail in changing its course. In this manner, the condor proceeds slowly through the valleys, often sailing within a short distance of the ground, and apparently little regarding the presence of man. At times, however, it soars to a great height.

"There is a peculiarity in the flight of this bird which I do not remember to have seen noticed, which is, that the primaries are spread out and more reflexed than in any other bird that I have observed, and almost gives to the fully expanded wing a dislocated aspect. I have never seen it flap its wings, except on arising from the ground.

"The condor was said by the inhabitants to feed only on recently dead animals."

But the most interesting of Dr. Pickering's notes relate to an adventure with a condor, near Banos, in the Andes, to which an excursion was made, from Callao, by several of the naturalists and artists connected with the Expedition. We shall, however, continue to transcribe from his journal:

"Banos is at the limit of cultivation, and contains perhaps a couple of dozen of scattering houses and a church. The ravine in which it is situated is very narrow, and its bordering mountains are very much elevated, and so rugged and steep that, as one of our party observed, it almost appeared that the cattle grazing on their sides would fall off.

"Having concluded to remain here for the day, we separated into two parties, Messrs. Rich and Agate directing their steps down a stream of water, and Mr. Breckenridge and myself taking another direction. We ascended some distance on the heights to the left, and met with some success in collecting plants. Having become separated from my companion, I continued ascending leisurely, principally observing the plants by the way, and the acclivity gradually became steeper, until by noon I had reached a very considerable elevation. About this time, I noticed a condor sailing down the valley, in its

usual stately and composed manner, and I stopped to observe it. Much to my astonishment, it quickened its pace, and made a turn around me, then a second, and a third; the last time so near that I began to think an attack was seriously meditated. I was in an exceedingly unfavorable condition for so formidable a conflict, being considerably fatigued by climbing up the steep ascent, and my right hand partially disabled from an accident, to say nothing of the nature of the ground. Upon its continuing to approach, as it made the third circle around me, I seated myself, and drew my knife, at the moment of doing which, as though it understood my intentions, it suddenly wheeled off in a different direction and quickly disappeared, and I confess that, however humiliating the acknowledgment, I was, at that time, very well satisfied with its determination."

The condor has been given by the Prince Bonaparte (Continuation of Wilson's American Ornithology, IV, p. 1), and by Mr. Nuttall (Manual of the Ornithology of the United States and of Canada, I, p. 35), as a bird of North America, but we suspect upon insufficient evidence. A bill and a single quill-feather were brought by the famous explorers, Lewis and Clark, which were supposed to have belonged to this species, but it does not seem improbable that these remains ought really to have been attributed to the California Vulture (*Cathartes californianus*), which is also a large species. No other travellers have met with the condor, either in the districts visited by Lewis and Clark or elsewhere, in any part of the territory of the United States.

The best descriptions and histories of this celebrated bird are those by Humboldt, in Zoological Observations, I, p. 26 (Recueil d'Observations de Zoologie et d'Anatomic comparée, Paris, quarto, 1811), and by Darwin, in the Zoology of the Voyage of the Beagle, Birds, p. 3 (London, 1841), and by the same author, in Voyage of a Naturalist, I, p. 234, 238 (American edition, New York, 1846, duodecimo).

2. SARCORAMPHUS PAPA (Linn.).—The King Vulture.

Vultur papa, LINN. Syst. Nat. I, p. 122 (1766).

Buff. Pl. Enl. 428; Vieill. Gal. I, Plate III; Spix, Av. Bras. I, Plate I.

This fine species, the only bird of its family possessing beauty of plumage, is abundant in some districts of South and Central America. It is also an inhabitant of the southern parts of Mexico. But, although admitted as a bird of the United States by Mr. Nuttall, no authentic instance of its having been observed is on record or has otherwise come to our knowledge.

This bird is noticed once only by Dr. Pickering, from whose journal we make this extract, interesting on account of its allusion to the rapid flight of the species :

"The King Vulture was seen two or three times in the vicinity of Valparaiso. Once, with its broad wings half closed and all motion in them entirely suspended, I observed it darting with amazing velocity towards some object that had attracted its attention, and it soon disappeared."

2. GENUS CATHARTES, Illiger, *Predromus*, p. 236 (1811).

1. CATHARTES CALIFORNIANUS (*Shaw*).—The California Vulture.

Vultur californianus, SHAW, *Nat. Misc.* IX, p. 1 (1797).

Vultur columbianus, ORD. Guthrie's *Geog.* II, p. 315 (1815).

Cathartes vulturinus, TEMM. *Pl. Col.* I, Pl. XXXI (1820).

Aud. B. of Am. Plate CCCCXI; Oct. ed. I, Plate I; Gray, *Genera of Birds*, I, Plate II.

Noticed occasionally by Dr. Pickering in California. In one instance he records the appearance of several individuals of this species "so very suddenly on the death of an animal, that they seemed to have come down from the upper regions of the atmosphere."

One of the several allusions to this bird by Dr. Pickering involves a point not well understood, and is given under date of October 16th : "A specimen, apparently of *Cathartes californianus*, seen to-day, had the bare skin of the head and neck black, and it had, too, less white in its plumage than any that I have seen before. Other specimens in the neighborhood had the head and neck red as usual." Of this highly interesting fact, which has been noticed by several naturalists, we can at present give no explanation; but it is possible that the color of the

bare space may be a character dependent on age, as in numerous other species of birds. In the plumage alluded to, this bird is *Cathartes vulturinus*, Temm., as above cited. It will be seen below, that Mr. Peale attributes this variation to age exclusively.

The following memoranda, also relating to this species, we introduce from Mr. Peale :

"This cannot be considered a common bird in Oregon. We first saw it on the plains of the Willamette River, but subsequently observed that it was much more numerous in California, from the fact that the carcasses of large animals are more abundant, which this bird certainly prefers to the dead fishes on which it is obliged to feed in Oregon and all the countries north of the Spanish settlements in California. Precisely the same change takes place from youth to maturity, in this species, which is known to take place in the turkey buzzard (*Cathartes aura*), the young having black or brownish heads, which become red as they grow older."

2. CATHARTES AURA (Linn.).—The Turkey Buzzard.

Vultur aura, LINN. Syst. Nat. I, p. 122 (1766).

Cathartes septentrionalis, DE WIED, Reise, I, p. 162 (1839).

Cat. Car. I, Plate VI; Vieill. Ois. d'Am. Sept. I, Plate II; Wilson. Am. Orn. IX, Plate LXXV, fig. 1; Aud. B. of Am. Plate CLI; Oct. ed. I, Plate II.

A fine specimen, from Oregon, is in the collection of the Expedition. It is absolutely identical with the common turkey buzzard of the States on the Atlantic seaboard, and the species may therefore be regarded as inhabiting the entire temperate and warmer regions of North America.

In Dr. Pickering's notes we find this vulture frequently mentioned, as having been of common occurrence at points visited in Western North America, particularly in California.

Mr. Peale states that this bird is "quite common in Oregon and California."

3. CATHARTES JOTA (Molina).—The Turkey Buzzard of South America.

Vultur jota, MOLINA, Sagg. Stor. Nat. Chili (1782), 2d edit. p. 220 (1810).

Atlas, Ornithology, Plate I. Adult.

This is a species nearly allied to the preceding, and appears to represent it in the southern portion of the continent of America. Respecting this bird there have existed considerable misapprehensions on the part of writers on North American Ornithology, and consequent confusion in their works. It has been usually regarded as identical with the common black vulture or carrion crow of the Southern States of this Union, but erroneously, as is now readily demonstrable from specimens contained in the National Collection. Of these, a specimen from Tierra del Fuego was brought by the Expedition. Specimens obtained in Chili, and belonging to the very fine collection made by Lieut. Gilliss, of the U. S. Navy, were uniformly labelled "Jota," as the name by which the bird was known in its native country, thus coinciding with a statement made by Molina, in his description above cited.

From Dr. Pickering's notes we make the following extract, relative to this species :

"The turkey buzzard was generally met with in the country, some miles from the cities, though I did, occasionally, see it venturing into the outskirts of Callao, in company with the black vulture (*C. brasiliensis*). When flying, it is readily distinguished from the latter by the absence of the light-colored spot on the wing, and, on a nearer approach, by the red skin of the head and neck. On the ground it does not attempt to run or leap about like the black vulture, owing apparently to the shortness of its legs, and it may, perhaps, in some measure be on this account that it does not venture into the streets, for it is by no means shy, though scarcely permitting so close an approach as the other. The inferior coverts of the wings are jet black ; other parts of the under surface of the body dusky brown. Common throughout Western Peru."

4. CATHARTES ATRATUS (*Bartram*).—The Black Vulture. The Carrion Crow.

Vultur atratus, BARTRAM, Trav. p. 289 (1791).

Vultur urubu, VIEILL. Ois. d'Am. Sept. I, p. 53 (1807).

Vieill. Ois. d'Am. Sept. I, Plate II; Wilson, Am. Orn. IX, Plate LXXV, fig. 2; Aud. B. of Am. Plate CVI; Oct ed. I, Plate III.

The collection of the Expedition contains no specimen of this bird from the western countries of North America, but it is mentioned by Mr. Peale as having been noticed by him in both Oregon and California, as follows :

"We did not observe this bird to be common in Oregon, but saw it more frequently in California. It seems generally to accompany the preceding species (*Cathartes aura*), but is more familiar in its habits. It is the more plentiful of the two species in the warmer parts of both North and South America, and decreases in numbers as we approach the colder latitudes, where the *C. aura* is the more abundant."

The South American bird is regarded by ornithologists as a distinct though similar species, and is alluded to in the next article.

Unless there is some mistake in Mr. Peale's observation, this species inhabits a much higher latitude on the western than on the eastern side of the continent. There is, however, no other record of this bird having been observed in Oregon, so far as our knowledge extends. Dr. Pickering expressly mentions that he did not see it either in Oregon or in California.

This species is found also in the northern and western countries of South America, and there is in the National Museum a well-characterized specimen, which was brought from Chili by the United States Naval Astronomical Expedition, commanded by Lieut. Gilliss.

5. *CATHARTES BRASILIENSIS* (*Bonaparte*).—The South American
Black Vulture.

Cathartes brasiliensis, BONAP. Cons. Av. p. 9 (1848).

Buff. Pl. Enl. 187.

Of this bird, which appears to be very abundant in the southwestern countries of the American continent, there are specimens in the collection of the Academy of Natural Sciences of Philadelphia. It is smaller than the *C. atratus* of the United States, and has the head much less corrugated, but is, however, very similar to that species, and has usually been regarded as the same.

Dr. Pickering's notes, which we have no doubt relate to this species, are dated at "Callao, May, 1839," and are as follows: "I had seen a few specimens of the black vulture in the vicinity of Rio de Janeiro, and was informed that it sometimes came into the city, but it was only in Peru that I observed this bird abundant in the towns and cities, as has frequently been described. It is exceedingly common in all Western Peru, in the cities, villages, and about habitations in the country, in fact is abundant everywhere.

"Great numbers may always be seen at Callao and Lima, in the streets, perched on the house-tops or soaring above, frequently at a great height. In the streets they allow you to pass within a few feet of them, and I observed that they did not scruple to wade into the water to pick up floating substances. The gait of this bird on the ground is a sort of gallop or succession of short leaps, as may be seen particularly when it is disturbed or about to take flight. In the streets it feeds at all times or whenever opportunity is presented, but the general feast appears to be in the morning, before sunrise, when prodigious numbers are to be seen throughout the city.

"I did not see this species above Yaso, on our journey to the Cordilleras, but was informed by Mr. Rich that on the occasion of the slaughtering of a bullock in the square at Obrajillo, it made its appearance in considerable numbers, in company with condors."

In addition to the preceding seven species, there are three others of the same genera, which inhabit the continent of America and its islands. These are: *Cathartes urbicola*, Des Murs, Rev. et Mag. de Zool. April, 1853 (Paris), *Cathartes burrovianus*, Cassin, Proc. Acad. Philada. II, p. 212 (1845), and *Sarcoramphus sacer* (Bartram), *Vultur sacra*, Bartram, Travels in Florida, p. 150 (1791). The last is a doubtful species, though apparently very carefully described by Bartram from recent or living specimens. It is only known, however, by that description, never having been observed since by any naturalist or traveller.

SYNOPSIS OF THE AMERICAN VULTURES.

1. GENUS SARCORAMPHUS, *Dumeril*, Analyse, p. 32 (1806).

1. SARCORAMPHUS GRYPHUS (*Linnaeus*).—The Condor.

Vultur gryphus, LINN. Syst. Nat. I, p. 121 (1766).

Vultur magellanicus, SHAW, Mus. Lever. I, p. 1.

Sarcoramphus cuntur, DUMERIL.

Sarcoramphus condor, LESSON, Traite d'Orn. p. 25.

Bonap. Am. Orn. IV, Plate XXII (young); Humboldt, Obs. Zool. Plate VIII; Temminck, Pl. Col. 133, 408, 494; Voy. Bonite. Ois. Plate II (young); Shaw, Mus. Lever. Plate I.

The largest of the vultures and one of the largest of birds. Head, neck, and large space on the neck bare; head above with a caruncle or comb, and others on the sides of the head and neck. Wings long, very strong. Neck, at the commencement of the feathers, with a collar or ruff of white, downy feathers; all other plumage black with a white space on the wing, and with a handsome grayish or frosted tinge on the back, wings, and tail. Naked space of the head and neck red.

Total length, from tip of bill to end of tail, about four feet; wing, from carpal joint to tip (when folded), about two feet six inches; tail fifteen inches. Male larger?

HAB.—Western South America. Specimen in Nat. Mus. Washington, and Acad. Mus. Philadelphia.

Obs.—Now well known and accurately described by naturalists, but formerly the subject of numerous fictions, principally relating to its size and prowess. Inhabits the Andes, and countries of Western South America, and probably extends into Central America. Never observed in any part of the United States.

2. *SARCORAMPHUS PAPA* (*Linnaeus*).—The King Vulture.

Vultur papa, LINN. Syst. Nat. I, p. 122 (1766).

Buffon, Pl. Enl. 428; Vieillot, Gal. des Ois. I, Plate III; Spix, Av. Bras. I, Plate I; Le Vaill. Ois. d'Afrique, I, Plate XIII; Hayes, Osterly Menagerie, I, Plate II.

Head and upper part of neck naked; the former with an elevated and conspicuous caruncle, arising from the base of the bill. Wings and tail glossy-black; plumage on the neck dusky-cinereous; all other parts fine pale fulvous. Naked space of the head and neck red and orange; bill pale-yellow.

Total length about twenty-eight inches; wing eighteen inches; tail nine inches.

HAB.—South and Central America. Mexico. Specimen in Mus. Acad. Philadelphia.

OBS.—This is the only bird of the family of vultures which may be considered as possessing beauty of plumage, and is one of the best known species of the rapacious birds of South America. It inhabits also the whole of Central America, being almost invariably sent in collections from any locality in that portion of this continent. Hernandez gives this bird as an inhabitant of Mexico, and describes it accurately under the euphonious native name of "Cozcaquauhtli" (*Nova Plantarum, Animalium, et Mineralium Mexicanorum, Historia*; Rome, 1651, folio, p. 319). No late author, however, has given it as a bird of Mexico, nor has it ever been observed as yet within the limits of the United States, unless it is identical with the species immediately succeeding; or, whether it is or not, it is quite possible that this bird is, at least, an occasional visitant to Florida, being numerous in Central America.

Like the condor, and indeed all the American vultures, the present bird is easily tamed, though it does not appear to show the partiality for the abodes of men possessed by some species of this group of birds.

3. *SARCORAMPHUS SACER* (*Bartram*).—The Sacred Vulture.

Vultur sacra, BARTRAM, Travels in Florida, p. 150 (1791).*

Not figured.

ORIGINAL DESCRIPTION.—“The bill is long and straight, almost to the point, where it is hooked or bent suddenly down, and sharp. The head and neck are bare of feathers nearly down to the stomach, when the feathers begin to cover the skin, and soon become long and of a soft texture, forming a ruff or tippet, in which the bird, by contracting his neck, can hide that as well as his head. The bare skin on the neck appears loose and wrinkled, and is of a bright-yellow color, intermixed with coral-red; the hinder part of the neck is nearly covered with short stiff hair, and the skin of this part of the neck is of a purple-dun color, gradually becoming red as it approaches the yellow of the sides and forepart. The crown of the head is red; there are lobed lappets of a reddish-orange color, which lay on the base of the upper mandible. The plumage of the bird is generally white or cream color, except the quill-feathers of the wings and two or three rows of

* William Bartram; not to be confounded with his father, John Bartram, who also travelled in Florida. The following are the titles of their works which relate to that country:

1. John Bartram. “A Description of East Florida, with a Journal kept by John Bartram, of Philadelphia, Botanist to His Majesty for the Floridas, upon a Journey from St. Augustine up the River St. Johns as far as the Lakes. With explanatory Botanical Notes.” Quarto, Third Edition, London, 1769. We have never seen neither the first nor second edition. The Journal commences at St. Augustine, December 19th, 1765, and contains botanical notes of value. This author and traveller, of high reputation as a botanist and one of the fathers of American Natural History, was the founder of the Botanical Garden on the Schuylkill River, near Philadelphia.
2. William Bartram. “Travels through North and South Carolina, Georgia, East and West Florida, the Cherokee Country, the Extensive Territories of the Muscogulges or Creek Confederacy, and the Country of the Choctaws; containing an Account of the Soil and Natural Productions of those Regions, together with Observations on the Manners of the Indians. By William Bartram.” Octavo, Philadelphia, 1791.

This volume contains a large amount of information on nearly all departments of Natural History, and is almost indispensable to the American botanist or zoologist. One other point has made the name of William Bartram illustrious: he was the especial friend and patron of Alexander Wilson, the greatest of American Ornithologists.

the coverts, which are beautiful dark-brown; *the tail, which is rather large and white, is tipped with this dark-brown or black*; the legs and feet of a clear white; the eye is encircled with a gold-colored iris; the pupil black." Bartram, as above, pp. 150, 151.

HAB.—Florida. No specimen known to be extant.

OBS.—This description, by William Bartram, one of the celebrated American botanists and scientific travellers of that name, is evidently of a bird similar to the king vulture. But, in this description, it is stated that the tail is *white*, tipped with dark-brown or black, while in the king vulture it is clear lustrous *black* (as described immediately preceding).

Since the time of this distinguished author, the vulture described by him has never been noticed by any other traveller, and is entirely unknown to naturalists. It has sometimes been regarded by authors as identical with the king vulture, but that conclusion is scarcely warrantable in the present limited knowledge of the zoology of Florida. Mr. Bartram's descriptions, moreover, are usually very accurate, as may readily be determined.

2. GENUS CATHARTES, *Illiger*, *Prodromus*, p. 236 (1811).

1. CATHARTES CALIFORNIANUS (*Shaw*).—The California Vulture.

Vultur californianus, SHAW, *Nat. Misc.* IX, p. 1 (1797).

Vultur columbianus, ORD. Guthrie's *Geography*, II, p. 315 (1815).

Cathartes vulturinus, TEMMINCK, *Pl. Col.* I (not paged, 1820).

Shaw, *Nat. Misc.* IX, Plate CCCI; Lichtenstein, *Trans. Acad. Berlin*, 1838, Plate I; Gray, *Genera of Birds*, I, Plate II; Audubon, *Birds of Am.* Plate CCCCXI; octavo edition, I, Plate I; D'Orbigny's Cuvier, *Ois.* Plate VIII, fig. 3; Temminck, *Pl. Col.* 51.

Large; head and neck bare; plumage commencing on the neck, near the body, with a ruff of long lanceolate feathers, continued on the breast. A few short down-like feathers on the vertex and at the base of the upper mandible; bill rather long; nostrils moderate, communi-

cating with each other; wings long; primaries pointed; tail rather long, slightly rounded.

Entire plumage black, usually many feathers narrowly tipped with brown; quills with a grayish tinge; greater coverts tipped with white, which forms a transverse bar on the wing. Bill yellowish-white; iris carmine; head and neck reddish-orange and yellow.

Total length about forty-five inches; wing thirty-one inches; tail fifteen inches.

HAB.—California and Oregon. Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

OBS.—This large and powerful vulture is peculiar to the countries of Western North America, where, during all seasons, except that devoted to incubation, it appears to prefer the vicinity of rivers, and subsists, in a great measure, on dead fishes. It is the largest bird of its family yet ascertained to inhabit North America.

This bird inhabits the whole of the regions between the Rocky Mountains and the Pacific Ocean, from Mexico to Russian America; most abundant in California. It rears its young in the elevated and wooded districts, where it is said to build a huge nest of twigs and grasses in a rock or precipice, and, at other seasons, comes down to the plains or borders of the ocean.

2. CATHARTES URBICOLA, *Des Murs*.—The West India Vulture.

Cathartes urbicola, DES MURS, Rev. et Mag. Zool. 1853, p. 146.

"*Vultur urbis-incola*, RICCORD."—DES MURS, as above.

Not figured.

Large; about the size of *C. californianus*. Naked skin of head and neck wine-red, with scattered warty granulations. Upper parts lustrous blue-black; under surface of quills grayish-white; tail equal at the end; beak black, large and strong, rather high and wide; upper mandible straight, curved only towards the point; nostrils naked, pierced diagonally; iris white; feet strong, wine-red, with gray lines; claws feebly curved; middle toe very long, united at its base to the

interior toe. Wing long; first quill shorter than the sixth; second and third shorter than the fourth, which is longest.

Size approaching that of the wild turkey, which it resembles in its gait. Total length about fifty-two inches. "Sa taille est de quarante-huit pouces, approchant celle du Dindon sauvage, auquel il ressemble par sa démarche."

HAB.—St. Jago de Cuba, Hayti, St. Vincent, St. Lucia, Borders of the Orinoco River.

OBS.—This large vulture is described as above by M. Des Murs, on the authority of M. Riccord, a scientific traveller, who observed it at the localities given above and at some others. He states that it inhabits only the Spanish and English parts of the islands mentioned, and frequents especially the towns and cities. This vulture is unknown to naturalists, and its further investigation is a point of much interest.

3. CATHARTES AURA (*Linnaeus*).—The Turkey Buzzard. The Turkey Vulture.

Vultur aura, LINN. Syst. Nat. I, p. 122 (1766).

Cathartes septentrionalis, DE WIED, Travels in N. A. I, p. 162 (1839).

Catesby, Nat. Hist. Carolina, I, Plate VI; Vieillot, Ois. d'Am. Sept. I, Plate II; Wilson, Am. Orn. IX, Plate LXXV, fig. 1; Audubon, B. of Am. Plate CLI; Oct. ed. I, Plate 2.

Plumage commencing on the neck with a ruff of rather long and projecting feathers. Head and upper part of neck naked, or with scattering down-like feathers, especially on the top of the head, and with the skin wrinkled; nostrils large, oval, communicating with each other; tail rather long, rounded.

Entire plumage brownish-black; darker on the neck, back, and tail above; many feathers having a purple and bluish lustre, and edged with pale-brown. Bill yellowish-white; wings and tail paler beneath; head and neck bright-red.

Total length about thirty inches; wing twenty-three inches; tail twelve inches.

HAB.—The entire temperate regions of North America. Specimen in Mus. Acad. Philadelphia, and Nat. Mus. Washington.

OBS.—This is the only vulture that ventures into the Middle and Northern States of North America, in which, however, it may be stated to inhabit the entire temperate regions. It is abundant everywhere south of the State of Delaware, and of frequent occurrence in Pennsylvania, New Jersey, and Ohio, though much more rare in all the North-eastern States. On the Pacific, it is abundant at a higher latitude than on the Atlantic. Occasionally, it strays as far north as the British Possessions, being given by Mr. David Douglas, as a bird seen by him in Canada, and by Sir John Richardson, as noticed at Lake Winnipeg.

In the Southern States of this Union, the turkey buzzard is so common as to be an almost constant feature in the landscape, and by no means timid nor shy of man, though not so tame and familiar in its habits as the black vulture. It occasionally rears its young in New Jersey and Pennsylvania, and probably in more northern States.

4. CATHARTES JOTA (*Molina*).—The Turkey Vulture of South America.

Vultur jota, MOLINA, Sagg. Stor. Nat. Chili (1782).

Cathartes ruficollis, SPIX, Av. Bras.

Voy. Vincennes and Peacock, Orn. Plate I.

Very similar to *C. aura*, but rather smaller and more slender. Wings and legs rather long; tail moderate, not so long as in *C. aura*. Plumage commencing on the neck with a ruff of projecting feathers, scarcely as well defined nor with the feathers so long as in the northern species; nostrils large, oval, communicating with each other; naked skin of head wrinkled, or with somewhat regular folds, especially on the occiput.

Entire plumage brownish-black, with purple or bluish lustre on the upper parts, and many feathers edged with brownish; lower parts clear black. Under surface of wings and tail paler; shafts of quills brown above, white beneath. Head and neck red; bill yellowish-white.

Total length about twenty-six inches; wing twenty inches; tail ten inches.



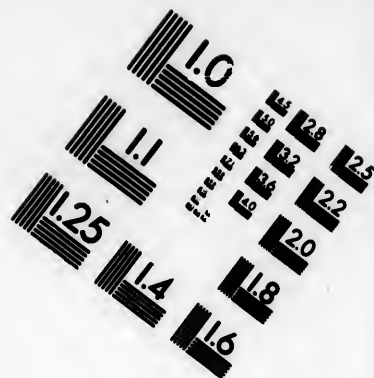
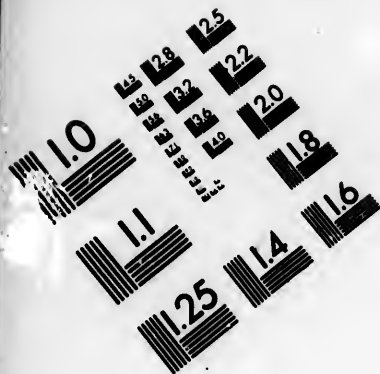
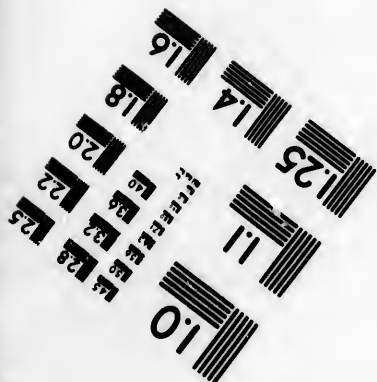
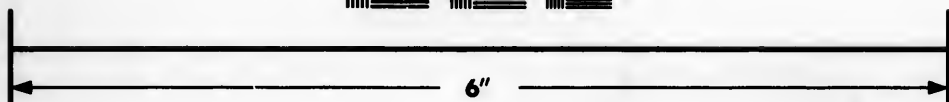
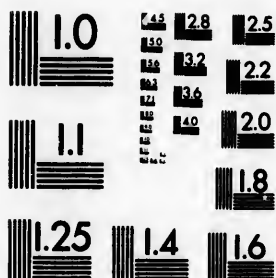


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HAB.—South America. Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

OBS.—All the specimens that we have seen of this vulture are from Western and Southern South America, and at present we are not informed whether it inhabits the countries on the Atlantic or not. This species is an exceedingly near relative of the common turkey buzzard of North America, and is only to be distinguished on careful comparison. So far as can be judged from prepared skins, the present is a more slender and rather smaller bird in all its measurements; with comparatively longer wings and shorter tail. Its general appearance and apparently its habits also are very similar to the northern species.

5. *CATHARTES BURROVIANUS*, Cassin.—Burrough's Vulture.

Cathartes burrovianus, CASSIN, Proc. Acad. Philada. II, p. 212 (1845).

Not figured.

The smallest of all vultures. Resembling *C. aura* and *C. jota*, but smaller, and without a ruff on the neck, as in those species. Plumage on the neck ascending behind, as in *C. atratus*; bill rather short; apertures of nostrils large; wings long; tail rounded, rather long.

Entire plumage deep uniform black; more uniform than in either *C. aura* or *C. jota*. Shafts of quills white. Head and neck red.

Total length about twenty-two inches; wing eighteen inches; tail eight and a half inches.

HAB.—Mexico, Vera Cruz, Mazatlan, Lower California. Specimen in Mus. Acad. Philadelphia.

OBS.—Though European ornithologists have been rather disposed to regard this species as identical with *C. jota*, it is really quite distinct from both that and *C. aura*, more so, in fact, than they are distinct from each other. The present bird may very readily be distinguished by its small size and general resemblance to *C. aura*, but with the remarkable character of the plumage ascending to a point on the back of the neck, as in *C. atratus*. All the specimens of this bird that we have

ever seen are of more deep and uniform black than is usually to be seen in either *C. aura* or *C. jola*.

This little vulture, the smallest of the entire group of vultures, is an inhabitant of the coasts of Mexico and of Lower California, of the former both on the Pacific Ocean and the Gulf of Mexico, and very probably extends its range along the shores of the Pacific into the territory of the United States. The specimen first described by us was sent to the Academy of Natural Sciences of Philadelphia, in a collection made at Vera Cruz by Marinaduke Burrough, M.D., then United States Consul at that city, and a distinguished and useful member of the Philadelphia Academy. Since then, we have seen other specimens from Mexico.

6. CATHARTES ATRATUS (*Bartram*).—The Black Vulture. The Carrion Crow.

Vultur atratus, BARTRAM, Travels, p. 289 (1791).

Vultur urubu, VIEILLLOT, Ois. d'Am. Sept. I, p. 53 (1807).

Vieill. Ois. d'Am. Sept. I, Plate II; Wilson, Am. Orn. IX, Plate LXXV, fig. 2; Audubon, Birds of Am. Plate CVI; octavo edition, I, Plate III.

Plumage commencing higher on the back of the neck than on its sides or in front, and there consisting of short feathers. Head and naked portion of neck warted or corrugated, and with a few hair-like feathers; bill rather long; nostrils large and communicating with each other; tail truncate or even at the end; legs rather long.

Entire plumage deep uniform black, frequently with a bluish gloss on the back and quills. Shafts of quills white above and below; quills, on their under surface, pale; in some specimens nearly white. Head and neck brownish or bluish-black; bill dark, yellowish at the tip.

Total length about twenty-three inches; wing sixteen and a half inches; tail eight and a half inches.

HAB.—Southern United States, Mexico, and Central America, Northern South America, Chili. Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

OBS.—Very abundant in all the Southern United States, and thence to Chili, very fine and well-characterized specimens from the latter country having been brought by the United States Astronomical Expedition, under Lieut. Gilliss, and are now in the National Museum. No instance of the occurrence of the black vulture as far north as Pennsylvania has ever come to our knowledge.

Though met with constantly in the rural districts of the Southern States, this bird shows great partiality for the cities, resorting to them at all seasons in large numbers, and is protected in his avocation as scavenger by the popular opinion of his usefulness. It rears its young in the forests, making merely an excavation for its eggs in a dead log, stump, or on the ground.

7. *CATHARTES BRASILIENSIS*, Bonaparte.—The Black Vulture of South America.

Cathartes brasiliensis, BONAP. *Consp. Avium*. p. 9 (1850).

"*Vultur brasiliensis*, RAY."—BONAP. as above.

Cathartes foetens, ILLIGER.

Buffon, Pl. Enl. 187.

Very similar to the preceding, but smaller. Head generally not so much warted as the preceding, and frequently nearly smooth. Wings long; tail rather short, truncate, or equal at the end; legs rather long. Plumage ascending on the back of the neck.

Entire plumage deep-black; shafts of quills white; under surface of quills pale, nearly white; head and legs dark; bill dusky, yellowish at tip.

Total length about twenty inches; wing fifteen and a half inches; tail seven and a half inches.

HAB.—South America. Specimen in Mus. Acad. Philadelphia.

OBS.—All the specimens of this bird that have come under our notice have been from the Pacific coast of South America, and it is not in our power at present to say whether it inhabits also the countries on the Atlantic. Though apparently constantly smaller than *C. atra*—

tus, this species is a very near relative, and might readily be mistaken for it by any observer not having the facilities for close comparison.

The habits and manners of this vulture are in all respects very similar to those of the North American species, which it resembles. The notes, by Dr. Pickering, given by us in a preceding page, are valuable contributions to its history.

The preceding are all the birds of the family of vultures known to inhabit the continent of America or its islands.

2. FAMILY FALCONIDÆ.—The Falcons, Hawks, and Eagles.

1. GENUS FALCO, *Linn. Syst. Nat. I*, p. 124 (1766).

1. FALCO POLYAGRUS, *Cassin.*—The American Lanier Falcon.

Falco polyagrus, *CASSIN*, *Birds of Cal. and Texas*, I, p. 88 (1853).

Cassin, *B. of Cal. and Tex.* I, Plate XVI.

This large falcon was described and figured by us, as above, from specimens obtained in Oregon and California, by the late Dr. J. K. Townsend, and by Dr. A. L. Heermann, both distinguished as scientific travellers in those countries. The collection of the Expedition contains a fine specimen, which we regard as a young female of this species, and is the only one, in that stage of plumage, that has yet come under our notice.

This bird is remarkable as being the only representative in America of a group of falcons well known as inhabiting the Old World, and which have received the designation of "Laniers." The birds of this group are invariably characterized by light-colored plumage, generally cinereous and white, and possess all the characters of the typical falcons. The European and Asiatic species were highly valued in the art of falconry.

In a monograph of the Falconidæ, in Jardine's Contributions to Ornithology (1850, p. 55), Dr. Kaup, an eminent German naturalist, proposes the group to which this species belongs as a subgenus of the typical genus *Falco*, under the name of *Gennaia*. It includes *Falco lanarius*, *Falco jugger*, and other species of Europe and Asia, of which this bird is the only representative, so far as known, in the continent of America.

In form and general appearance, the bird now before us singularly resembles the most common Asiatic species of this group,—*Falco jugger*,

Gray, Ill. of Indian Zoology, II, Plate XXVI. It is, however, larger, and, in all points of organization, a more robust and powerful species. Young birds having been brought from California, by Dr. Heermann, it is certainly a species which permanently inhabits Western America. According to Mr. Peale, the specimen in the collection of the Expedition was obtained at Puget's Sound, and the same species was seen rearing its young in Oregon.

2. GENUS TINNUNCULUS, Vieill. Ois. d'Am. Sept. I, p. 39 (1807).

1. TINNUNCULUS SPARVERIUS (Linn.).—The Sparrow Hawk.

Falco sparverius, LINN. Syst. Nat. I, p. 128 (1766).

Falco dominicensis, GM. Syst. Nat. I, p. 285 (1788.)

Vieill. Ois. d'Am. Sept. I, Plate XII, XIII; Buff. Pl. Enl. 465; Wilson, Am. Orn. II, Plate XVI, fig. 4, Plate XXXII, fig. 2; Aud. B. of Am. Plate XLII; Oct. ed. I, Plate XXII.

This beautiful little hawk appears to inhabit the entire continent of America. It was observed by the naturalists of the Expedition to be common in Oregon and California, and also in Brazil and other parts of South America.

All the specimens in the collection appear to be strictly identical with the species of the United States.

3. GENUS IERACIDEA, Gould, Proc. Zool. Soc. London, 1837, p. 140.

1. IERACIDEA NOVA ZEALANDIÆ (Gmelin).—The New Zealand Falcon.

Falco nova zealandiæ, GM. Syst. Nat. I, p. 268 (1788).

Falco brunneus, GOULD, Proc. Zool. Soc. London, 1837, p. 139.

Falco harpe, FORSTER, Desc. An. p. 68 (1844).

Falco ferox, PEALE, Zool. U. S. Exp. Exp. Birds, p. 67 (1st edition, 1848).*

Falco australis, HOMB. et JACQ. Ann. des Sci. Nat. XVI, p. 312 (1841).

* "Head and back of a uniform dark sepia-brown; tail of the same color, having six very narrow, pale, tawny bars; feathers of the crown and nape light-cinereous at the base, which gradually runs into the dark sepia of the surface; brow ferruginous; auricular brown; the lower feathers edged with ferruginous; throat pale-buff, nearly white;

Voy. Astrolabe et Zeleé, Ois. Plate I, fig. 1.

A species which appears to be peculiar to the Island of New Zealand, and to which naturalists have applied various names. Though belonging to the restricted group of typical falcons, it presents characters different from those of the northern genera, and has been properly regarded as the type of a distinct genus.

Mr. Peale's note relating to this bird is: "At the Bay of Islands, New Zealand, we found several interesting birds, and amongst them this graceful falcon. It flew with great vigor, and appeared to create great terror in all the little birds of the neighborhood. When alighting on the branch of a tree, it had the habit of jutting its tail, like the sparrow hawk of North America (*F. sparverius*)."

4. GENUS ACCIPITER, *Brisson*, Orn. I, p. 310 (1760).1. ACCIPITER RUFITORQUES (*Peale*).

Astur rufitorques, PEALE, Zool. U. S. Exp. Birds, p. 68 (1848).

Atlas, Ornithology, Plate II, fig. 1, adult male; fig. 2, young female.

A. supra totus coerulescente-cinereus, gutture albo, infra pallide fuscescenti-rube., immaculatus. Remiges et rectrices coerulescente-cinerei, tectrices inferiores alarum caudaque albi. Long. 12 pollices.

breast and belly striped and spotted with brown, on a reddish-buff ground; vent buff, striped with brown; thighs and under tail-coverts ferruginous; the centre of each feather shaded with a dark sepia line along the shaft; primaries and tail beneath plumbeous, barred with white, and having the shafts white beneath, and black on the upper surface; third quill longest; first and fifth equal; small under coverts buff color, with brown centres; tail rounded, composed of twelve feathers, the shafts of which are dark-brown above, dusky-white beneath; the light bars broadest and most conspicuous near the body, and becoming less conspicuous towards the extremity of the tail; cere and feet pale-blue; irides brown.

"Total length fourteen and a half inches; wing, from the flexure or carpal joint, nine inches; tail six inches; bill eight-tenths of an inch; tarsi two and one-tenth inches."

FORM.—Bill rather large and strong, with the cere and apertures of the nostrils large; upper mandible with a large rounded lobe, tip attenuated, and very acute; lower mandible rather small, somewhat flattened and rounded at its tip. Wings moderate, with the first primary short, and the fourth longest; third, fourth, and fifth primaries sinuated on their external webs, which, in all the primaries, are wide; secondaries emarginated at their tips, and with their shafts slightly prolonged or mucronate. Tail rather short, composed of twelve feathers of nearly uniform length; tarsi and feet moderate.

DIMENSIONS.—Adult male. Total length (of skin), from tip of bill to end of tail, about twelve inches; wing eight inches; tail six inches; tarsus two and one-fourth inches. Adult female rather larger.

COLORS.—Adult male. Head, body, wings, and tail above, uniform light bluish-cinereous; throat white; entire plumage of the under surface of the body, tibia, and narrow collar encircling the neck behind, pale brownish-red, tinged with ashy, and deepest on the collar around the neck; under tail-coverts white, slightly tinged with the same brownish-red of the other plumage of the under parts. Under surface of the external tail-feathers very pale, nearly white; others the same on their inner webs. Inner coverts of the wings white, and all the quills very pale on their inferior surfaces. Bill and claws bluish-black; cere, eyelids, and tarsi gamboge-yellow; irides orange.

Young male and young female. Entire plumage of the upper parts of the head, body, wings, and tail umber-brown; many of the feathers on the back and wings edged and narrowly tipped with ferruginous, and, on the neck behind, white at their bases. Throat white; nearly all the feathers having very narrow, longitudinal, dark lines; breast, abdomen, flanks, and under coverts of the tail white; every feather longitudinally striped with umber-brown, broad, and inclined to form rounded spots on the breast, and transverse stripes on the flanks, slight on the under coverts of the tail. Plumage of the tibia pale brownish-red, with transverse stripes of a deeper shade of the same color. Tail above umber-brown, very pale, and tinged with reddish on the edges of the inner webs of the feathers, and with about ten to twelve transverse bands of brownish-black, and narrowly tipped with pale reddish-white; inferior surface of the tail nearly white, tinged with brownish-

red, and showing very conspicuously the dark transverse stripes. Bill and claws black; cere, eyelids, and tarsi greenish-yellow; irides brown.

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington.

According to Mr. Peale, this bird was found in all of the Feejee Islands, where it was known to the natives by the name of "*Manu levu* or great bird, and is remarkable for its courage in attacking pigeons and other birds equal to itself in size." The specimens figured were killed near the town of Levuka, in the Island of Ovalau. They are represented about two-thirds of the natural size.

This handsome hawk is also figured in the Atlas to the Voyage of the Astrolabe and Zelee, Birds, Plate II, fig. 2 (Paris, folio). In *Conspectus Avium*, p. 33, the Prince of Canino cites this figure as representing *Falco hiogaster*, Müller, *Verhandlingen*, p. 110, but erroneously, as we have readily determined from having compared specimens of the latter, in the Museum of the Philadelphia Academy, with those of the present bird, in the National Collection, brought by the present Expedition in the Vincennes and Peacock. The two species are, however, strictly congeneric, but *A. hiogaster* is the larger, and of a different shade of color on the lower parts. Both are remarkable for the entirely uniform color of the upper and also of the under parts, without spots or stripes of any kind whatever.

5. GENUS BUTEO, Cuvier, *Regn. An.* I, p. 323 (1817).

1. BUTEO VARIUS, Gould.

Buteo varius, GOULD, *Proc. Zool. Soc. London*, 1837, p. 10.

Atlas, Ornithology, Plate III, fig. 1.

FORM.—Wings rather long, and reaching within two inches of the end of the tail; fourth quill longest; secondaries and tertiaries remarkably uniform in their length. Tail, containing twelve feathers, rather short; bill, tarsi, and feet moderate, both of the latter very distinctly scaled; tarsus feathered about an inch below the joint.

DIMENSIONS.—Total length of skin, from tip of bill to end of tail, about nineteen inches; wing fifteen inches; tail nine and a half inches; tarsus about three and one-fourth inches.

COLORS.—Throat brownish-black, unspotted. Entire plumage of the head above, back, rump, wings, and coverts deep sepia-brown; many of the feathers tipped and edged with reddish-ferruginous, especially on the wing-coverts and rump, and almost predominating on the latter. Secondaries and some of the primaries tipped with pale reddish-white, and distinctly marked with several transverse bars of a deeper shade of the same brown. Outer primaries brownish-black, with their internal webs more or less marked with white, very conspicuous upon viewing the inferior surface of the wing.

Under parts pale reddish-white; every feather longitudinally marked with brownish-black; tinged with rufous on the flanks and abdomen, and with that color predominating on the tibia. Tail above cinereous, becoming white on the inner edges of the feathers, and every feather crossed with many narrow bands of brown; under surface of the tail white.

HAB.—South America, Patagonia, Chili. Specimen in Nat. Mus. Washington.

This buzzard appears to be extensively diffused, the collection of the Expedition containing specimens from Patagonia and Chili. They are very similar to each other in color and other characters, and are constantly characterized by the black throat, as described by Mr. Gould, and as represented in our plate.

Although we think it quite probable that this bird assumes a very different plumage when adult, and that it may be the young of a previously known species, yet we have not succeeded in so referring it with any degree of satisfaction. It has been regarded as the young of *Buteo erythronotus* (King), which is *Buteo tricolor*, D'Orbigny, and is cited as a synonyme in Gray's Genera of Birds, I, p. 12, Bonaparte's Conspectus Avium, p. 17, and in Kaup's Arrangement of the Falconidæ.

We have had ample opportunities of examining specimens of that species in various stages of plumage, in the collection of the Philadelphia Academy, and of comparing them with those of the present bird, in the collection of the Expedition, but have not been able to trace a

succession of plumages sufficient to justify the conclusion which the distinguished ornithologists, above referred to, have adopted. At present, we can only consider it as different from any other species known to us, though probably our specimens are in young plumage.

Mr. Peale observes with reference to the bird now before us: "On the Rio Negro, Patagonia, this species is common. We saw it near the mouth of the river, sitting on the pinnacles of bare sand-hills or on low bushes (that part of Patagonia being destitute of trees), watching for small birds and lizards, on which they feed. We saw them again at Orange Bay and near Valparaiso."

2. BUTEO VENTRALIS, Gould.

Buteo ventralis, GOULD, Proc. Zool. Soc. London, 1837, p. 10.

Atlas, Ornithology, Plate III, fig. 2.

FORM.—Wing moderate or rather long, with the fourth quill slightly longest; tertiarics much longer than the secondaries; tail moderate; tarsi rather short, robust, and with the toes very distinctly scaled. Bill rather short and weak. General form robust and strong.

DIMENSIONS.—Total length (of skin), from tip of bill to end of tail, about twenty-two inches; wing sixteen and a half inches; tail ten inches; tarsus about three inches.

COLORS.—Throat and other under parts pale yellowish-white; many of the feathers, especially on the throat and sides of the breast, with longitudinal stripes of brown, most numerous and widest on the latter. A wide band across the abdominal region, composed of longitudinal and transverse marks on every feather, light brownish-ferruginous; thighs and under tail-coverts with transverse bands of a paler shade of the same color, but nearly obsolete on the latter.

Head above, back, rump, and coverts of the wings dark sepia-brown; many feathers tipped and edged with rufous, especially on the head, neck, and upper tail-coverts; wing-coverts, at their bases, with bars and rounded spots of white. Quills brown, with transverse bars of a deeper shade of the same color, and tinged with cinereous on their

outer webs, and all of them widely bordered with white on their inner webs, conspicuous when the wing is viewed from below. Tail above cinereous, with transverse stripes of brown, and all the feathers, except the two in the middle, bordered with white on their inner webs; inferior surface white.

HAB.—Patagonia, Tierra del Fuego. Specimen in Nat. Mus. Washington.

One very fine specimen, from Orange Bay, Tierra del Fuego, in the collection of the Expedition, is all that we have ever seen of this bird. Late authors, for the greater part, have considered it as the young of the common *Buteo borealis*, of North America, with which conclusion we cannot at present coincide. It may, however, be the young of the western *Buteo montanus*, Nuttall, but not having within our reach sufficient evidence, we must regard it as a distinct species. It is about the same size as the female of the bird mentioned, and considerably resembles the young of that species figured by Audubon, in Birds of America, Plate CCCLXXII (Octavo edition, I, Plate VI), but is not so dark colored in the plumage of the superior parts.

6. GENUS HALIAETUS, Savigny, Hist. Nat. d'Egypt, I, p. 85 (1809).

1. HALIAETUS LEUCOCEPHALUS (Linn.).—The White-headed Eagle.
The Bald Eagle.

Falco leucocephalus, LINN. Syst. Nat. I, p. 124 (1766).

Falco pygargus, DAUDIN, Traite, II, p. 62 (1800).

Falco ossifragus, WILSON, Am. Orn. VII, p. 16 (1813).

Catesby, Car. I, Plate I; Buff. Pl. Enl. 411; Vieill. Ois. d'Am. Sept. I, Plate III; Wilson, Am. Orn. IV, Plate XXXVI; VII, Plate LV; Aud. B. of Am. Plate XXXI, CXXVI; Oct. edition, I, Plate XIV.

This fine species, well known as an inhabitant of the States of this Confederacy, on the Atlantic and in the interior, is also a common bird of the shores of the Pacific. It appears in fact to be diffused throughout North America, from Mexico to the confines of the perpetual frost.

Mr. Peale says: "Eagles are numerous on the northwest coast of America, particularly so along the banks of the Columbia River, where fishes, their favorite food, are plentiful at all seasons."

This bird is mentioned by Dr. Pickering as occurring at almost every point visited by the Expedition in Oregon and California.

7. GENUS PANDION, *Savigny*, Hist. Nat. d'Egypt, I, p. 95 (1809).

1. PANDION CAROLINENSIS (*Gmelin*).—The Fish Hawk. The American Osprey.

Falco carolinensis, GM. Syst. Nat. I, p. 263 (1788).

Aquila piscatrix, VIEILL. Ois. Am. Sept. I, p. 29 (1807).

Pandion americanus, VIEILL. Gal. I, p. 33 (1825).

Vieill. Ois. d'Am. Sept. I, Plate IV; Cat. Car. I, Plate II; Wilson, Am. Orn. V, Plate XXXVII; Aud. B. of Am. Plate LXXXI; Oct. ed. I, Plate XV.

Specimens in the collection of the Expedition, from Oregon, are precisely similar, so far as we can see, to the well-known bird of the coast of the Atlantic States. It is, therefore, another of the species of rapacious birds, which is extensively diffused.

According to Mr. Peale, "the fish hawk is abundant along the coasts of Oregon and California, though not so numerous as on the Atlantic coast. On the Columbia River, they appeared to be annoyed by the great numbers of eagles, which are constantly plundering them of their food, and, in consequence, they are obliged to seek more retired fishing grounds."

Dr. Pickering notices this bird as especially abundant on the Sacramento River, but also frequently observed elsewhere, at the various points visited by the naturalists of the Expedition.

2. PANDION HALIAETUS (*Linn.*).—The Osprey.

Falco haliaetus, LINN. Syst. Nat. I, p. 129 (1766).

Pandion indicus, HODGSON, Jour. As. Soc. Bengal, VI, p. 366 (1837).

Gould, B. of Eur. I, Plate XII.

Mentioned by Dr. Pickering as having been noticed in the harbor of Singapore. We fail to detect any characters by which Asiatic specimens can be distinguished from those of Europe, in the fine series now before us, belonging to the Museum of the Philadelphia Academy, and in fact either can be distinguished only with difficulty from the common bird of the United States.

3. PANDION SOLITARIUS (Peale).

Buteo solitarius, PEALE, Zool. U. S. Exp. Birds, p. 62 (1st edition, 1848).

Atlas, Ornithology, Plate IV. Adult.

P. caput et corpus totum infra flavescenti-alba, dorsum, alae caudaque umbrina. Hujus generis minimus. Long. 17 pollices.

FORM.—The smallest of this genus. Bill rather long, compressed, conspicuously lobed, and attenuated at the end; wing long, with the third, fourth, and fifth quills longest and nearly equal; tail moderate, rather short, even at the tip, containing twelve feathers; tarsi robust, covered in front and behind with rather broad transverse scales; toes strong and rather lengthened, their under surfaces strongly corrugated or pustulated; claws very large, long, and curved.

DIMENSIONS.—Total length (of skin, sex unknown), from tip of bill to end of tail, about seventeen inches; wing twelve inches; tail seven and a half inches; bill, from gape to the point of the upper mandible, one and a half inches; tarsus two and three-fourths inches; hind toe and claw one and three-fourths inches.

COLORS.—Sex unknown. Head, and entire under parts, and upper tail-coverts yellowish-white, all the feathers being pure white at their bases, and widely terminated with pale yellowish, most distinct on the breast and tibiae. Occiput and neck behind with oblong longitudinal spots of umber-brown, which is the color also of all the upper surface of the body, wings, and tail. Shafts of quills reddish-chestnut on their upper surface, white beneath; inner webs of quills widely edged with

white. Tail beneath silky-white, tinged with yellowish. Bill and claws dark (in skin).

HAB.—Hawaii, Sandwich Islands. Specimen in Mus. Acad. Philadelphia.

This rather singular species appears to belong to a group which contains several species of fishing-eagles, some of which are of much larger size than the present bird. In form and general appearance it much resembles *P. ichthyaetus* (Horsfield), and *P. humilis* (Müller), though smaller, and we have never seen in either of those species, so far as specimens have come under our notice, the yellowish or pale buff color of the plumage of the head and under parts, which prevails in the bird now described. Both of the species mentioned inhabit islands of the Malay Archipelago; the present bird was noticed only at the Sandwich Islands.

No specimen of this bird is in the collection of the Expedition. That originally described by Mr. Peale is in the collection of the Academy of Natural Sciences of Philadelphia, to which it was presented by John K. Townsend, M.D. It was obtained near Karakakoa Bay, in the Island of Hawaii, and sent to Dr. Townsend by the Rev. Mr. Forbes, who was attached to the Presbyterian Mission to the Sandwich Islands. It is the only specimen that we have seen, and for its use, in the preparation of our plate and the present description, we are indebted to the kindness of the gentlemen of the Academy.

This bird is strictly a member of a subgenus of the generic group *Pandion*, designated *Polioaetus*, by Dr. Kaup (Jardine's Contributions to Ornithology, 1850, p. 72), and is much the smallest of the species, being even smaller than *P. humilis*. The same group has been called *Ichthyaetus*, by the Baron de La Fresnaye, a distinguished French ornithologist.

8. GENUS HALIASTUR, Selby (1840).

1. HALIASTUR INDUS (*Boddart*).—The Brahmin Kite. The Pondicherry Eagle.

Fulcoindus, BODD. Tab. des Pl. Enl. Buff. p. 25 (1783).

Falco ponticerianus, GM. Syst. Nat. I, p. 265 (1788).

Buff. Pl. Enl. 416 ; Vieill. Gal. I, Plate X.

This well-known bird we find mentioned by Dr. Pickering as occurring in abundance at the Philippine Islands. "The Brahmin kite," he says, "is very common in the vicinity of the rivers and lakes, and in appearance and to a considerable extent in manners is a miniature of the white-headed eagle of the United States. A specimen, seen at Mayjayjay, appeared to be an albino. It was perfectly white below, but the wings were lightly tinged with rufous."

9. GENUS MILVAGO, *Spix*, Av. Bras. I, p. 12 (1824).

1. MILVAGO CHIMACHINA (*Vieill.*).

Polyborus chimachina, VIEILL. Nouv. Dict. V, p. 259 (1816).

Milvago ochrocephalus, SPIX, Av. Bras. I, p. 12 (1824).

Polyborus crotophagus, DE WIED, Beitr. III, p. 162 (1830).

Falco degener, LICHT. Verz. p. 61 (1823).

Gynops strigilatus, SPIX, Av. Bras. I, p. 10 (1824).

Jard. and Selby, Ill. I, Plate II ; Spix, Av. Bras. I, Plate IV, V.

Numerous specimens of this abundant species are in the collection of the Expedition, presenting, however, nothing unusual in their characteristics. Mr. Peale observes :

"A pair of these birds was found on an island opposite the harbor of Rio de Janeiro, on the seventh of January, where we had reason to believe they were breeding. We were not, however, successful in finding its nest."

2. MILVAGO CHIMANGO (*Vieill.*).

Polyborus chimango, VIEILL. Nouv. Dict. V, p. 260 (1816).

Gray, Genera of Birds, I, Plate V.

The chimango is probably the most abundant of the species of the rapacious birds of South America. It is dull and voracious in its habits and disposition, and, in our opinion, shows a more decided affinity to the vultures than to the falcons.

"We obtained," says Mr. Peale, "this species on the Rio Negro, Patagonia, and in Chili. In the latter country they were very tame, and were seen in considerable numbers along the public roads, feeding on the carcasses of horses and cattle left by travellers. Family parties of six or seven were frequently noticed, but we were not so fortunate as to find its nest."

Numerous specimens are in the collection of the Expedition.

10. GENUS POLYBORUS, Vieill. Analyse, p. 22 (1816).

1. POLYBORUS THARUS (*Molina*).—The Caracara Eagle.

Fulco tharus, MOL. Sagg. Stor. Nat. del Chili (1782).

Fulco cheriway, JACQUIN, Gesch. der Vogel, p. 17 (1784).

Fulco brasiliensis, GM. Syst. Nat. I, p. 262 (1788).

Polyborus vulgaris, VIEILL. Nouv. Dict. V, p. 257 (1816).

Jacq. Vog. Plate IV; Vieill. Gal. I, Plate VII; Aud. B. of Am. I, Plate CLXI; oct. ed. I, Plate IV; Gay's Chili, Orn. Plate I.

The caracara eagle was observed, and specimens obtained at various localities. The first notice of it occurring in Dr. Pickering's Journal, is dated at Rio Negro, Patagonia, February, 1839. "Birds of prey were very numerous and far from shy. It was novel to me to see the caracara perching sometimes on the bushes, but more usually on the sand, and even in the mud on the margin of the river. But in an unwooded country like this, birds may occasionally be under the necessity of abandoning their usual habits, and of resting on the ground.

"This was the largest rapacious bird met with here, and seemed to me to be larger than specimens from Florida, which I had seen, though not differing in general characters, if my memory serves me. The skin about the bill has not the bright red color as given in Mr. Audubon's figure from a Florida specimen. Its talons are quite powerful, as I have witnessed."

Under date also of February, 1839, at Tierra del Fuego, he observes: "One specimen of the common caracara obtained here, had the breast, neck, and back, marked with very fine transverse lines. It appears to be abundant throughout Patagonia."

At Valparaiso, April, 1839, he observes: "The caracara was occa-

sionally seen by the roadside, on the way to Santiago, but was much less numerous than on the Rio Negro;" and a short time subsequently at Callao: "The caracara, which we have met with hitherto abundantly, we saw here only on two or three occasions."

This species, which assumes all the habits of the vultures, appears to be abundant throughout the greater portion of South and Central America, and Mexico. It has been observed also, but rarely, in Florida. It walks and runs on the ground with great facility, and subsists entirely on dead animals in any stage of decay. It is now frequently brought in collections from Texas, but we have not detected any characters showing a specific difference between the bird of that country and of South America.

2. POLYBORUS AUSTRALIS (*Gmelin*).—The Southern Caracara.

Falco australis, GM. Syst. Nat. I, p. 259 (1788).

Circæetus antarcticus, LESSON, Traité I, p. 49 (1831).

Temm. Pl. Col. 192, 224; Jard. & Selby, Ill. n. s. I, Plate XXIV.

Several fine specimens of this handsome bird are in the collection of the Expedition.

Mr. Peale observes:

"Not uncommon at Orange Harbor and Tierra del Fuego, where we saw and obtained a number of them."

11. GENUS CIRCUS, *Lacépède*, Mem. d'Inst. III, p. 506 (1803).

1. CIRCUS ASSIMILIS, *Jardine and Selby*.

Circus assimilis, JARDINE & SELBY, Ill. Orn. II, p. (no date).

Circus approximans, PEALE, Zool. U. S. Exp. Exp. Birds, p. 64 (1st ed. 1848).*

* "General form, like *C. cyaneus*, but larger; head and neck striped with ferruginous sepia-brown and white; back and wings, sepia-brown; tail, consisting of twelve feathers, each having five brown bars, the two middle feathers cinereous, the others more or less ferruginous on their inner webs; the three outer feathers white on their outer webs near the base; tail beneath, nearly white, with dusky bars which are obscure on the two outer feathers; throat, breast, and vent, tawny, each feather having a brown stripe along

Jard. & Selby, Ill. Orn. II, Plate LI; Gould, B. of Aust. I, Plate XXVI.

A specimen of this species in young plumage from the Feejee Islands is very similar to others from Australia, now in the collection of the Philadelphia Academy. We have no doubt of their specific identity.

Mr. Peale remarks:

"This hawk's manners, its long wings and tail, its white rump, and its unceasing industry in coursing, will at once remind an American of the marsh hawk, or the Englishman of the harrier. Lizards form no inconsiderable portion of its food.

"Our specimen is a male, and was shot at Mathuata, Island of Venua Levu, on the twenty-first of June."

This bird is known almost exclusively as a bird of Australia, and is very handsomely figured by Mr. Gould, as above cited. Its being obtained at the Feejee Islands by the present Expedition, is a point of much interest, and demonstrates a more extensive range of locality than hitherto assigned to this species.

2. *CIRCUS HUDSONIUS* (Linn.).—The Marsh Hawk.—The American Harrier.

Falco hudsonius, LINN. Syst. Nat. I, p. 128 (1766).

Falco uliginosus, GM. Syst. Nat. I, p. 278 (1788).

Falco europogistus, DAUD. Traite, II, p. 110 (1800).

Vieill. Ois. d'Am. Sept. I, Plate IX; Wilson, Am. Orn. VI, Plate LI, Fig. 2; Bonap. Am. Orn. II, Plate XII; Aud. B. of Am. Plate CCCLVI; oct. ed. I, Plate XXVI; Faun. Bor. Am. Bir's, Plate XXIX.

its centre; feathers of the crown and nape, white at their bases; those of the head, brown in the centre, with ferruginous margins; those of the neck with white margins, which form a nuchal spot; scapulars dark sepia-brown, slightly tipped with ferruginous; primaries dark-brown, gray on the outer web; spurious wings gray, with three brown bars; shafts chestnut-brown above, dusky beneath; third quill longest, first and sixth nearly equal, first four with deeply indented inner webs, and slightly barred on the under side with tawny.

"Total length, nineteen and a half inches; wing from the flexure, fifteen and three-quarter inches; tail, eight and a half inches; tarsi, three and a half inches; middle toe including the nail, one and three-quarter inches; nail, seven-tenths of an inch; bill, one and three-tenths of an inch. Male."

On careful and minute examination of several specimens from California and Oregon, in the collection of the Expedition and others, we find them to be strictly identical with the common bird of the States on the Atlantic. This species has, therefore, a very extensive range of locality, embracing nearly the whole of North America. Numerous specimens from a variety of localities west of the Mississippi River, collected by the parties that surveyed routes for a railroad to the Pacific Ocean, are now also in the National Museum.

Though considered by ornithologists generally as identical with the European *Circus cyaneus*, this bird is really very different, and, of course, fully entitled to a specific designation. In fact, no person accustomed to making investigations in Zoology, would, for a moment, suspect the identity of these two species, with facilities before him for comparing them.

3. FAMILY STRIGIDÆ.—The Owls.

1. GENUS STRIX, Linn. Syst. Nat. I, p. 131 (1766).

1. STRIX PERLATA, Lichtenstein.

Strix perlata, LIGHT. Verz. p. 59 (1823).

This is one of several species of owls, which bear more or less intimate resemblance to the common barn owls of Europe and North America, *Strix flammea* and *pratincola*, and appears, in fact, to represent the group now regarded as forming the typical genus *Strix*, in South America. The species of this eminently natural group are for the greater part only to be distinguished by rather minute and frequently apparently unimportant characters, which are, however, found to be constant and characteristic. To these characters, different naturalists ascribe very different degrees of value.

Of this South American species, which we regard as distinct from any other, notwithstanding the opinions of nearly all the late authorities, several specimens are in the collection of the Expedition. It is smaller than its near relative of North America, *Strix pratincola*, Bonaparte, and is more nearly the size of *Strix flammea*, Linn., of the old world, which otherwise also it much resembles. From the latter,

however, it can be readily distinguished by its much longer *tarsi*; a character especially mentioned in the original description by Professor Lichtenstein, in his Catalogue of the Duplicates in the Berlin Museum, p. 59. (Verzeichniss der Doubletten des zoologischen Museums der Königl. Universität zu Berlin, 1823.)

This species is quite distinct from the *Strix furcata*, Temm. (Pl. Col. 432), of which we have seen specimens from the West Indies. The latter, so far as shown in the specimens to which we allude, may always be recognized by its white quill-feathers, and generally more light-colored plumage and emarginate tail. That bird (*S. furcata*), is the most handsome species of its genus.

2. *STRIX PRATINCOLA*, Bonaparte.

Strix pratincola, BONAP. Comp. List. p. 7 (1838).

Strix americana, AUD. Orn. Biog. II, p. 421 (1834, but not of GMELIN, 1788).

Wilson, Am. Orn. VI, Plate L, fig. 2; Aud. B. of Am. Plate CLXXI; Oct. ed. I, Plate XXXIV.

Mentioned by the naturalists of the Expedition as having been observed in Oregon. Specimens from that country which we have examined, present no material variations from the bird of the States on the Atlantic, unless it is a tendency to the white color in the quills which characterizes *Strix furcata* of the West Indies, alluded to in the preceding article. In specimens from California, it is quite usual to find the quills very light-colored, but, perhaps, never forming such a strong character in that respect, as in the West India bird, just mentioned. This bird, from any locality in North America, is, however, very liable to variation in the shades of its colors, though it will be ascertained by sufficiently extensive examination, that the *pattern* of the markings always remains the same. Such is the case, too, in all the species of this difficult genus, and in fact, in much the greater part of all others.

The present bird is larger than its near relative of Europe, *Strix flammea*, with which it was considered identical by the earlier American naturalists, and is fully entitled to be regarded as a distinct species. It is much more abundant in the Southern than in the Northern

States, and is of rare occurrence in the vicinity of Philadelphia. On the Pacific coast, it is one of numerous species that venture much farther north than on the coast of the Atlantic.

3. STRIX DELICATULA, Gould.

Strix delicatula, GOULD, Proc. Zool. Soc. London, 1836, p. 140.

Strix lulu, PEALE, Zoology, U. S. Exp. Birds, p. 74 (1st edition, 1848).*

Gould, B. of Aust. I, Plate XXXI.

This species, which is another of those that considerably resemble *Strix flammea* of Europe, and *Strix pratincola* of North America, was observed principally in the Samoan Islands. It is, however, one of the best-defined and easily recognized of the closely allied species alluded to, and is beautifully represented in Mr. Gould's Birds of Australia, as above cited.

This bird may be readily distinguished by its light-gray color, singularly uniform for a species of this group, in all the specimens now before us, including several brought by the Expedition and the original specimens from Mr. Gould's collection, now in the Museum of the Philadelphia Academy. According to the naturalists of the Expedition, it is called *Lulu* by the inhabitants of Samoa.

Mr. Peale's observations on this bird are as follows :

* "Like the foregoing (*Strix americana*, Aud.), but smaller, lighter colored, and having shorter wings. Top of the head, neck, back, upper surface of the wings, and tail light-gray, mottled with pale-brown, and having a slight tinge of tawny; the tip of each feather of the dorsal plumage having a black spot with a white centre; tail consisting of twelve feathers, each with four brown bars, three only of which show on the under surface; wings barred like the tail; throat, breast, belly, thighs, and all the under parts, including the wings and tail, white; a few small black spots scattered over the under wing-coverts, breast, and flanks; plumage of the thighs and tarsi pure-white, and not so full nor descending as low as in the American species; irides dark-brown; bill and legs pale flesh-color; the latter covered with brown scales.

"Total length twelve and three-fourths inches; extent of wings thirty-four and one-fourth inches; wing, from the carpal joint, eleven and four-tenths inches; tail four and three-tenths inches; tarsi two and one-fourth inches; middle toe, including the nail, one and nineteen-twentieths inches; nail seven-tenths of an inch; hind toe, including the nail, one and four-tenths inches; nail seven-tenths of an inch. Female."

"This species is quite common in the Island of Upolu, and other islands of the Samoan Group. It is frequently abroad during the day, and flies with ease and almost perfect silence. We obtained numerous specimens, which vary but little, though some are light-gray above, and snow-white beneath, while others are pale-tawny above, but having also white breasts.

"A single specimen was obtained at the Island of Ovolau, one of the Feejee Group."

2. GENUS *CICCABA*, Wagler, Isis, 1832, p. 1222.

1. *CICCABA MELANONOTA* (Tschudi).

Noctua melanonota, TSCHUDI, Faun. Peru. Aves, p. 114, Pl. IV (1845).

The specimen in the collection, which appears to have been obtained in Brazil, differs from the figure and description given by M. Von Tschudi (Fauna Peruana, Birds, p. 114, Plate IV), in having the brown color of the upper parts extended to the neck in front, and downwards on to the breast, somewhat broken on the neck in front by the partially white feathers of the facial disk or ruff. It is probably a more mature specimen than that described by the discoverer of this species, the learned and indefatigable naturalist and traveller just mentioned.

Plumage around the base of the bill and extending over the eyes yellowish-white. Entire plumage of the upper parts of the head and body, wings, and tail, dark umber-brown; neck before with the feathers of the disk brown, mixed with white, and apparently forming an irregular band, immediately succeeded by a wide transverse band of brown across the breast. Abdomen, legs, and under tail-coverts pale-reddish or rusty-white, many feathers having transverse bars of reddish-brown; under wing-coverts pale reddish-yellow. Tail umber-brown, with about four narrow transverse bars of white, and tipped with white. Total length about sixteen inches; wing twelve inches; tail seven and a half inches.

This species, of which this is the only specimen that we have seen, is strictly congeneric with *Ciccaba torquata*, Daudin, but can readily

be distinguished. The specimen now before us, which is in excellent plumage and preservation, we regard as one of the most interesting in the collection of the Expedition or in the National Museum, and there is no other, so far as we know, in any other collection in this country.

3. GENUS SCOPS, *Savigny*, Hist. Nat. d'Egypt, I, p. 105 (1809).

1. SCOPS SUNIA (*Hodgson*).

Scops sunia, HODGSON, As. Res. XIX, p. 175 (1836).

Jerdon, Ill. Ind. Zool. Plate XLI.

The only specimen of this species that we have ever seen, in mottled brown and white plumage, is in the collection of the Expedition. This is one of several species which present very nearly the same variations of color as the common red and mottled owls of the United States (*E. naevia* and *asio*). Of two specimens from Malacca, in the collection, one is in the red plumage, as originally described by Mr. Hodgson, as above cited, and as figured by Mr. Jerdon in illustrations of Indian Zoology, Plate XLI; the other has the entire plumage mottled brownish and black, with white spots, the last predominating on the under parts of the body.

The group to which this little owl belongs, which is mainly composed of nearly allied Asiatic species, is, however, one of the most difficult in Ornithology. We cannot pretend to trace the synonymes of this species, therefore, on the present occasion.

4. GENUS BRACHYOTUS, *Gould*, Proc. Zool. Soc. London, 1837, p. 10.

1. BRACHYOTUS GALAPAGOENSIS (*Gould*).

Otus galapagoensis, GOULD, Proc. Zool. Soc. London, 1837, p. 10.

Strix sandwichensis, BLOXHAM, Voy. Blonde, p. 250 (1826).?

Strix georgica, LATHAM, Ind. Orn. Supp. p. 15 (1801).?

For the first time, we have an opportunity of examining specimens

from the Sandwich Islands, in the collection of the Expedition. They are larger and darker colored than the bird of North America; and, after careful examination, appear to us to be strictly identical with the bird from the Gallapagos Islands, described by Mr. Gould as above. They are, moreover, identical with others that we have seen from Western South America, of which very fine specimens are in Lieut. Gillis's collection, made in Chili, now in the National Museum.

According to Mr. Peale, this bird was found in all the Hawaiian Islands, visited by the naturalists of the Expedition, and like its relative of North America, inhabited "grassy or reedy plains or marshes, where there are but few trees."

The name given by Bloxham, as above, applies about as well to this species, as any other, but is of no value nor authority; his description being so short and unsatisfactory as to be entirely useless in the recognition of the intended species. Specimens in the collection are in good plumage and preservation.

2. BRACHYOTUS CASSINII, *Brewer*.—The Short-eared Owl. The Marsh Owl.

Brachyotus Cassinii, BREWER, Proc. Nat. Hist. Soc. Boston, VI, p. 321 (1856).
Strix brachyotos, FORSTER, Philos. Trans. London, LXII, p. 384 (1772).

Wilson, Am. Orn. IV, Plate XXXIII, fig. 3; Aud. B. of Am. Plate CCCCX; Oct. ed. I, Plate XXXVIII.

According to Mr. Peale, "not uncommon in the prairies of Oregon and California." Numerous specimens from the same countries are in the collections made by the Pacific Railroad Surveying and Exploring Expeditions. This species being of frequent occurrence, also, on the Atlantic seaboard, may very safely be stated to inhabit the whole of North America to the confines of the Arctic Zone, though rare in the Southern States.

Our esteemed friend, Dr. Brewer, who has done us the honor of applying our name to this bird, has very fully and correctly pointed out its specific characters in his description above cited, and in his very valuable work, North American Oology, Part I, p. 68 (in Smithsonian Contributions). It differs from the European and Asiatic spe-

cies in being constantly larger and darker colored, and we fully coincide in the propriety of its being regarded as a distinct species. The conclusions, however, of Dr. Brewer, we beg leave to say, are always entitled to the greatest consideration and respect from his masterly ability and long experience as an ornithologist, and exceeding carefulness of observation.

The Short-eared Owl is not uncommon in the Northern and Middle States in the winter season, and is almost exclusively to be found in the vicinity of marshes or swamps, or near streams of water. It raises its young principally in the far North, though occasionally a few remain during the summer within the limits of the United States.

5. GENUS *ATHENE*, Boie, Isis, 1822, p. 549.

1. *ATHENE HYPUGÆA* (Bonap.).—The Burrowing Owl.

Strix hypugæa, BONAP. Am. I, p. 72 (1825).

Athene socialis, GAMBEL, Proc. Acad. Philad. III, p. 47 (1846).

Bonap. Am. Orn. I, Plate VII, fig. 2; Aud. B. of Am. Plate CCCCXXXII, fig. 1; Oct. ed. I, Plate XXXI.

Specimens in the collection are from the Columbia River, above the mouth of the Wallawalla. According to Mr. Peale, this bird "was not found on the coast (of the Pacific), nor in that country lying between the Columbia River and California." He states, too, respecting this and the succeeding species: "This entire sub-genus, as far as opportunities were offered to observe the species during the progress of the Expedition, was found to be *diurnal*, and their food to consist almost entirely of insects and lizards, but principally the former. They all avoid the forests, and live entirely in the *pampas* or prairies."

2. *ATHENE CUNICULARIA* (Molina).—The South American Burrowing Owl.

Strix cunicularia, MOL. Sagg. Stor. Nat. Chili (1782).

Strix californica, AUD. B. of Am. Pl. CCCCXXXII, fig. 2 (name on plate).

Athene patagonica, PEALE, Zool. U. S. Exp. Exp. Birds, p. 78 (1848).*

This is the largest of the species of burrowing owls recognized by naturalists, and is well represented in the plate of Mr. Audubon's work, cited above, which was prepared from specimens supposed to be North American, but were really from Chili. They belonged to the collection made by the late John K. Townsend, M.D.

All of the above species very considerably resemble each other, but appear to us to present constant specific characteristics as described by the distinguished authors whom we have cited.

In relation to the species now before us, Mr. Peale's observations are as follows:

"Should the traveller, who has crossed the prairies of the Arkansas and Missouri Rivers, ever visit Patagonia, he will find in that country many points of striking analogy to the interior of North America.

"The face of the country (*pampas* being *prairies* under a different name), bears a strong resemblance, covies take the place of hares, larks (*Sturnus militaris*), like those of the North, are seen, having red instead of yellow breasts (*Sturnus ludovicianus*), but alike in *voice* and habits. Every now and then, too, he will meet with subterranean villages, or little societies of armadilloes (*Dasypus minutus*, Desm.), whose social habits and abodes are like those of the prairie dog (*Arctomys ludovicianus*, Ord.), a species of marmot of the Northern Hemisphere.

"In these societies of Armadilloes, there may be heard a kind of barking, like that produced by some of the German toy dogs; the same sound which has given to our marmot the name of 'prairie dog,'

* "Above brown, spotted with tawny; beneath pale buff, with brown bars crossing the breast and flanks; lesser wing-coverts, umber-brown, with two buff-colored spots on the outer, and one on the inner web; third quill longest, first and fifth equal; outer webs brown, crossed by five fulvous bands; inner webs pale buff, except towards the extremities, where they are brown; a black bar crosses at the bases of the quills, otherwise the whole wing beneath is of yellowish-white; tail, excepting the two outer feathers, brown, with a whitish tip and five fulvous bars; outer feathers yellowish-white, with three brown spots on the outer web, and one on the inner web; beneath yellowish-white, the bars obscure; bill and feet, greenish-yellow; irides yellow.

"Total length, ten and seven-tenths inches; wing, from the carpal joint, seven and nine-tenths inches; tail, three and a half inches; tarsi, one and three-quarters of an inch; middle toe, including the nail, one and two-tenths of an inch; nail, half an inch; hind toe, including the nail, eight-tenths of an inch; nail, four-tenths of an inch; bill, seven-tenths of an inch."

by the French voyagers. This cry, in Patagonia, was found to proceed from an owl, so like that of the prairies of North America, that we fear it is not possible to convince all our readers that they are really distinct.

"The Patagonian owl seldom or never alights on trees. It is only found in the pampas, and there inhabits the holes of the armadillo. Its food was found, by dissection of the birds we shot, to be insects and lizards, both of which are abundant in that region. The most perfect harmony seemed to exist between the owls and the armadillos, whose deserted holes only, we suppose, the former take possession of, and there build their nests and raise their broods undisturbed. They are found abroad during the day in the open pampas, under an unclouded sun, and when, in the evening, we were watching for their quadruped companions, which are much esteemed for the table, we found that the owls had all retired to their holes. We conclude, therefore, that this species is strictly diurnal."

3. *ATHENE GRALLARIA* (*Temminck*).

Strix grallaria, TEMM. Pl. Col. II, p. (liv. 25, about 1823).

Temm. Pl. Col. II, Plate CXLVI.

A distinct species of Burrowing Owl, which, like that immediately preceding, inhabits the countries of Western South America. Mr. Peale says of this bird:

"These birds were seen frequently in the vicinity of Callao, Peru, and, we think, offer sufficient specific differences from those obtained in Patagonia, in having shorter tails, longer tarsi, white spotted plumage, and in having the outer tail-feathers brown, with bars of pale tawny, instead of white with brown bars. In all cases where we observed them, it appeared that they excavated their own holes, which were, in almost every instance, in the sides of mounds formed by the crumbling remains of the ancient Inca temples, or dwellings. Around the entrances, were seen numerous fragments of *Grylli* and coleopterous insects, and in the stomachs of those killed, were found similar fragments, but none of birds or mice."

Dr. Pickering mentions that a species of Burrowing Owl, probably the present bird, is found in the Cordilleras, and that he was informed that it takes possession of abandoned excavations, made by the miners, and even, occasionally, of mines, when deserted.

4. *ATHENE NOVA ZEALANDIÆ* (*Gmelin*).—The New Zealand Owl.

Strix nova zelandiæ, GM. Syst. Nat. I, p. 296 (1788).

Strix fulva, FORSTER, Disc. An. p. 71 (1844).

Noctua venatica, PEALE, Zool. U. S. Exp. Birds, p. 75 (1848).*

Voy. Astrolabe, Ois. Plate II, Fig. 2.

Of this handsome little species, which appears to be peculiar to the Island of New Zealand, we find several notices by the naturalists of the Expedition. Mr. Peale alludes to this bird, as follows:

"It is common at the Bay of Islands, New Zealand, and its hoot may be heard almost nightly. In the day it seeks the deep recesses in the hills, and sits quietly ensconced in the thick foliage, waiting the return of night, unless disturbed by the 'Hi-waka-waka' (*Muscicapa flabellifera*, Gm.), a beautiful fan-tailed fly-catcher, which is very

* "Above, umber-brown; front, between the eyes, white; cheeks brown; feathers of the neck bimaculate, the spots pale ochre; dorsal feathers with four white spots, none of them visible without raising the feathers; throat, breast, belly, and vent, pale buff, each feather having a brown line along the middle, and those of the belly having, in addition, two white spots near their extremities; under tail-coverts tawny, with an umber-spot near the end of each feather; all the plumage dark lead-colored at the base, tarsi covered with tawny rufous plumage, banded with umber; toes yellow, covered with dark brown bristles; claws dark brown, small, and very sharp; bill olive green; irides yellow; wings dark brown, with white bands at the base of the quills, the bands becoming obscure towards their extremities; fourth quill longest, shafts dark brown; under coverts buff, mottled with brown; tail, consisting of twelve feathers, rounded and having six narrow white bars on the inner webs, which are scarcely visible on the upper surface, but conspicuous beneath and near the base, gradually becoming obscure towards the extremity.

"Total length, eleven and eight-tenths inches; wing, from the carpal joint, seven and nine-tenths inches; tail, four and nine-tenths inches; tarsi, one and three-twentieths of an inch; middle toe, including the nail, one and seven-twentieths of an inch; nail, four-tenths of an inch; hind toe, three-fourths of an inch; nail, seven-twentieths of an inch; bill, seven-tenths of an inch. Female."

common and tame, but a great annoyer of the day-slumbers of this little owl."

In Dr. Pickering's journal we find mentioned :

"The note of this little species is somewhat like that of the yellow-billed cuckoo of the United States, but louder. It came occasionally about the houses in the evening, perching on the fences and outhouses. It was well known to the natives, and a specimen shot by one of our party, in the presence of some native men, was immediately begged for eating."

This Owl, though a well-marked and peculiar species, shows affinities to that group of the genus *Athene* inhabiting the continent of Asia and its islands. It is not so intimately allied to those of Australia.

2. ORDER INSESSORES.—The Perching Birds.

1. TRIBE CONIROSTRES.

1. GENUS CORVUS, *Linn. Syst. Nat. I, p. 155 (1766).*1. CORVUS CARNIVORUS, *Bartram.*—The American Raven.

Corvus carnivorus, BARTRAM, *Trav. p. 290 (1791).*

Corvus cacolot, WAGLER, *Isis, XXIV, p. 527 (1831).*

Corvus lugubris, AGASSIZ, *Proc. Nat. Hist. Soc. Boston, II, p. 188 (1846).*

Wilson, *Am. Orn. IX, Plate LXXV, fig. 3*; Aud. B. of Am. Plate CI; oct. ed. IV, Plate CCXXIV.

Specimens of the raven from California in the collection of the Expedition present no points of difference, so far as we can discover, from others now before us, which were obtained on the Atlantic coast of the United States. The American species is, moreover, quite difficult to be distinguished from that of Europe, if not specifically identical, and the differences relied on by naturalists might, we suspect, be detected on comparison of different specimens only of the latter.

This very remarkable bird is numerous in Western America, and was frequently noticed by the naturalists of the Expedition, in the Vincennes and Peacock. According to Mr. Peale, it was observed "on the whole route of the Expedition, from the Columbia River to the Bay of San Francisco, in California." Dr. Pickering frequently alludes to it as occurring at various localities in Oregon and California. He especially mentions the interesting fact, that he often noticed this bird sailing "much," he says, "in the manner of a hawk or a vulture."

2. CORVUS AMERICANUS, *Audubon.*—The American Crow.

Corvus americanus, AUDUBON, *Orn. Biog. II, p. 317 (1834).*

Wilson, Am. Orn. IV, Plate XXXV, fig. 3; Aud. B. of Am. Plate CLVI; oct. ed. IV, Plate CCXXV.

The Crow inhabits the entire extent of temperate North America, and unlike the raven, does not apparently decrease in numbers on account of the partial destruction of the forest, or the progress of the inclosure and cultivation of the country.

Specimens from Oregon in the collection, are precisely similar to those of the Eastern States. Dr. Pickering mentions that this bird was observed in both Oregon and California.

3. *CORVUS OSSIFRAGUS*, Wilson.—The Fish Crow.

Corvus ossifragus, WILSON, Am. Orn. V, p. 27 (1812).

Wilson, Am. Orn. V, Plate XXXVII, fig. 2; Aud. B. of Am. Plate CXLVI; oct. ed. IV, Plate CCXXVI.

The Fish Crow, Mr. Peale states, was observed by the naturalists of the Expedition, on the Columbia River, in Oregon, and in the Bay of San Francisco, California. No specimen being in the collection, nor having elsewhere ever seen a specimen of this species from Western America, we allude to it especially for the purpose of expressing a suspicion that the species of the Western coast may be the smaller Mexican and West Indian bird recently described by Mr. Gundlach, under the name of *Corvus minutus*, Journal of the Boston Natural History Society, VI, p. 315 (1853).

The bird alluded to, appears to be common in Mexico, and it may not be improper here to state, is the same species which, according to the Prince Bonaparte, is the true *Corvus spermolegus*, Vieillot. (Bonaparte, in Notes Ornithologiques sur les collections rapportees en 1853, par M. A. Delattre, en California, &c. p. 7.)

4. *CORVUS CORONEOIDES*, Vigors and Horsfield.—The Australian Raven.

Corvus coroneoides, VIG. & HORSEF. Trans. Linn. Soc. London, XV, p. 261 (1826).

Gould, B. of Aust. IV, Plate XVIII.

Specimens in the collection from Australia.

Late writers have adopted for this species the name *Corvus australis*, Gmelin.

This is one of the not unfrequent applications of names in a manner which is purely conventional and arbitrary. *Corvus australis* is a name given to the "South Sea Raven," first described by Latham, in Gen. Syn. I, p. 369, and afterwards named in Syst. Nat. I, p. 365, by Gmelin. It is stated to have been brought from the Friendly Islands, not Australia. The description is too short to be either satisfactory or conclusive, but should any species ever again be found at the islands mentioned, sufficiently answering the description, it must be regarded as entitled to Gmelin's name, whether the present bird or not.

Gmelin uses the name *Corvus australis* for two species (Nos. 21 and 45 of genus *Corvus*, Syst. Nat. I, p. 365, and p. 377). The first name, which is that above alluded to, probably is applicable to a bird of this genus, the last is not.

5. CORVUS RUFICOLLIS, Lesson.

Corvus ruficollis, LESSON, Traité d'Orn. I, p. 329 (1831); PUCHERAN, Rev. et Mag. Zool. 1853, p. 548.

Corvus leptonyx, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 105 (1st ed. 1848).*

Atlas, Ornithology, Plate V. Female.

Capite, collo, corporeque toto subtus rufo-spadiceis, corpore supra, alis et

* "Head, neck, breast, and abdomen, snuff-colored brown; the feathers of the neck elongated and pointed; wings and tail black, with purple reflections, the whole of the plumage highly glossed; claws on the outer toes remarkably short; wings, when closed, projecting beyond the tail, acutely pointed; tail rounded like *C. corax*; irides brown; bill and feet black. Female.

"Total length, twenty inches; extent of wings forty-four inches; wing, from the carpal joint, fifteen and six-tenths inches; tail, eight and one-tenth inches; tarsi, two and nine-tenths inches; middle toe, including the claw, one and nine-tenths inches; claw, eleven-twentieths of an inch; hind toe, one and six-tenths inches; claw, three-fourths of an inch; bill, two and four-tenths inches; to the corner of the mouth, two and four-tenths inches."

cauda nigris, nitidissime purpureis, digitorum exteriorum unguibus brevibus, rostro tarsique nigris. Long. tot. 19 pollices.

FORM.—Rather larger than *Corvus capensis*, Licht., but resembling it in general form and appearance. Bill large, long, culmen arched, apertures of the nostrils large, concealed by projecting bristle-like plumes. Wing long, extending quite to the end of the tail; first quill short, third and fourth longest and nearly equal, first four primaries deeply incised on their inner webs, narrow towards their ends, and pointed; tail somewhat wedge-shaped, central feathers about one and a half inches longer than the two exterior; feathers of the throat and neck before, elongated, lanceolate, acuminate; tarsi robust, moderately long; toes moderate, or rather short; claws short.

DIMENSIONS.—Total length of skin (female), about nineteen inches; wing, fifteen inches; tail, eight and a half inches; upper mandible, from tip to angle of the mouth, two and six-tenths inches; width of the bill (or altitude), seven-tenths of an inch; tarsus, two and a half inches. "Extent of wings, forty-four inches" (Peale).

COLORS.—Female. Head, and entire under parts glossy brown, or snuff-colored; upper parts (except the head) shining purplish-black, most lustrous on the back and coverts of the wing. Feathers of the tail, on their upper surface, with a bluish lustre on their outer, and greenish lustre on their inner webs; inferior surfaces of the wings and tail, brownish-black, particularly observable on that of the latter. Shafts of the quills, on their inferior surfaces, brownish-black, barred and spotted with white; tips of the feathers, on the flanks and under tail-coverts, brownish-black; bill and tarsi, black.

HAB.—Island of Madeira. Specimen in Nat. Mus. Washington City.

This remarkable, raven-like crow is, undoubtedly, the species described by Lesson and Pucheran, as above; though it is evidently allied to and in some respects resembles *Corvus capensis*, Licht., of South Africa. Of the latter species, we have never seen a specimen in which the whole under parts were brown, nor with the shafts of the quills on their under surfaces, marked with white, as in the present bird.

In *Corvus capensis*, the brown color appears to be restricted to the head; and that species has not been detected, to our knowledge, in the countries of Western Africa. We regard the present as a species which probably extends its range into the continent of Africa, though obtained by the naturalists of the Expedition in the Island of Madeira.

It is stated by M. Pucheran, as cited above, that the specimen originally described by M. Lesson, which is in the Paris Museum, is from the Cape of Good Hope. If so, this species ranges over an extent of the western coast of Africa, quite unusual for any species. The locality of the specimen in the collection of the Expedition is distinctly given by Mr. Peale:

"The specimen from which our description is taken, was shot within a short distance of the City of Funchal, in the Island of Madeira, in the month of September. It was not uncommon, but we were not so fortunate as to obtain a male.

"The form and general aspect of this bird is more that of the raven than of the crow; the bill is arched like that of the raven, and the tail is of the same form, but the acutely-pointed quills and short nails, particularly those of the outer toes, present a marked character, which separates it from any other which we have had an opportunity to examine."

This bird belongs strictly to the same group of species as *Corvus capensis*, and considerably resembles it, but differs as above stated. It is possible, too, that *Corvus umbrinus* is a member of the same, being apparently a species of African extraction; but though we have frequently seen the name, we have, of that species, if such it is, never seen a description. We have no idea, therefore, on this side of the Atlantic, of the personal aspect of *Corvus umbrinus*, and the present writer suspects that the name is one of many Museum appellations, which have been put in circulation, like a quite smooth coin, with no indication of its value, or perhaps only for the highest the passer can get from the more skilful metallurgist. This description of proceeding, though it may do well enough to heighten the distinction and scientific consideration of not very energetic directors or head or assistant keepers of Museums, yet materially retards the most important object for which they and the establishments with which they are connected are maintained by their governments or constituents, which is, the diffusion of knowledge.

Our figure represents this bird about two-thirds of the natural size.

6. CORVUS HAWAIIENSIS, Peale.

Corvus hawaiiensis, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 106 (1st ed. 1848).

Atlas, Ornithology, Plate VI.

Totus fuliginosus cinereo tinctus, rostro et tarsis nigris. Long. tot. 18½ pollices.

FORM.—About the size of or slightly larger than *Corvus americanus* or *Corvus corone*. Bill large, thick, rather short; wing rather long, fourth quill longest; tail moderate, rounded.

DIMENSIONS.—Total length. Male? (of skin), eighteen and three-quarter inches; wing, twelve inches; tail, eight inches; bill, two and one-fourth inches; tarsus, two and a half inches. Female? Total length, seventeen and a half inches.

COLORS.—Entire plumage, fuliginous brown, with a slight tinge of cinereous. Quills, light reddish-brown, with their shafts white on their under surfaces; all the plumage dark cinereous at the bases of the feathers. Bill and legs black, the former lighter at the tip.

HAB.—Hawaii, Sandwich Islands. Specimen in Mus. Acad. Philadelphia.

Of this remarkable *Corvus*, there are no specimens in the collection of the Expedition, but the description by Mr. Peale was drawn from two specimens now in the collection of the Academy of Natural Sciences of Philadelphia, to which they were presented by the late John K. Townsend, M.D., a distinguished naturalist and traveller, who received them from the Rev. Mr. Forbes, then attached to a missionary station at Karakakua Bay.

This species appears to have been hitherto unknown as an inhabitant of the Sandwich Islands, and in all probability, has not been noticed by naturalists previous to its being described by Mr. Peale. We consider it possible, however, that this bird may be the *Corvus*

australis, Gmelin, in young plumage, both the specimens above described being evidently immature. This point cannot, in our opinion, be determined either from the specimens before us, or from the heretofore published statements of naturalists or voyagers, and must await future more extended observation and information.

In a short but important article on the Natural History of the Sandwich Islands, by Mr. A. Bloxham, in an Appendix to the "Voyage of H. M. S. Blonde, to the Sandwich Islands," p. 250 (London, 1826, quarto), the only species of crow given in the catalogue of birds, is "*Corvus tropicus*, Linnaeus." The description of that species, by Dr. Latham (in his General Synopsis of Birds, p. 384), "from a bird in the possession of Sir Joseph Banks," is not applicable to the present, in several particulars. Its total length is given as "twelve inches and a half;" and we have doubts as to its having been a true *Corvus* at all. We may say the same of another Pacific island species, *Corvus pacificus*, Gmelin, which is also represented as a small species, "length, ten inches and a half."

In its present plumage, the color of this species is peculiar, and is very remarkable. We regard it as a highly interesting addition to the fauna of the Sandwich Islands, and as very probably a species hitherto not described, though the adult plumage may prove to be essentially different from that of the specimens now before us, from the Museum of the Philadelphia Academy. It is the only crow that we have ever seen with the plumage uniformly tinged with a cinereous shade of color, like that of some species of Jays.

According to Mr. Peale, the bird now before us is known to the people of the Sandwich Islands by the name of *Alala*, and was observed in small societies, in the island of Hawaii. "Specimens," he says, "were obtained a few miles inland from the village of Kaawaloa, celebrated as being the spot where the renowned Captain Cook was killed, a camera lucida sketch of which is introduced in our plate, as a background to the bird. Our specimens, collected by the Expedition, of the *Alala*, with many important notes attached, were lost in the wreck of the U. S. Ship Peacock, but we are happy to acknowledge our obligations to Dr. J. K. Townsend, who has kindly loaned us others, collected at the same place."

This bird is represented in our plate about two-thirds of the size of life.

2. GENUS PICA, *Brisson*, Orn. II, p. 35 (1760).1. PICA NUTTALLI (*Aud.*).

Corvus Nuttalli, *Aud.* Orn. Biog. IV, p. 450 (1838).

Aud. B. of Am. Plate CCCLXII, fig. 1; oct. ed. IV, Plate CCXXVIII.

This species, if such it is, appears to differ from the previously known American Magpie (*Pica Hudsonia*), only in the color of the bill, which is yellow, instead of black. This character is, however, permanent, and presents itself in very young, as well as in adult specimens. It has frequently been brought from California, by naturalists who have visited that country since it has been a part of the territory of the United States, and we have had opportunities of examining it in various stages of plumage. The most mature specimens that have come under our notice, were contained in the fine collections made by Dr. A. L. Heermann, of Philadelphia, and specimens so young as to be scarcely feathered are in the collection of the Philadelphia Academy, sent from California by the late Dr. William Gambel. All are uniformly characterized by the yellow bill; but we have failed to detect any other peculiar character whatever; and, moreover, both the American species here alluded to are only with difficulty to be distinguished from the magpie of Europe (*Pica melanoleuca*, Vieill.). In fact, we much doubt whether any naturalist could select either American or European specimens from a mixed collection of the two American and the European species, except as directed by the yellow bill in the bird now before us.

In relation to the present species, Mr. Peale remarks: "This species was observed about the forty-second degree of north latitude, on the south side of the Shasty Mountains, or the boundary between Oregon and California, and from thence south, continued common on the route down the Sacramento River. It frequents the oak groves, which now and then diversify the prairie lands of that country; and at the season we passed, in the month of September, it was the only magpie seen; but it is probable that the common magpie, which is known to breed

in the Rocky Mountains, but a short distance further east, may take its place in the lower lands during the winter season, when the yellow-billed is said to remove further south."

3. GENUS CYANOCORAX, *Boie*, *Iais*, 1826, p. 977.

1. CYANOCORAX STELLERI (*Gmelin*).—Steller's Jay.

Corvus stelleri, *GM. Syst. Nat. I*, p. 370 (1788).

Bonap. Am. Orn. II, Plate XIII, fig. 1; *Aud B. of Am. Plate CCCLXII*, fig. 2; *oct. ed. IV*, Plate CCXXX.

This species is represented by the naturalists of the Expedition, as having been observed in abundance in Oregon. It appears to be strictly a Western species, and less an inhabitant of the mountains than *Cyanocorax macrolophus*, *Baird*, which is the bird figured in *Fauna Boreali Americana, Birds*, Plate LIV. The latter is nearly related, but quite a distinct species.

Specimens of this species and many others that we have seen, are remarkably uniform in their characters, even at various ages. Numerous specimens are in the collection of the Expedition.

4. GENUS CYANOCITTA, *Strickland*, *Ann. and Mag. Nat. Hist. XV*, p. 260 (1845).

1. CYANOCITTA CALIFORNICA (*Vigors*).—The California Jay.

Garrulus californicus, *VIG. Zool. Voy. Blossom, Orn.* p. 21 (1839).

Voy. Blossom, Orn. Plate V; *Aud. B. of Am. Plate CCCLXII*, fig. 3; *oct. ed. IV*, Plate CCXXXII.

This species, according to Mr. Peale, "was seen on the Columbia River, and was common in all the country south, to California. It is most partial to mountainous districts." It is also frequently mentioned by Dr. Pickering.

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5. GENUS PERISOREUS, Bonaparte, Sagg. Nat. p. 43 (1831).

1. PERISOREUS CANADENSIS (Linn.).—The Canada Jay.

Corvus canadensis, LINN. Syst. Nat. I, p. 158 (1766).

Buff. Pl. Enl. 530; Wilson, Am. Orn. III, Plate XXI, fig. 1; Aud. B. of Am. Plate CVII; oct. ed. IV, Plate CCXXXIV.

Of frequent occurrence, according to Dr. Pickering, at Puget's Sound, Oregon, in the month of June.

6. GENUS PICICORVUS, Bonap. Cons. Av. p. 384 (1850).

1. PICICORVUS COLUMBIANUS (Wilson).—Clarke's Crow.

Corvus columbianus, WILSON, Am. Orn. III, p. 29 (1811).

Wilson, Am. Orn. III, Plate XX, fig. 2; Aud. B. of Am. Plate CCCLXII; Oct. ed. IV, Plate CCXXXV.

Noticed at Puget's Sound, Oregon, and mentioned in Dr. Pickering's journal, as follows:

"This bird is common in the pine groves, and is almost invariably to be seen in scattered companies, rather noisy, uttering a harsh cry. It feeds on the seeds of the pines, and in its manners and general habits, reminds me much of the *Cracticus*, of Australia. Wilson's figure represents this bird too short. It has, in fact, the form of a jay, the bill being more prolonged, more regularly conical, and but slightly curved. The tongue ends in two narrow *laminae*."

This bird, and the curious *Gymnokitta*, discovered in Western North America by the Prince Maximilian, of Wied, a distinguished naturalist, are evidently the representatives in North America of aberrant groups of the extensive family of jays. The former bird is now frequently brought in collections, though the latter quite rarely, and is little known to naturalists. It is figured, and all the information re-

lating to it, that we could obtain, is given in our Birds of California and Texas, I, p. 165, Plate XXVIII.

7. GENUS CALORNIS, *G. R. Gray*, List Gen. Birds, p. 53 (1841).

1. CALORNIS CORVINA (*Kittlitz*).

Lamprotornis corvina, KITTLITZ, Mem. Acad. St. Petersburg, 1833, p. 7.

Lanius pacificus, GM. Syst. Nat. I, p. 306 (1788)?

Lamprotornis atrifusca, PEALE, Zool. U. S. Exp. Exp. 1st ed. Birds, p. 109 (1848).*

Mem. Acad. St. Petersburg, 1833, Plate IX.

Bill long, very strong; culmen curved gradually from the base; plumage of the head, neck, and breast, scale-like and pointed; tarsi moderate; toes and claws strong, the latter fully curved; wings and tail long. Entire plumage black, with green and purple metallic lustre, especially on the head, neck, and breast. Primaries edged exteriorly with reddish-brown; under surface of the tail, with a tinge of the same color. Bill black; legs paler; irides reddish-brown.

DIMENSIONS.—Total length (of skin, sex unknown), ten and a half inches; wing, six inches; tail, four inches; bill (from the corner of the mouth, one and one-fourth inches; tarsus, about one and one-fourth inches; extent of wings, seventeen and a half inches.

HAB.—Samoan Islands. Specimen in Nat. Mus. Washington City.

* "Head and neck, dark purple or black, with metallic reflections; wings, tail, and body, umber-brown, darkest in front, and running into the dark color of the neck; outer margins of the primaries ferruginous-brown; tail rounded, the feathers pointed; bill strong, black; legs reddish-brown; irides, reddish-brown.

"Total length, ten and three-quarter inches; extent of wings, seventeen and a half inches; wing from the carpal joint, six and one-tenth inches; tail, four and one-tenth inches; tarsi, one and one-fourth of an inch; middle toe, including the claw, one and a half inches; claw, nine-twentieths of an inch; hind toe, one and three-twentieths of an inch; claw, half an inch; bill, one and one-tenth of an inch; to the angle of the mouth, one and three-tenths of an inch."

Both of the genera *Aplonis* and *Lamprotornis*, may be considered as uniting their characters in this remarkable type, and as though these were not sufficient, its lengthened and robust bill shows a strong analogy to the crows.

Numerous specimens are in the collection of the Expedition, all of which are from the Samoan or Navigator Islands.

Of this bird, Mr. Peale remarks :

"It inhabits the Samoan Islands, is very active and noisy, its notes being scarcely entitled to the name of song. The female is somewhat less than the male, and has less metallic lustre on the head and neck, but in other respects is precisely similar."

Dr. Pickering also notices this bird as having been observed in the forests of the islands of Tutuilla and Upolu, "keeping amongst the lower branches of the trees, not shy, and uttering a very harsh note, at the same time constantly moving its tail in the gyrating manner of some species of fly-catchers."

It appears to us quite probable, that this curious bird is the true *Lanius pacificus*, Gmelin, as above cited.

8. GENUS APLODIS, Gould, Proc. Zool. Soc. London, 1836, p. 73.

1. APLODIS MARGINATA (Gould).

Aplonis marginata, GOULD, Proc. Zool. Soc. London, 1836, p. 73.

Lamprotornis fusca, PEALE, Zool. U. S. Exp. Birds, p. 110 (1st ed. 1848).*

Atlas, Ornithology, Plate VII, fig. 1.

Upper mandible curved, and with a sharp point; wings moderate;

* "Crown, auriculars, back, and tail, sepia-brown, darkest on the head, where the feathers are pointed, and have a purple metallic lustre; primary quills umber; secondaries paler, and margined with white; throat, under tail and under wing-coverts pale tawny; breast and abdomen 'drab,' the feathers having white shafts, and a pale line down the centre; irides orange; bill and feet dusky red.

"Total length, seven and a half inches; wing, from the carpal joint, four and three-tenths inches; tail two and a half inches; tarsi, one and one-twentieth inches; middle toe, including the claw, one inch; claw three-tenths of an inch; hind toe, eight-tenths of an inch; claw, three-tenths of an inch; bill, seven-tenths of an inch; to the angle of the mouth, one inch."

tail rather short; plumage of the head having a scale-like appearance. Entire upper parts sepia-brown, darker and with a purplish metallic lustre on the head, greater wing-coverts, and primaries; secondaries narrowly edged with white on their external webs; under wing-coverts white. Under parts pale cinereous, with a tinge of yellowish; many feathers, especially on the breast, having each a longitudinal central line of white. Under tail-coverts with paler margins. Iris orange; bill and feet dusky reddish. Sexes alike.

DIMENSIONS.—Total length (of skin), about seven and three-fourths inches; wing, four and three-eighths inches; tail two and three-eighths inches.

HAB.—Tonga and Feejee Islands. Specimen in Nat. Mus. Washington City.

The specimens of this bird, in the collection of the Expedition, have not to us the appearance of being mature. They do not correspond, in all respects, with Mr. Gould's description above cited, but sufficiently to leave no doubt as to their identity with his species.

Mr. Peale remarks: "This bird is not uncommon at the Tonga and Feejee Islands; its habits are much like those of a thrush; it is quite musical, singing sweetly in the bread-fruit trees, and other places in the vicinity of cultivated grounds.

"The females have less metallic lustre on the feathers of the head and neck, but otherwise cannot be distinguished from the males."

The figure in our Atlas is of the natural size, and represents a specimen labelled as a male.

2. *APLONIS BREVIROSTRIS* (Peale).

Lamprotornis brevirostris, PEALE, Zool. U. S. Exp. Exp. Birds, p. 111 (1848).

Atlas, Ornithology, Plate VII, fig. 2. Adult?

A. marginatam refert sed minor, rostroque brevior.

Supra fusca nitore purpurea. Subtus cinerea lineis longitudinalibus albis, iridibus aurantiis, rostro et pedibus saturate corneis. Long. tot. 6½ pollicis.

Much resembling the preceding (*A. marginata*) but smaller, and with the bill shorter; plumage of the head above equally scale-like, but narrower and more pointed. Wings rather long; tail short and even. Entire plumage above, sepia-brown, very dark, and having a purplish metallic lustre on the head, greater wing-coverts, and primaries. Secondaries narrowly edged with white on their outer webs. Under parts brownish cinereous, tinged with yellowish, nearly every feather having a longitudinal central line of white. Iris bright orange; bill and feet reddish horn-color.

DIMENSIONS.—Total length (of skin), about six and three-fourths inches; wing four and one-fourth inches; tail two and a half inches. "Extent of wings twelve and a half inches" (Peale).

HAB.—Samoan Islands. Specimen in Nat. Mus. Washington City.

This species is nearly related to the preceding, and only differs materially in size. It is another of the instances of the near relationship of species, which appear to be peculiar to different islands.

The specimens in the collection, like those of the preceding, have not to us the appearance of maturity.

This bird inhabits the Samoan Islands, and, according to Mr. Peale, is possessed of considerable musical powers; but we regret to say, that we find no other memoranda, by either of the naturalists of the Expedition, relating to its history or habits.

9. GENUS AGELAIUS, Vieill. Analyse, p. 33 (1816).

1. AGELAIUS GUBERNATOR (*Wagler*).

Paracoliis gubernator, WAGLER, Isis, 1832, p. 281.

Aud. B. of Am. Plate CCCCXX, fig. 1; oct. ed. IV, Plate CCXV.

This handsome species appears to be peculiar to Western North America, and fine specimens of adult and of young birds are in the collection of the Expedition. According to Mr. Peale, this species

was observed in small parties about the middle of July, near the mouth of the Columbia River, and in large flocks, in the succeeding October, in California.

2. *AGELAIUS TRICOLOR* (*Audubon*).—The Western Red-wing.

Icterus tricolor, AUDUBON, Orn. Biog. V, p. 1 (1839).

Aud. B. of Am. Plate CCCLXXXVIII, fig. 1; oct. ed. IV, Plate CCXIV.

Specimens of this species appear to have been obtained in company with the preceding and are now in the collection. According to Dr. Heermann, an indefatigable naturalist, who has twice visited California, this bird, the preceding, and *Agelaius xanthocephalus*, associate together in large flocks during the fall season. (Jour. Acad. Nat. Sci. Philad. II, p. 268, Quarto.)

10. GENUS *SCOLECOPHAGUS*, *Swains.* Faun. Bor. Am. II, p. 494 (1831).

1. *SCOLECOPHAGUS MEXICANUS*, *Swainson*.—The Western Grackle.

Scolecophagus mexicanus, SWAINSON, Cab. Cy. Birds, II, p. 302 (1838).

Quiscalus Brewerii, AUDUBON, Birds of Am. Oct. ed. VII, p. 345 (1844).

Aud. B. of Am. oct. ed. VII, Plate CCCCXCII.

This species, now well known as a bird of California, was observed by the naturalists of the Expedition in Oregon, and appears to range throughout the entire extent of Western North America. It is abundant in California.

Mr. Peale's remarks on this species are as follows:

"Specimens of this bird were obtained at Puget's Sound, in Oregon, during the spring and early summer months; they were in perfect and brilliant plumage. In the month of October, they were again seen near the Mission of St. Joseph, in California, in vast flocks; the greater part had then rusty-looking plumage, and were very like the Rusty

Grakles of the Eastern coast, from which it was scarcely possible to distinguish them."

11. GENUS PSARACOLIUS, Wagler, Syst. Av. p. (1827).

1. PSARACOLIUS CURAEUS (*Molina*).—The Chilian Grakle.

Turdus curacus, MOLINA, Sagg. Hist. Nat. Chili (1782), 2d edition, p. 211 (1810).

Sturnus aterrimus, KITTLITZ, Mem. Acad. St. Petersburg, II, p. 467 (1834).

Leicetes niger, SWAINSON, Cab. Cy. Birds, II, p. 304 (1838).

Mem. Acad. St. Petersburg, II, Plate II; Gilliss, Ast. Exp. Chili, Birds, Plate XV.

An abundant species in the western countries of South America.

Mr. Peale observes :

"This species was seen in vast flocks, from one of which half a dozen or more were killed at a shot, at Orange Bay, Tierra del Fuego, in the month of February. The sexes could not be distinguished except by dissection, both being of the same uniform black color; they were then moulting and filled with 'pin' feathers; the plumage was consequently not so glossy nor firm as in specimens killed near Valparaiso, in Chili, three months afterwards, although we have no doubt of their identity.

"The irides of this species being dark brown, gives the bird a different appearance from the Grakles of North America, which generally have yellow irides. They are most frequently seen on the ground."

12. GENUS STURNELLA, Vieill. Anal. p. 34 (1816).

1. STURNELLA NEGLECTA, Audubon.—The Western Meadow Lark.

Sturnella neglecta, AUD. B. of Am. oct. ed. VII, p. 339 (1844).

Aud. B. of Am. ; oct. ed. VII, Plate CCCCLXXXIX.

"Quite common," Mr. Peale states, "in all favorable localities throughout Oregon, but particularly about the Columbia and the Willamette Rivers."

This species is frequently mentioned by Dr. Pickering. "It is an inhabitant," he says, "of all open districts, not showing any especial partiality for meadows or damp places; which," he remarks very justly, "is also the case with its near relative of the eastern coast, notwithstanding that the latter is called the meadow lark." Noticed by Dr. Pickering as occurring both in Oregon and in California, and at various localities as very abundant.

2. STURNELLA MILITARIS (Linn.).

Sturnus militaris, LINN. Mantiss. 1771, p. 527.

Buff. Pl. Enl. 113; Gilliss, Astr. Exp. Chili, Birds, Plate XVI, fig. 2.

Several distinct, though similar species have been confounded under this name by naturalists, two of which are in the collection of the Expedition. Both of these, and perhaps a third, are alluded to by Mr. Peale, in the following observations:

"This is the analogue of the Meadow-lark (*Sturnella ludoviciana*), of North America. Its manners, voice, and markings of the plumage, bear a general resemblance to it, the colors making the principal difference; the red of the southern bird being on those parts which are yellow in the northern.

"We surmise, however, that two species will be found, when but one is now supposed to exist. They are found from the southern parts of Brazil, to the Straits of Magellan, on the eastern coast, and on the western; the farthest north that we observed them, was in Chili. All the specimens obtained on the eastern coast, from the south of Brazil, and at the Rio Negro, in Patagonia, are smaller, have a more slender bill, and the tail more distinctly banded, than those obtained in Chili. The difference is about as great between those inhabiting the eastern and western coasts of South America, as that which has been shown in their analogues, the meadow-larks of North America, which inhabit the eastern and western shores of that portion of this continent."

The three species, designated by the Prince Bonaparte, in *Conspectus*

Avium (p. 429), are, perhaps, to some extent, geographical,—as stated by that distinguished author, and as above intimated by Mr. Peale; but at present their localities are not accurately defined.

3. STURNELLA DEFILLIPPII, *Bonaparte*.

Sturnella Defillippii, BONAP. Consp. Av. p. 429 (1850).

Numerous specimens of this bird in the collection, are very similar to those of the preceding, but constantly present the character of having the inferior coverts of the wings black, instead of white. It appears to be, in all respects, strictly congeneric, and nearly allied, but with this difference invariably existing.

The specimens before us are from the western coast of South America.

13. GENUS PASSER, *Brisson*, Orn. III, p. 72 (1760).

1. PASSER JAGOENSIS, *Gould*.

Passer jagoensis, GOULD, Voy. Beagle, Birds, p. 95 (1841).

Fringilla hispaniolensis, TEMM. Man. d'Orn. I, p. 353 (1820). ?

Passer salicarius, SCHLEGEL, Rev. Crit. Ois. d'Eur. p. 64 (1844). ?

Voy. Beagle, Birds, Plate XXXI.

Specimens in the collection, from the Cape de Verd Islands. These, and others that we have seen, constantly present characters which, though of minor value, are probably sufficient to be regarded as specific. The present is one of several species very nearly related to the common *Passer domesticus* of Europe, and which would formerly have been considered as local varieties only of that species.

Mr. Peale observes of this bird :

"This species was found breeding on the Island of St. Jago, Cape de Verdes, on the sixth of October. It builds a covered nest in the form of an oven, in horny Acacias, from five to ten feet above the ground. Its song is lively and sweet."

14. GENUS ZONOTRICHIA, *Swainson*, Faun. Bor. Am. II, p. 493 (1831).1. ZONOTRICHIA PILEATA (*Boddaert*).

Emberiza pileata, BODD. Tab. Pl. Enl. p. 23 (1783).

Fringilla matutina, LICHT. Verz. p. 25 (1823).

Tanagra ruficollis, SPIX. Av. Bras. II, p. 39 (1825).

Fringilla Mortonii, AUD. Orn. Biog. V, p. 312 (1839).

Buff. Pl. Enl. CCCLXXXVI, fig. 2; Dubois Orn. Gal. Plate XLII; Spix. Av. Bras. Plate LIII, fig. 3; Aud. B. of Am. oct. ed. III, Plate CXC.

One of the most common birds of South America, known to naturalists by a variety of names, and described by Mr. Audubon, in mistake, as inhabiting Western North America. According to Mr. Peale it was observed "first at Orange Bay, Tierra del Fuego, subsequently in Chili, near Valparaiso, and also near Callao, in Peru."

This species is given erroneously, by Buffon, as a native of the Cape of Good Hope (Pl. Enl. V, p. 106); and erroneously also by Audubon, as a bird of the United States. The specimen described by the latter was brought from Chili, by Dr. Townsend.

15. GENUS PASSERCULUS, *Bonap.* Comp. List. p. 33 (1838).1. PASSERCULUS ALAUDINUS, *Bonaparte*.

Passerculus alaudinus, BONAP. Comp. Rend. 1853, p. 918.

A species which appears to inhabit, exclusively, the countries of Western North America, and hitherto regarded as identical with *Passerculus savanna*, of the Eastern States, which it resembles very intimately.

According to Mr. Peale, this bird is abundant in Oregon and California.

16. GENUS SPIZELLA, *Bonap.* Comp. List. p. 83 (1838).1. SPIZELLA PALLIDA (*Swainson*).—The Clay-colored Bunting.*Fringilla pallida*, Sw. Fauna Bor. Am. Birds, p. 251 (1831).*Emberiza Shattuckii*, AUD. B. of Am. oct. ed. VII, p. 347 (1844).

Aud. B. of Am. oct. ed. VII, Plate CCCCXCIII.

Specimens in the collection are from Oregon.

17. GENUS STRUTHUS, *Boie*, Isis, 1826, p. 974.1. STRUTHUS OREGONUS (*Townsend*).—The Oregon Snow Finch.*Fringilla oregona*, TOWNS. Jour. Acad. Philada. VII, p. 188 (1836).

Aud. B. of Am. Plate CCCXCVIII; oct. ed. III, Plate CLXVIII.

Noticed by Dr. Pickering, as found breeding at Puget's Sound, Oregon, on the fifteenth of May.

18. GENUS SPERMOPHILA, *Swains.* Zool. Jour. III, p. 34 (1827).1. SPERMOPHILA TELASCO (*Swainson*).*Pyrrhula telasco*, LESS. Voy. Coquille, Zool. I, p. 663 (1826).*Camarrhynchus leucopterus*, PEALE, Zool. U. S. Exp. Birds, p. 118 (1st ed. 1848).*

* "Male. Crown, back, and rump, brown; feathers of the back, darker colored in the middle; wings and tail dark brown, or black; the tips or margins of the tail-feathers, secondaries, and lesser wing-coverts, light brown; a white bar crosses the wings at the base of the quills, including all, except the three first, primaries; throat, breast, and belly, light tawny; irides brown; legs sooty; bill yellowish flesh-color.

"Total length, four inches; extent of wings, six and seven-eighths inches; from the carpal joint, two and two-tenths inches; tail, one and a half inches; tarsus, six-tenths of

Voy. Coquille Ois. Plate XVI, fig. 3.

Specimens in the collection were, according to Mr. Peale, "killed near Callao, Peru, in the early part of the month of July, while feeding on the seeds of a species of grass. The males have a sweet warbling note."

19. GENUS CARPODACUS, *Kaup*, *Nat. Syst.* p. 161 (1829).

1. CARPODACUS FAMILIARIS, *McCall*.

Carpodacus familiaris, *McCALL*, *Proc. Acad. Philada.* VI, p. 61 (1852).

Carpodacus rhodocolpus, *CABANIS*, *Mus. Heine.* p. 166 (1851).?

Cassin, B. of Cal. and Texas, I, Plate XIII.

Specimens in the collection are from Puget's Sound, Oregon.

20. GENUS ESTRElda, *Swainson*, *Zool. Jour.* III, p. 349 (1827).

1. ESTRElda ASTRILda (*Linn.*).

Loxia astrild. *LINN.* *Syst. Nat.* I, p. 303 (1766).

Buff. Pl. Enl. CLVII, fig. 2; Vieill. Ois. Chant. Plate XII.

The only specimen of this beautiful little species, in the collection, is labelled as having been obtained at the Island of St. Helena, to which, however, it had probably been taken as a cage-bird.

an inch; middle toe, including the claw, half an inch; claw, two-tenths of an inch; hind toe, nine-twentieths of an inch; claw, one-fourth of an inch; bill, seven-twentieths of an inch.

"Female. Lighter colored, and more uniformly brown above; tail and wings more fuliginous, and not so black, and having a less conspicuous white bar; in size, rather less than the male."

21. GENUS VOLATINIA, *Bonap. Consp. Av.* p. 473 (1850).1. VOLATINIA JACARINA (*Linn.*).

Tanagra jacarina, LINN. *Syst. Nat.* I, p. 314 (1766).

Geospiza peruviansis, PEALE, *Zool. U. S. Exp. Birds*, p. 115 (1848).*

Atlas, Ornithology, Plate VIII, fig. 3.

Stated by Mr. Peale to have been "found in the month of July, in bushy and rather sterile districts between Callao and Lima, in Peru."

22. GENUS LOXIA, *Linn. Syst. Nat.* I, p. 290 (1766).1. LOXIA AMERICANA (*Wilson*).—The American Crossbill.

Curvirostra americana, WILS. *Am. Orn.* IV, p. 44 (1811).

Wilson, *Am. Orn.* IV, Plate XXXI, figs. 1, 2; *Aud. B. of Am.* Plate CXC VII; oct. ed. III, Plate CC.

Specimens in the collection from Oregon, are precisely similar to others from the Atlantic coast of the United States. This species may, therefore, be regarded as inhabiting nearly the whole of Northern North America.

23. GENUS EUSPIZA, *Bonap. Comp. List*, p. 32 (1838).1. EUSPIZA DIUCA (*Molina*).

Fringilla diuca, MOLINA, *Sagg. Hist. Nat. Chili* (1782), 2d edition, p. 210 (1810).

* "Male, entirely black, with steel-blue reflections; immature birds have the tips and edges of the feathers brown on the back and head, and whitish on the breast.

"Female, umber-brown above; lighter beneath; feathers of the breast and flanks with darker longitudinal lines.

"Total length (male), four and four-tenths inches; wing, from the carpal joint, two and two-tenths inches; tail, one and seven-tenths inches; tarsi, six-tenths of an inch; middle toe, nine-twentieths of an inch (nail broken); hind toe, including nail, half an inch; nail, two-tenths of an inch."

Pipilo cinerea, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 123 (1st ed. 1848).*

Mem. Acad. St. Petersburg, 1831, Plate XI; Voy. Favorite, Ois. Plate XVII; Guerin's Mag. 1836, Plate IX.

The Diuca is one of the most abundant of the birds of Chili, and is contained in nearly all collections of birds brought from that country. It is remarkable for its power and melody of voice, and for its familiarity of manners, and is a general favorite with the people of Western South America.

Mr. Peale observes :

"Female nearly of the same size and appearance as the male, but lighter in color, and inclining to tawny on the back.

"They were seen in considerable numbers during the month of May, were commonly on the ground, and formed one of the characteristics of the road from Valparaiso to St. Jago, in Chili. They scratch amongst straw and other remains of food left by the oxen used in carts to carry merchandise to and from the capital."

24. GENUS PHRYGILUS, *Tschudi*; Faun. Per. p. 217 (1840).

1. PHRYGILUS ALAUDINUS (*Kittlitz*).

Fringilla alaudina, KITTLITZ, Kupf. Naturgesh. Vog. p. 18 (1833).

Fringilla (*Nipheca*) *laciniata*, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 121 (1848).†

* "Cinereous-gray; throat and abdominal spot, white; *heels* and vent, ferruginous; under tail-coverts white, edged with ferruginous; tail, consisting of twelve feathers, slightly rounded; shafts black, the four middle feathers dark ashy-brown, the others with white inner webs near the tip, the white occupies about half of the outer feathers, and is graduated on the others to a mere spot on the fourth; upper mandible, brown; lower mandible, bluish-white; legs, dark brown; iris, brown.

"Total length, seven and three-fourths inches; wing from the carpal joint, four and one-tenth inches; tail, three inches; tarsi, nine-tenths of an inch; middle toe, including the claw, eight-tenths of an inch; claw, one-fourth of an inch; hind toe, thirteen-twentieths of an inch; claw, seven-twentieths of an inch; bill, half an inch; to the corner of the mouth, three-fourths of an inch. Male."

† "Head, neck, breast, back, and wings, cinereous; scapulars brown, with fulvous margins; dorsal plumage tipped with fulvous, and having a brown centre; abdomen and under tail-coverts, pale cream color; wings, cinereous; primaries pale, sepia-brown,

Kittlitz, Kupf. Plate XXIII, fig. 2.

This is a species of a group of sparrows, which present some analogies to the snow sparrows of North America.

Of this bird, Mr. Peale observes :

"Obtained in the vicinity of Valparaiso, Chili, in the month of May, at which season it is not common. It frequents low bushes, and is much on the ground. Its general habits and appearance resemble those of the snow-bird of North America (*Niphaea hyemalis*), the tail, however, appears bordered with black while the birds are flying, instead of having the white margin of the Northern species."

25. GENUS ERYTHRURA, Swainson, Cab. Cy. II, p. 280 (1837).

1. ERYTHRURA CYANOVIRENS (Peale).

Geospiza cyanovirens, PEALE, Zool. U. S. Exp. Exp. Birds, p. 117 (1st ed. 1848).

Erythrura Pucherani, BONAP. Cons. Av. p. 457 (1850).?

Atlas, Ornithology, Plate VIII, fig. 2. Adult.

Capite miniato, gutture et pectore pallide coeruleis. Corpore supra coerulescenti-viridi, remigibus caudaque saturate fuscis, pennis caudalibus rubro externe marginatis. Long. tot. 4½ pollices.

Bill short, thick, turgid; culmen curved from the base; gonys ascending; wings moderate, or rather long; tail short, with its feathers narrow and weak. Tarsi and toes moderate, rather weak. Head above from the base of the lower mandible, fine crimson; throat,

lighter beneath, the exterior margins cinereous; tail even, consisting of twelve feathers, black, with a white band across the middle, which does not include the two middle feathers, or the outer webs of any but the two outside; bill and legs, yellow; irides, brown. Male.

"Total length, five and nine-tenths inches; wing, from the carpal joint, three and six-tenths inches; tail, two and three-tenths inches; tarsi, eight-tenths of an inch; middle toe, including the claw, six-tenths of an inch; claw, two-tenths of an inch; hind toe, eleven-twentieths of an inch; claw, three-tenths of an inch; bill, half an inch; to the angle of the mouth, six-tenths of an inch."

breast, and collar around the back of the neck, light-blue; abdomen and entire upper parts of the body green, with a bluish tinge. Quills dark-brown, with their exterior edges green; upper tail-coverts brownish-red, which is also the color of the two middle feathers of the tail, others dark-brown, with red margins on their outer webs; bill dark; legs paler; irides brown.

DIMENSIONS.—Total length (of skin, sex unknown), four and a half inches; wing, two and a half inches; tail, one and a half inches; tarsus, about three-fourths of an inch.

HAB.—Upolu, Samoan Islands. Specimen in Nat. Mus. Washington.

Of this beautiful little bird, the specimens in the collection of the Expedition are fortunately in adult plumage, and in good condition. We regard it as a species not previously described, and it is not related closely to any other of its genus.

Mr. Peale alludes to this bird as follows:

"Specimens of this species were obtained at the Island of Upolu, one of the Samoan Group. It is, however, rare, owing in all probability, to its favorite haunts being quite limited in extent. It delights in open or bushy grounds, and is seldom found amongst large trees."

Our plate represents this bird of the size of life.

2. ERYTHRURA PEALEI, *Hartlaub*.

Erythrura Pealei, HARTLAUB, Troschel. Archiv. 1852, p. 104.

Geospiza prasina, PEALE, Zool. U. S. Exp. Exp. Birds, p. 116 (1st ed. 1848).

Atlas, Ornithology, Plate VIII, fig. 1. Adult.

Capite supra et tectricibus caudalibus superioribus coccineis, gutture et pectore coeruleis. Corpore supra pallide coerulescenti-viridi, remigibus et cauda fusciscenti-nigris, pennis caudalibus fusciscenti-rubro marginatis. Long. tot. 4 pollices.

Smaller than the preceding; bill thick, turgid; culmen, curved from the base; gonys ascending; wings moderate; tail short, with its

feathers weak. Head above from the base of the lower mandible and upper tail-coverts, scarlet; throat and breast blue, very deep on the former, lighter on the latter; occiput, body above, wing-coverts, and abdomen, light-green, tinged with bluish on the latter; quills brownish-black, with their external edges green; tail-feathers dark-brown, edged with brownish-red; bill and legs dark; irides brown.

DIMENSIONS.—Total length (of skin, sex unknown), four inches; wing, two and one-fourth inches; tail, one and one-fourth inches. "Extent of wings, seven and three-eighths inches" (Peale).

HAB.—Venua Levu, Feejee Islands. Specimen in Nat. Mus. Washington.

Another beautiful little species, smaller than the preceding, but strictly of the same generic characters. Specimens in the collection of the Expedition are in excellent plumage, and evidently fairly represent the species.

Mr. Peale says of this bird :

"Found in scattered flocks about *Casuarina* trees, in an open dry country, in the island of Venua Levu, one of the Feejees. It was frequently on the ground, but what it was feeding on we were unable to determine. Its common note is shrill and harsh, but occasionally one was heard to warble very sweetly."

The name given by Mr. Peale to this bird having been preoccupied by another species of the same genus, *Erythrura prasina* (Sparrmann), originally described as *Loxia prasina* (the same as *Fringilla sphenura*, Temm.), it became necessary to apply another, which was done in compliment to Mr. Peale, by Dr. Gustav Hartlaub, of the City of Bremen, one of the most accomplished Ornithologists of Europe.

The figure in our plate is of the size of life.

26. GENUS PIPILO, Vieill. Analyse, p. 32 (1816).

1. PIPILO OREGONA, Bell.

Pipilo oregona, BELL, Ann. Lyc. Nat. Hist. N. Y. V, p. 6 (1848).

Aud. B. of Am. Plate CCCXCIV; oct. ed. III, Plate CXCIV.

This is a species much resembling the now well-known *Pipilo arctica*, for which it has been mistaken by some American authors. Its points of distinction and specific characters are very clearly defined by Mr. John G. Bell, of New York, as above cited, and are uniformly present in the specimens in the collection of the Expedition, and in others that have come under our observation.

Mr. Peale states:

"This is a common bird in all favorable ground throughout Oregon. It there occupies the same position which the 'towhe' or 'jewinck' does on the eastern side of the Rocky Mountains."

27. GENUS PIPILOPSIS, Bonap. Cons. Av. p. 485 (1850).

1. PIPILOPSIS RUFICEPS (*Strickland*).

Tachyphonus ruficeps, Strick. Ann. Nat. Hist. XIII, p. 419 (1844).

Atlas, Ornithology, Plate VII, fig. 3. Adult.

Specimens of this handsome little bird are labelled in the collection of the Expedition as having been obtained in Brazil.

Our figure represents this bird of the size of life.

2. TRIBE DENTIROSTRES.

1. FAMILY LANIADÆ.

1. GENUS ARTAMUS, Vieill. Analyse, p. 41 (1816).

1. ARTAMUS LEUCORHYNCHUS (*Gmelin*).

Lanius leucorhynchus, GM. Syst. Nat. I, p. 305 (1788).

Buff. Pl. Enl. IX, fig. 1; Kittl. Kupf. Plate XXX, fig. 1.

From the Island of Mangsi, and similar in all respects to the common bird of the continent of Asia.

2. ARTAMUS MENTALIS, *Jardine*.

Artamus mentalis, JARDINE, Ann. & Mag. Nat. Hist. XVI, p. 174 (1845).

Ocypterus mentalis, PEALE, Zool. Exp. Exp. Birds, p. 84 (1848).*

Ann. & Mag. Nat. Hist. XVI, Plate VIII; Voy. Astrolabe and Zélée, Ois. Plate IX, fig. 1.

Numerous specimens of this fine species from the Feejee Islands agree in all important particulars with the description by Sir William Jardine, and with the plates cited above. They are, however, generally, so far as can be judged from prepared specimens, rather larger than as stated in the original description, but very nearly the size represented in the plate in the Zoological Atlas to the Voyage of the Astrolabe and Zelee.

This bird is one of the largest of its genus, but strictly of the same general characters as the well-known species of the Asiatic Islands, and of Australia.

Mr. Peale's account of this species is as follows :

"Both sexes are alike in plumage, and can hardly be distinguished from each other; the males are, however, a trifle the larger. It inhabits all the islands of the Feejee Group, and is found only in such places as are not covered with trees or bushes. In open grounds it may be seen sitting on a dead branch of some solitary tree, patiently watching for grasshoppers, on which it generally feeds. Sometimes it will start in pursuit of insects on the wing, when its movements and appearance are those of a swallow, with this difference, that it frequently hovers over one particular spot, and plunges into the grass, as kingfishers do into the water. We occasionally saw this species in companies of three or four, but more frequently solitary."

* "Head, throat, back, wings, and tail, black; rump, under tail-coverts, and all the under parts, white, a narrow white tip to the tail; feet, dark lead-color; bill, blue; irides, brown.

"Total length, eight inches; extent of wings, fourteen and three-fourths inches; wing, from the carpal joint, five and four-tenths inches; tail, two and eight-tenths inches; tarsi, seven-tenths of an inch; middle toe, including claw, eight-tenths of an inch; claw, three-tenths of an inch; hind toe, six-tenths of an inch; claw, three-tenths of an inch; bill, eight-tenths of an inch; to the angle of the mouth, one and one-tenth of an inch. Female."

2. GENUS *COLLURICINCLA*, Vig. and Horsf. Trans. Linn. Soc.
London, XV, p. 213 (1825).

1. *COLLURICINCLA HARMONICA* (Lath.).

Turdus harmonicus, LATHAM, Gen. Syn. Supp. p. 41 (1801).

Colluricincla strigata, SWAINSON, Cat. Cy. Birds, Pl. III, p. 283 (1838).

Turdus pallidus, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 86 (1st ed. 1848).*

Gould, B. of Aust. II, Plate LXXIV.

In his description, as above cited, Mr. Peale states his specimen to have been obtained near Valparaiso. His label is, however, now attached to a specimen in the collection of the Expedition, which is undoubtedly the young of *Colluricincla harmonica*, a common bird of Australia. His description, too, entirely corresponds with it, and there is in fact no doubt that the specimen to which we allude is the identical one described.

We can account for this singular error only by supposing that a bird resembling that at present before us, for instance, a species of *Lipangus*, might have been observed and obtained at the locality mentioned by Mr. Peale, and afterwards lost. Otherwise, we must adopt the difficult inference that this bird of Australia either is a native also of Chili, or a visitor to that country, though never observed, nor any

* "Crown, neck, and back, ashy-brown; throat white, lined with pale brown; breast, abdomen, and under part of the tail, pale ash-color, the feathers having a darker centre; wings and upper part of the tail, ashy-brown; greater wing-coverts margined with ferruginous; fourth and fifth quills equal and longest, first, half the length of the second; tail consisting of twelve feathers, nearly even at the end; shafts white; irides brown; bill black; legs horn-color.

"Total length, nine and seven-tenths inches; wing, from the carpal joint, five and three-tenths inches; tail, four and two-tenths inches; tarsi, one and three-twentieths of an inch; middle toe, including the claw, nine-tenths of an inch; claw, three-tenths of an inch; hind toe, including the claw, seven-twentieths of an inch; bill, seven-tenths of an inch; to the angle of the mouth, one and one-twentieth of an inch.

"Our specimen was obtained in the month of May, near Valparaiso; its actions were like the Robin of North America (*Turdus migratorius*), to which its voice also had a distant resemblance, and whenever it uttered its call note, it was attended with a jerk of the tail, in the characteristic manner of the Northern Robin."

other species of its genus in Western South America, by any naturalist.

The present specimen is in very nearly that stage of plumage described by Mr. Swainson, as above, as *Colluricincla strigata*, of which numerous specimens from Mr. Gould's Australian collection are in the Museum of the Philadelphia Academy.

3. GENUS IRENA, Horsf. Trans. Linn. Soc. London, XIII, p. 153 (1820).

1. IRENA CYANOASTRA, Vigors.

Irena cyanogaster, VIGORS, Proc. Zool. Soc. London, 1831, p. 97.

Gray, Gen. of Birds, I, Plate LXX.

A very fine specimen from the Island of Panay, one of the Philippines.

4. GENUS LALAGE, Boie, Isis, 1826, p. 973.

1. LALAGE TERAT (*Boddlaert*).

Turdus terat, BODD. Tab. Pl. Enl. p. 17 (1788).

Turdus orientalis, GM. Syst. Nat. I, p. 821 (1788).

Colluricincla maculosa, PEALE, Zool. U. S. Exp. Exp. Birds, p. 81 (1st ed. 1848).*

Buff. Pl. Enl. 273, fig. 3.

* "Crown and occiput black, with a slight greenish gloss; frontal feathers slightly edged with white; brow, sides of neck, throat, breast, under wing-coverts, under tail-coverts, and all the lower parts white, the feathers lead-colored at their roots; a black line runs from the front of the eye to the occiput; back and lesser wing-coverts, black; rump cinereous, clouded with black; wings pointed, the first quill narrow and but half the length of the second, third and fourth equal and longest, black, basal half of the inner webs white, the outer edges margined with yellowish-white; greater wing-coverts white, with a pointed black line down the middle; tail rounded, black, tipped with white, but slightly on the middle feathers, the outer ones margined with white half their length; bill and feet black; irides brown. Adult male.

"Total length, seven and two-tenths inches; wing, from the carpal joint, four and three-tenths inches; tail, two and eight-tenths inches; tarsus, one inch; middle toe, including the nail, eight-tenths of an inch; hind toe, including the nail, six-tenths of an inch; nail, one-fourth of an inch; bill, half an inch; to the corner of the mouth eight-tenths of an inch."

Specimens in the collection are from the Feejee and Samoan Islands, and are, to us, not distinguishable from others from various islands of the Malay Archipelago. This common species has evidently a very extended range of locality.

Mr. Peale remarks of this bird :

"The voice of this species is a shrill whistle, and it mostly frequents open grounds where there are a few scattered *Pandanus* trees, which it seems to prefer. It is a common species on all the islands of the Feejee Group. One specimen was obtained at Upolu, one of the Samoan Islands.

"The young birds differ from the adults in being of an umber-brown color above, and in having numerous waved lines across the breast and abdomen."

Numerous specimens in good plumage and condition are in the collection of the Expedition.

2. FAMILY MUSCICAPIDÆ.

1. GENUS MUSCIPETA, *Cuvier*, Reg. An. I, p. 344 (1817).

1. MUSCIPETA RUFA (*G. R. Gray*).

Tchietrea rufa, G. R. GRAY, Annals and Magazine of Natural History, XI, p. 371 (1843).

Gray, Gen. of Birds, I, Plate LXIV.

FORM.—Bill long, wide at base and strong; upper mandible at the base with six or seven pairs of rather stiff, long bristles; wing long, fourth primary longest; tail long, with the central feathers but slightly exceeding the others; tarsi and toes, rather strong; claws rather strong, curved. Feathers of the head above somewhat rigid and scale-like, probably erectile.

DIMENSIONS.—Total length, about eight and a half inches; wing, three and three-fourths inches; tail, four and a half inches; bill, from the gape, one inch.

COLORS.—Entire plumage fine rufous, with the bases of the feathers paler, and with a tinge of purple, especially observable on the crest-like feathers of the head. Inner webs of the primaries darker, inclining to brown. Bill and legs dark.

HAB.—Philippine Islands. Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

A fine specimen of this handsome fly-catcher is marked as having been obtained at the Philippines. It entirely agrees with all the characters stated by Mr. Gray, or represented in his plate, as above cited, but the plumage is rather darker, and distinctly tinged with purple, especially on the head. The bill is remarkably large and broad, and the bristles at the base of the upper mandible are well developed, long, and rather rigid.

We have no information relating to the manners or history of this interesting species.

2. MUSCIPETA CYANICEPS, Cassin.

Muscipeta cyaniceps, CASSIN, Proc. Acad. Philad. VII, p. 438 (1855).

Atlas, Ornithology, Plate IX, fig. 1. Adult.

FORM.—Bill moderately long, wide at base, rather abruptly compressed towards the end, and furnished with about six pairs of strong rigid bristles, some of which are nearly as long as the bill. Feathers of the head above but slightly elongated, and probably erectile; wings rather long, with the fourth primary longest; tail long, wide, central feathers but slightly exceeding others next to them; tarsi rather long; toes short, feeble.

DIMENSIONS.—Total length, about six and one-fourth inches; wing, three inches; tail, three and a half inches.

COLORS.—Entire head and breast dull blue, every feather having a longitudinal line of a paler shade or light-blue. Upper parts of the body, the abdomen, and several of the outer feathers of the tail, fine

rufous, palest on the abdomen; quills dark-brown, secondaries edged with rufous. Central feathers of the tail dark-brown, which is the color also of the inner webs of the feathers next to them. Bill dark; tarsi lighter.

HAB.—Philippine Islands. Specimen in Nat. Mus. Washington.

This is a handsome small species, the only specimen of which, that we have ever seen, is in the collection of the Expedition, and labelled as having been obtained at the Philippine Islands. It bears a general resemblance to *Muscicapa borbonica*, Gm. Buff. Pl. Enl. 573, fig. 1, which is an inhabitant of the islands of Mauritius and Madagascar, but may easily be distinguished by the pale longitudinal lines on the centres of the blue parts of the plumage, in addition to which character, the present bird is the larger, and has the tail disproportionately longer.

The naturalists of the Expedition record nothing in relation to this bird.

2. GENUS MONARCHA, *Vig. and Horsf.* Trans. Linn. Soc. London, XV, p. 249 (1825).

1. MONARCHA NIGRA (*Sparman*).

Muscicapa nigra, SPARRMAN, Museum Carlsonianum (not paged, 1786).

Muscicapa lutea, GMELIN, Syst. Nat. I, p. 944 (1788).

Muscicapa Pomareu, LESSON, Man. I, p. 102 (1828).

Muscicapa naupitiensis, GARNOT, Voy. Coquille, Zool. I, p. 592 (1826).

Muscicapa atra, FORSTER, Desc. An. pp. 170, 171 (1844).

Voy. Coquille, Ois. Plate XVII; Sparrm. Mus. Carls. Plate XXIII.

FORM.—Bill rather long, strong; culmen strongly defined; base with about twelve pairs of short weak bristles; wing long, first primary rudimentary, fourth, fifth, and sixth longest, and very nearly equal; tail moderate; tarsi long, scaled; toes rather long; claws strong, fully curved. General form compact and robust.

DIMENSIONS.—Total length, six and a half to seven inches; wing, three and a half inches; tail, three inches.

COLOR.—Adult male? Head and breast black, terminal half of the quills dark-brown; all other parts, including the back, coverts of the wings, ventral region, and tail, white. Secondaries edged with white; bill and tarsi light horn-color. Younger male? Entire plumage glossy black. Female. Rump, terminal third of the quills and their inner webs and terminal half of the tail, dark-brown, tinged with reddish on the latter; all other parts, including the head, back, basal portion of the tail, and entire under parts rufous, darker on the head above and back, and palest on the under parts and tail. Coverts of the wing and secondaries edged with rufous; inner webs of primaries edged with white, readily seen by examining the inferior surface of the wing.

HAB.—Society Islands. Specimen in Nat. Mus. Washington City, and Mus. Acad. Nat. Sci. Philadelphia.

We have introduced these descriptions of the supposed stages of plumage of this bird, for the purpose of expressing doubts as to the identity of the first described with the others. All three of them are well represented in the plate in the Zoological Atlas of the Voyage of the Coquille, above cited, and there and elsewhere, this species is described as assuming the plumages given above. Were it not that these statements are made by naturalists who have enjoyed opportunities for observation, though perhaps not very ample, in the islands inhabited by these birds, we should not hesitate to pronounce them quite distinct.

Of numerous specimens that we have examined in the collection of the Expedition and in the Museum of the Philadelphia Academy, the bird first described above is constantly larger, though the bill is rather narrower and scarcely so long and strongly developed as in that, the plumage of which is entirely black. Having, however, the testimony of the naturalists above alluded to, against us, we have not proposed a specific name at present, especially in consideration of the fact that it is rather well supplied already, and of the possibility, of course, of our being mistaken.

Mr. Peale observes of this bird:

"This is a very common species in the Island of Tahiti." He states also: "Excepting those specimens which are entirely black, we have not seen two out of twenty or thirty which were entirely alike. Deep black, with a metallic blue gloss, is probably the perfect dress of adult birds, but it is common to find them variously spotted, black, brown,

and white, without regularity, although they may be paired and raising their broods. Hence, we infer that they are subject to almost the same variations which are so remarkable in the nightingale of those islands (*Thryothorus Olatare*), and which we have never before observed birds to be subject to in their natural state, but is common in those that have been domesticated."

When writing the last lines of this paragraph, our author does not appear to have borne in mind the common ruff of Europe, *Machetes pugnax*, the most remarkable instance of variableness in a species, perhaps, known to ornithologists. Of that bird, it is very unusual to find two adult males alike, and not only that, but specimens are usually of entirely different colors in some parts of their plumage.

3. GENUS MYIAGRA, *Vig. and Horsf.* Trans. Linn. Soc. London, XV, p. 250 (1825).

1. MYIAGRA VANIKORENSIS (*Quoy and Gaimard*).

Platyrrhynchos vanikorensis, QUOY and GAIMARD, Voy. Astrolabe, Zoologie, I, p. 183 (1830).

Voy. Astrolabe, Ois. Plate V, fig. 1.

FORM.—Bill very wide, depressed; ridge of the upper mandible distinct; apertures of the nostrils large and conspicuous; gape with numerous pairs of short rigid bristles. Wings rather long, first primary rudimentary, third longest; tail moderate; tarsi and toes slender.

DIMENSIONS.—Total length, about five and a half inches; wing, three inches; tail, two and a half inches.

COLORS.—Male. Entire head and breast black, with a green lustre; upper parts of the body, dark ashy-brown; under parts, from the breast, reddish fulvous, darker on the lower part of the breast, and palest on the ventral region and under coverts of the tail. Quills brown; secondaries narrowly edged with pale cinereous; tail brown, paler beneath. Bill and tarsi dark. Inferior coverts of the wing white, barred and spotted with black. "The back of the female is

cinereous; the wings and tail brown; the breast rufous; the throat white; in other respects like the male" (Peale).

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington City.

This little-known bird is strictly congeneric with *Myiagra nitida* and *rubecula*, Gould, and other species of Australia. The figure in the Zoological Atlas of the Voyage of the Astrolabe, cited above, represents it as smaller than the specimen now before us, which may be attributed either to such being the fact in the different locality at which the specimen figured was obtained, or to a difference merely in the preparation of the skin. All the characters are, however, well represented in the plate to which we have reference.

Of this handsome species we have no account, other than a label stating the locality as above given.

2. MYIAGRA RUBECULA (Latham).

Todus rubecula, LATH. Ind. Orn. Supp. p. 32 (1801).

Platyrhynchus ruficollis and *rubecula*, VIEILL.

Myiagra rubeculoides, VIGORS & HORSE. Trans. Linn. Soc. London, XV, p. 253.

Myiagra lutirostris, GOULD, Proc. Zool. Soc. London, 1840, p. 172.

Platyrhynchus albiventris, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 102 (1st ed. 1848).*

Myiagra nitida, GOULD, Proc. Zool. Soc. London, 1837, p. 142?

Gould, B. of Aust. II, Plate XCII; *ibid.* Plate XCI?

Of this species, very accurately and handsomely figured by Mr. Gould, as above cited, specimens from the Samoan Islands cannot be

* "Form more slender than *P. Vanikorensis*; bill longer; all the lower parts from the breast down, white; head and neck black; lesser wing-coverts and rump, dark ash-color; wings and tail black; first quill less than half the length of the fourth, fourth quill longest; under coverts of the wings margined with white; throat and breast bright rufous; bill light-blue; legs black; irides brown.

"Total length, five and seven-eighths inches; extent of wings, eight and five-eighths inches; wing, from the carpal joint, two and nine-tenths inches; tail, two and four-tenths inches; tarsi, thirteen-twentieths of an inch; middle toe, including the nail, eleven-twentieths of an inch; nail, three-twentieths of an inch; hind toe, nine-twentieths of an inch; nail, two-tenths of an inch; bill, half an inch; to the corners of the mouth, seven-tenths of an inch; width, three-tenths of an inch." (Peale, as above.)

distinguished from others in the Australian collection of birds in the Museum of the Academy of Natural Sciences of Philadelphia. There is, however, in different specimens, a considerable variety in the shade and intensity of the color of the throat, most observable in specimens which have not the appearance of being in mature plumage. In adults, this color is deep rufous or russet, gradually becoming paler as it approaches the white of the breast and abdomen. It is possible that some of the synonymes above given, may be more properly applicable to the females of other species of Australia, though all the measurements are those of this bird.

Mr. Peale observes :

"The two sexes vary but little, if at all, in size. The female has the head dark-gray, instead of black, also the rufous on the throat and breast is not so bright. This species is not uncommon at the Samoan Islands. It delights in thick shady forests, and patiently watches for insects, which it takes on the wing."

4. GENUS RHIPIDURA, *Vig. and Horsf.* Trans. Linn. Soc. London, XV, p. 246 (1825).

1. RHIPIDURA ALBISCAPA, *Gould.*

Rhipidura albiscapa, GOULD, Proc. Zool. Soc. London, 1840, p. 113.

Gould, B. of Aust. II, Plate LXXXIII.

Respecting this little species, specimens of which are from New Zealand; the naturalists of the Expedition have some interesting observations.

Mr. Peale gives the following :

"This beautiful and familiar bird was quite common in all the forest districts around the Bay of Islands, New Zealand. Whenever we entered a bushy and retired situation, we were sure to be attacked by numerous mosquitoes, and whenever so attacked, we were sure to hear the '*Hee-waka-waka*,' as this bird is there called from its cry; it was almost certain to come to our relief, darting after the mosquitoes within a few inches of our faces, then alighting on low branches, and skipping around, its wings drooping and beautiful fan-like tail carried nearly perpendicular over its back.

"There is scarcely any difference in the plumage of the two sexes; both have it equally soft and lax, so much so, that it is exceedingly difficult to skin them in such a manner as to make good specimens."

Dr. Pickering mentions this bird as follows:

"The 'fan-tailed fly-catcher' was often met with in the woods. It is an exceedingly familiar bird, and will approach within a few feet of you, with its tail elevated and expanded, apparently attracted by curiosity. I saw it only flitting from branch to branch, keeping near the ground among the undergrowth, and never observed it taking short flights for the capture of insects in the usual manner of fly-catchers."

This little bird belongs to a group of very graceful fly-catchers, forming the genus *Rhipidura*, of which the species are restricted to the islands in the Pacific Ocean. They are remarkable for long and fan-like tails, and hence have obtained the designation as above given by Dr. Pickering.

2. RHIPIDURA NEBULOSA, Peale.

Rhipidura nebulosa PEALE, Zool. U. S. Exp. Birds, p. 99 (1st edition, 1848).

Atlas, Ornithology, Plate IX, fig. 2. Young.

Voy. Ast. and Zel. Ois. Plate II, fig. 5?

Tota fuliginosa, gutture et auribus albis, crissis albis. Refert R. albiscapam. Long. tot. 5½ pollices.

FORM.—Generally much resembling that of *R. albiscapa*. Tail long; wings moderate or rather long; legs slender; bill wide; bristled at base.

DIMENSIONS.—Total length (of skin), about five and a half inches; wing, three inches; tail, three and one-fourth inches.

COLORS.—Under coverts of the tail white. All other parts of the plumage, dull fuliginous, darkest on the head, and lightest on the abdomen. Throat and obscure spot on the ear whitish; shafts of the

tail-feathers and a narrow edging at their tips, white. Bill dark; lower mandible white at its base; legs dark. "Irides brown" (Peale).

HAB.—Samoan Islands. Specimen in Nat. Mus. Washington City.

This is a species described by Mr. Peale as above, from a single specimen, not in good order, in the collection of the Expedition. This specimen, now before us, is evidently that of a young bird, and very probably not in the plumage assumed at maturity. It is not, therefore, without hesitation, that we have admitted it into our present volume as a species hitherto undescribed, especially as it shows a near relationship to the species alluded to in the article immediately preceding (*R. albiscapa*).

The colors of the superior parts, in the present bird, are very nearly the same as those of *R. albiscapa*, but the under parts are of a color nearly uniform with the upper. In the last character it differs from any specimen of that species that we have seen. There is a distinct trace of white on the throat and ears, and the shafts of the tail-feathers are white as in *R. albiscapa*. The bill in the present bird is slightly the larger.

The figure in the Zoological Atlas of the Voyage of the Astrolabe and Zélée, cited above, may represent this bird, but it is without any of the white markings.

Mr. Peale mentions this species as "found, in the month of October, inhabiting shady forests in the Island of Upolu, and not so familiar nor noisy as the New Zealand Fan-tails."

The figure in our plate is of the natural size, and represents the only specimen in the collection of the Expedition.

5. GENUS TYRANNUS, Cuvier. Règne Animal, I, p. 343 (1817).

1. TYRANNUS VERTICALIS (Say).—The Arkansas Fly-catcher.

Muscicapa verticalis, SAY, Long's Exp. to Rock. Mount. II, p. 60 (1823).

Bonap. Am. Orn. I, Plate II; Aud. B. of Am. Plate CCCLIX, fig. 1, 2; oct. ed. I, Plate LIV.

Frequently noticed by Dr. Pickering as occurring in Oregon. It is also one of the most common fly-catchers of California, and is a rare straggler in the States on the Atlantic, having been obtained by Mr. Edward Harris, one of our most eminent ornithologists, in New Jersey.

2. TYRANNUS BOREALIS, *Swainson*.

Tyrannus borealis, SWAINS. Faun. Bor. Am. Birds, p. 141 (1831).

Muscicapa Cooperi, Nutt. Man. Orn. I, p. 282 (1832).

Faun. Bor. Am. Birds, Plate XXXV; Aud. B. of Am. Plate CLXXIV; oct. ed. I, Plate LVIII.

Specimens in the collection of the Expedition were obtained in Oregon. This, though more especially a Western species, has frequently been captured in the Atlantic States, and in fact may be considered as becoming more common than formerly. It is a true *Tyrannus*, though little is known of its manners or history.

The name given by Swainson to this bird as above, is undoubtedly entitled to be adopted on account of priority.

6. GENUS TYRANNULA, *Swains*. Cab. Cy. II, p. 225 (1837).

1. TYRANNULA SAYA (*Bonap.*).—Say's Fly-catcher.

Muscicapa Say, BONAP. Am. Orn. II, p. 20 (1825).

Bonap. Am. Orn. II, Plate III; Aud. B. of Am. Plate CCCLIX, fig. 4, 5; oct. ed. I, Plate LIX.

Mentioned by Dr. Pickering as having been observed in Oregon, and as being of common occurrence at several localities in that Territory. This appears to be one of the most abundant fly-catchers of Western North America, being brought by nearly all collectors in California and Oregon.

2. TYRANNULA ALBICEPS (*Lafr. et D'Orb.*).

Muscipeta albiceps, LAFR. et D'ORB. Mag. de Zool. 1837, p. 47.

Specimens in the collection are from Tierra del Fuego.

3. TYRANNULA CHRYSOCEPS (*Spix*).

Platyrhynchus chrysoceps, SPIX, Av. Bras. II, p. 10 (1825).

Tyrannula ferruginea, SWAINS. B. of Braz. p. 3 (1841).

Spix. Av. Bras. XI, fig. 2; Sw. B. of Braz. Plate LIII.

Specimens in the collection are labelled as having been obtained in Peru, and present the usual characters only of this well-marked species.

7. GENUS FLUVICOLA, *Swains.* Cab. Cy. II, p. 256 (1837).1. FLUVICOLA CYANIROSTRIS (*Vieill.*).

Muscicapa cyanirostris, VIEILL. Nour. Diet. XXI, p. 447.

Gray, Gen. of Birds, I, Plate LXI.

From Tierra del Fuego.

8. GENUS PYROCEPHALUS, *Gould*, Zool. Voy. Beag'e, Birds, p. 44 (1841).1. PYROCEPHALUS OBSCURUS, *Gould*.

Pyrocephalus obscurus, GOULD, Zool. Voy. Beagle, Birds, p. 45 (1841).

Specimens in the collection of the Expedition are undoubtedly of the species described by Mr. Gould as above, though like his specimens, they are apparently in immature plumage. The species is, however, certainly different from either *P. rubineus* or *P. parvirostris*,

and is very probably when adult of a different shade of red. From Peru.

9. GENUS TAENIOPTERA, *Bonaparte*, Gray's Gen. of Birds, I, p. 241 (1847).

1. TAENIOPTERA OBSCURA (*Gmelin*).

Muscicapa obscura, GM. Syst. Nat. I, p. 945 (1788), LATH. Ind. Orn. II, p. 470.

Atlas, Ornithology, Plate IX, fig. 3. . Adult male.

FORM.—Compact and rather strong; head broad; aperture of the nostril large; membrane conspicuous; wing with the first quill short; fourth and fifth longest and nearly equal; tail moderate, wide, with its feathers pointed and mucronate; tarsi long, rather slender; scales in front obscure.

DIMENSIONS.—Total length (of skin), about seven inches; wing, four inches; tail, three inches; tarsus, one and a half inches.

COLORS.—Male. Entire plumage above, light reddish-brown or snuff color, most distinct on the back, and tinged with cinereous on the forehead. Under parts light ashy, palest on the flanks and abdomen; under tail-coverts yellowish-white. Quills and tail-feathers light brown, the former fulvous at their bases, and the shafts of the latter, on their under surfaces, white. Bill dark, tarsi lighter. Female. Quills bright fulvous at their bases, and edged on their outer webs with the same color. Under parts paler than in the male, white on the abdomen, outer feathers of the tail lighter.

HAB.—Sandwich Islands. Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

This remarkable species appears to have been lost sight of by modern ornithologists, and the specimen in the present collection, and another in that of the Philadelphia Academy, are the only ones that have come under our notice. The male described above, which is in the collection of the Expedition, is in excellent plumage and preservation, and differs from the female in the more uniform and deeper

cinereous of the under parts, and also in the fulvous portion of the quills at their bases being less extensive and not so conspicuous. In the female (the specimen of which, now before us, was brought from the Sandwich Islands by Dr. J. K. Townsend), these fulvous markings form a transverse bar obliquely across the folded wing, and the under parts of the body are nearly white. The tarsi are long, with the scales in front large, but very obscurely defined. This bird much resembles in general form several of the species included by the Prince Bonaparte in his genus *Taenioptera* (Cons. Av. p. 165), but is different in color from any with which we are acquainted. We have, however, for the present, placed it in this genus.

This interesting bird is represented in our plate the size of life.

10. GENUS EUSCARTHMUS, *De Wied*, Beitr. Zur. Naturg. Bras. III, p. 945 (1831).

1. EUSCARTHMUS PARULUS (*Kittlitz*).

Muscicapa parula, KITTITZ, Mem. Acad. St. Petersburg, I, p. 190 (1830).

Regulus plumulosus, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 94 (1st ed. 1848).*

Mem. Acad. St. Petersburg, I, Plate 9.

This remarkable little species appears to have been singularly overlooked by naturalists until described by Kittlitz, as above. It appears to be one of the most common birds of Chili, being brought in almost every collection from that country.

The specimen in the collection of the Expedition is in adult plu-

* "Plumage very soft and open in texture; crest, crown, and cheeks black, the frontal feathers having a slight margin of white; back of the neck cinereous; back olive-gray; throat and breast white; abdomen pale-yellow, the feathers lined along the centre with black; vent and under tail-coverts pale straw-color; wings dark olive-brown, the primaries, secondaries, and tertials edged with dirty white; tail slightly rounded, bipartite, and composed of twelve feathers of an olive-brown color, excepting the two outermost, which have the outer webs white; bill and legs black; irides white.

"Total length, four and one-fourth inches; extent of wings, five and five-eighths inches; wing, from the carpal joint, two and two-tenths inches; tail, one and nineteen-twentieths of an inch; tarsi, seven-tenths of an inch; middle toe, including the claw, half an inch; claw, three-twentieths of an inch; hind toe, four-tenths of an inch; claw, two-tenths of an inch; bill, three-tenths of an inch; to the corner of the mouth half an inch."

mage, and according to Mr. Peale, was "killed near Valparaiso, on the twenty-eighth of May, whilst actively gleaning for insects among some low bushes; it was alone, and excepting a faint *stzee, stzee*, silent."

3. FAMILY TURDIDÆ.

1. GENUS MERULA, Ray.

1. MERULA MIGRATORIA (Linn.).—The American Robin.

Turdus migratorius, LINN. Syst. Nat. I, p. 811 (1766).

Cat. Car. I, Plate XXIX; Buff. Pl. Enl. 556, fig. 1; Wilson, Am. Orn. I, Plate II; Aud. B. of Am. Plate CXXXI; oct. ed. III, Plate CXLII.

Specimens of both sexes of this bird from Oregon, are similar in all respects to those of the Eastern United States. It is brought too in nearly all collections from California, and in the "Voyage en Islande et au Groënland sur la Corvette la Recherche," Zoology, p. 157 (Paris, 1851), this species is stated to be common in Iceland, in the summer. Its northern and western range is therefore very extensive, and it appears, in fact, to inhabit the whole of North America, south of the limit of perpetual frost.

2. MERULA FALCKLANDICA (Quoy and Gaimard).

Turdus falcklandicus, QUOY and GAIMARD, Voy. Uranie, Zoology, p. 104 (1824).

Turdus magellanicus, KING, Proc. Zool. Soc. London, I, p. 14 (1830).

This bird is one of several of South America which more or less resemble in form and general appearance the common bird of North America immediately preceding. It appears to inhabit Western South America from Peru to Cape Horn, and is stated to be an abundant species.

Respecting this bird, Mr. Peale observes:

"The young of this species was found at Orange Bay, Tierra del.

Fuego, just fully grown in the month of February. Their size, voice, and general appearance are so much like the Robin of North America, that few of our officers could be persuaded that they were not identical."

3. *MERULA VANIKORENSIS* (*Quoy and Gaimard*).

Turdus vanikorensis, QUOY AND GAIMARD, Voy. Astrolabe, Zoology I, p. 188 (1830).

Voy. Astrolabe, Birds, Plate VII, fig. 2.

FORM.—Bill large, wide at base; wing long, first primary rudimentary; fourth slightly longest; tail moderate, rather short; tarsi and toes long; claws strong, curved. General form short and compact.

DIMENSIONS.—Total length (of skin), about seven inches; wing, four inches; tail, three inches.

COLORS.—Adult male. Entire plumage black, primaries slightly tinged and edged with brown. Bill, tarsi, and toes yellow.

HAB.—Samoan Islands. Specimen in Nat. Mus. Washington.

A single specimen of this bird is in the collection of the Expedition. It is apparently in perfectly adult plumage, and as described above, is entirely black. The figure in the Atlas to the Zoology of the Voyage of the Astrolabe seems to represent this species in a less mature stage of plumage, having the under parts more tinged with brown, and the inferior coverts of the tail with lines of white. In other characters and in general appearance the bird now before us agrees with the description and figure alluded to.

The bill in this bird is remarkably strong, and its tarsi more disproportionately lengthened than is usual in this genus.

It is stated by Mr. Peale to have been obtained near the village of Alua, in the interior of the Island of Upolu, on the fifth of November. According to him, "It inhabits the shady and retired parts of the forests of the Samoan Islands, and is said to sing with a powerful and sweet voice."

2. GENUS MICROSCELIS, *Gray*, List. of Gen. Birds, p. 28 (1840).1. MICROSCELIS TRISTIS (*Blyth*).

Atlas, Ornithology, Plate VII, fig. 4. Adult.

Numerous specimens of this species are in the collection of the Expedition, and appear to have been obtained at Malacca. We have no notes relating to it, nor do we notice anything peculiar in the specimens before us.

This bird is given in our plate of the natural size.

3. GENUS TATARE, *Lesson*, Traite d'Orn. I, p. 317 (1831).1. TATARE OTAITIENSIS, *Lesson*.

Tatara otaïtensis, LESSON, Traite d'Orn. I, p. 317 (1831).

Sitta otatara, LESSON, Voy. Coquille, Zoologie, I, p. 666 (1826).

Tatara fuscus, A. LESSON, Rev. Zool. 1842, p. 210.

Turdus sandwicensis, GM. Syst. Nat. I, p. 813 (1788)?

Voy. Coquille, Zool. Plate XXIII, fig. 2.

Of this bird, now well known as an inhabitant of the Sandwich Islands, numerous specimens are in the collection. These vary much in colors, and the general characters and form of this species are to us quite incongruous, though it probably belongs to the family of thrushes.

Respecting this species, Mr. Peale remarks:

"We obtained specimens of this variable species at the Paumotu Islands, at Tahiti, at the Samoan Islands, at Tongatabu, and sundry other places in the South Pacific Ocean. It is the most widely spread of all the Polynesian land birds.

"The most usual color is pale buff beneath, brown wings and tail, the feathers of the latter tipped with buff, and the back and head mottled with brown and buff. We have not seen any two specimens exactly alike; they vary from a chocolate-brown to white; in fact,

they vary in markings, color, and size, almost as much as domestic poultry, but their sprightly wren-like actions and sweet song are the same in all. They frequent close bushy patches of vegetation, and sometimes reedy marshes, are difficult to shoot, unless the hunter excites their curiosity, when they will expose themselves."

The specimens now before us, and others that have come under our notice, fully sustain Mr. Peale's statement respecting the variation of the colors in different specimens of this species. Each one is unlike the others, but we can detect no specific distinction between specimens from the various localities mentioned.

This is one of the most abundant of the birds of the Pacific Islands, and inhabits a range of locality unusually extensive. The specimens in the collection of the Expedition are in excellent plumage and preservation. This bird is well represented in the plate of the Voyage of the Coquille, above cited.

4. FAMILY AMPELIDÆ.

1. GENUS EOPSALTRIA, *Swains.* Cab. Cy. II, p. 250 (1837).

1. EOPSALTRIA FLAVIFRONS, *Peale*.

Eopsaltria flavifrons, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 96 (1st edition, 1848).

Atlas, Ornithology, Plate X, fig. 1.

Fronte flavo, gutture albo, supra olivaceo-fusca, subtus flava. Long. tot. 6 pollices.

FORM.—Larger than *E. australis* and *E. griseogularis*, of Australia.

Bill strong, curved, and sharp at the point, distinctly notched near the tip; wing rather long, fourth and fifth quills longest, and nearly equal; tail moderate; tarsi and toes rather long and slender. General form compact and strong.

DIMENSIONS.—Total length (of skin), about six inches; wing, three and a half inches; tail, two and a half inches.

COLORS.—Male. Front (or forehead) yellow; throat white. Entire upper parts olive-brown, tinged with yellow on the back and rump; quills and tail brown, the former edged externally with ashy, and some of the outer feathers of the latter slightly edged with yellow. Under parts (except the throat), bright yellow; bill and feet dark. Inferior coverts of the wing yellowish-white; tibiae olive-brown, many of the feathers tipped with yellow.

HAB.—Samoan Islands. Specimen in Nat. Mus. Washington City.

This is one of three closely allied species of *Eopsaltria*, of which specimens are contained in the collection of the Expedition, and were described by Mr. Peale in the first edition of the present volume. They present the typical characters of this genus, though larger, and with their bills more strongly developed than the species hitherto known as inhabiting Australia, though resembling them in general appearance.

In allusion to the present species, Mr. Peale observes:

"This is quite a common bird in the bushy grounds in the Island of Upolu; it is named from its cry, *Vassi-vassi*, which it utters in a clear full-toned whistle. Its general appearance and habits assimilate it to our yellow-breasted chat (*Pipra polyglotta* of Wilson), but is not so noisy or active."

This bird is given in our plate, above cited, of the size of life.

2. *EOPSALTRIA ICTEROIDES*, Peale.

Eopsaltria icteroides, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 97 (1st edition, 1848).

Eopsaltria diademata, PUCHERAN, Zool. Voy. Astrolabo and Zelee, III, p. 55 (1853).

Atlas, Ornithology, Plate X, fig. 3.

Fronte, gutture et corpore subtus flavis; supra olivaceo-fusca. Long. tot. 6 pollices.

FORM.—Similar to the immediately preceding species, and in dimensions also very nearly the same.

COLORS.—Male. Front (or forehead) yellow; throat and entire other under parts bright yellow. Entire upper parts dark olive-brown, very similar to the preceding species, but in the specimen before us, not so much tinged with yellow on the back and rump. Inferior coverts of the wing yellowish-white; tibiae brown, some feathers tipped with yellow.

HAB.—Samoan Islands.—Specimen in Nat. Mus. Washington City.

This species only differs from the preceding in having the throat yellow, and uniform with the color of the other under parts of the body, instead of white. In all other respects it sufficiently resembles it to be regarded as specifically the same, and our own opinion would incline us so to consider it.

Mr. Peale says of this bird :

"Killed at the Samoan or Navigators Islands, with the last. It is considered to be a distinct species by the natives."

Our figure is of the natural size.

3. EOPSALTRIA ALBIFRONS, Peale.

Eopsaltria albifrons, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 123 (1st edition, 1848).

Atlas, Ornithology, Plate X, fig. 2.

Fronte et gutture albis, supra olivaceo-fusca, subtus flava. Long. tot. 6 pollices.

FORM.—Very similar to the two preceding species, but apparently smaller.

DIMENSIONS.—Total length (of skin), about five and a half inches; wing, three and one-fourth inches; tail, two and a half inches.

COLORS.—Male. Front (or forehead) white; throat white. Entire upper parts dark olive-brown; under parts, except the throat, bright-yellow. Much resembling in color generally the two preceding species.

HAB.—Samoan Islands. Specimen in Nat. Mus. Washington City.

This species differs from both of the preceding in having the forehead white, and the specimen now described is rather smaller than either of them. If measured, however, minutely, or by tenths or twelfths of an inch, each one of the three specimens now before us would differ from the others, but not to an extent unusual in different specimens of the same species in many families of birds. We much suspect that the three birds now described as distinct, are really one and the same species, variable perhaps in color, like some other species of the Pacific Islands.

Of the last bird, Mr. Peale remarks :

"Killed at the Samoan Islands, where it frequents bushy grounds, like the *Vassi-vassi*, but is not so common. All three of the last-described birds are closely allied, if not specifically the same, *but as they are all considered to be different species by the natives*, who generally have a very correct knowledge of the products of their islands, and as they all differ in plumage, although killed in the same season (October and November), we have thought it proper to present them to our readers as we found them; expressing, at the same time, our suspicions of their identity."

This bird is given in our plate of the natural size.

5. FAMILY SYLVIADÆ.

1. GENUS SAXICOLA, *Bechstein*, Orn. Tasch. p. 216 (1802).

1. SAXICOLA OENANTHE (*Linn.*).

Motacilla oenanthe, LINN. Syst. Nat. I, p. 332 (1766).

Gould, B. of Eur. Plate XC.

Mr. Peale observes :

"A male specimen, in beautiful condition, flew on board the U. S. Ship Peacock, on the 19th of October, in latitude 6° 50' N., longitude 21° 38' W. of Greenwich. It was captured, but refusing the kind of food we were able to offer, it died soon afterwards."

The land nearest to the point at which this bird was captured is the coast of Africa.

2. GENUS SIALIA, *Swains.* Faun. Bor. Am. II, p. 209 (1831).1. SIALIA MEXICANA, *Swainson.*—The Western Bluebird.

Sialia mexicana, SWAINS. Faun. Bor. Am. Birds, p. 202 (1831).

Sialia occidentalis, TOWNSEND, Jour. Acad. Philada. VII, p. 188 (1836).

Sialia coeruleicollis, Vig. Zool. Voy. Blossom, Orn. p. 18 (1839).

Voy. Blossom, Birds, Plate III; Aud. B. of Am. Plate CCCXCIII;
oct. ed. II, Plate CXXXV.

Mentioned by the naturalists of the Expedition as a bird of Oregon,
and by Dr. Pickering as observed to be common at various points in
California. Specimens in the collection are from the former country.

The name above given we have no doubt is applicable to the bird
now before us, though Swainson's description is not in all respects satis-
factory. We have no doubt either that all the names above are syno-
nyms.

2. SIALIA ARCTICA, *Swainson.*—The Northern Bluebird.

Sialia arctica, SWAINS. Faun. Bor. Am. Birds, p. 209 (1831).

Faun. Bor. Am. Birds, Plate XXXIX; Aud. B. of Am. Plate
CCCXVIII; oct. ed. II, Plate CXXXVI.

Stated by Mr. Peale to have been observed in Oregon, and to in-
habit "the western coast of our continent generally."

3. GENUS PETROICA, *Swainson*, Faun. Bor. Am. II, p. 202 (1837).1. PETROICA PUSILLA, *Peale*.

Petroica pusilla, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 93 (1st ed. 1848).

Atlas, Ornithology, Plate IX, fig. 4. Adult.

Supra et gutture fusco-nigra, pectore et abdomine phoeniceis, abdomine imo cum crissis albis. Long. tot. 3½ pollices.

FORM.—Typical, small; wing with the third and fourth quills longest.

DIMENSIONS (of skin).—Total length about three and three-fourths inches; wing, two and a half inches; tail, one and a half inches.

COLORS.—Small frontal spot, white. Throat, head above, and entire other upper parts, brownish-black; terminal half of the greater coverts of the wing white, forming a wide bar running obliquely across the wing. Breast and abdomen scarlet, paler on the latter. Flanks, ventral region, and under coverts of the tail, white; quills and tail-feathers brownish-black, the two external on each side of the latter marked longitudinally with white; bill dark; tarsi light.

HAB.—Samoan Islands. Specimen in Nat. Mus. Washington City.

A small species much resembling in colors and general characters *Petroica multicolor* (which appears to be the same as *P. erythrogastra*, Gould, B. of Aust. III, Plate 4). It is, however, smaller, and in the specimen now described, the white space on the forehead is much more limited than in any specimen of *P. multicolor* that has come under our observation.

This species is noticed by the naturalists of the Expedition as having been observed only at the Samoan Islands. It is one of the handsomest as well as smallest of its genus.

The present bird, according to Mr. Peale, "is not uncommon at the Samoan Islands, particularly at Upolu, where it frequents the undergrowth in thick shady forests, exhibiting most of the habits of fly-catchers."

4. GENUS LEUCOCERCA, *Seainson*, Bonap. Consp. Av. p. 323.

1. LEUCOCERCA LESSONI (*Gray*).

Rhipidura Lessoni, GRAY, Genera of Birds, I, p. 258 (1846).

Monarcha cinerea, PEALE, Zool. Exp. Exp. Vincennes, Birds, p. 101 (1st ed. 1848).*

* "Head, back, and wings cinereous, beneath lighter; brow, eyelids, throat, and

Voy. Astrolabe and Zélée, Ois. Plate XI, fig. 2.

FORM.—Bill straight; upper mandible curved at the tip and distinctly notched; several pairs of short weak bristles at the base.

DIMENSIONS (of skin).—Female. Total length, about five inches; wing, two and a half inches; tail, two and a half inches.

COLORS.—Ring encircling the eye and space before it (or lores) white, which is also the color of the entire under parts of the body and tips of the tail-feathers, tinged with cinereous on the breast, most clear on the abdomen, under coverts of the tail, and tips of tail-feathers.

Entire upper parts cinereous, except the superior coverts of the tail, which are black, tipped with white; quills ashy-brown; tail black, with all its feathers except the central two tipped with white. Under coverts of the wing white. Bill and feet pale bluish.

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington City.

The only specimen of this little-known bird in the collection, and which is described above, is marked as a female, but is almost precisely in form and color as is represented in the Zoological Atlas to the Voyage of the Astrolabe and Zélée, above cited.

In color, this species shows an affinity to the American fly-catchers of the genus *Oulicivora*, but it wants the long tail which is one of the characters of all the species of the latter. It appears to have been observed only at the Feejee Islands.

According to Mr. Peale, this specimen was killed, on the thirtieth of May, near Bahr, in the Island of Viti-levu, one of the Feejees.

middle of the abdomen white; tail rounded, consisting of twelve black feathers, all but the two in the middle tipped with white, the white tips increasing in size from the middle outwards; irides blue-black; bill and legs pale blue.

"Total length, four and seven-eighths inches; extent of wings, seven and three-eighths inches; wings, from the carpal joint, two and seven-tenths inches; bill, four-tenths of an inch; to the angle of the mouth, six-tenths of an inch; tarsi, seven-tenths of an inch; middle toe, including the claw, half an inch; claw, three-twentieths of an inch; hind toe, nine-twentieths of an inch; nail, two-tenths of an inch. Female."

5. GENUS ZOSTEROPS, *Vig. and Horsf.* Trans. Linn. Soc. London, XV, p. 234 (1825).

1. ZOSTEROPS FLAVICEPS, *Peale*.

Zosterops flaviceps, PEALE, Zool. U. S. Exp. Exp. Birds, p. 95 (1st ed. 1848).

Atlas, Ornithology, Plate X, fig. 4. Adult?

Capite flavescenti-viridi, gutture flavo, supra cinerea, subtus cinerascens alba. Refert Z. dorsalem. Long. tot. 4½ pollices.

FORM.—Much resembling that of *Z. dorsalis* and others of this genus.

Bill rather long; wing moderate, second quill slightly longest; tail moderate or rather short; legs slender; claws curved, rather large.

DIMENSIONS.—Total length (of skin), four and a half inches; wing, two and a half inches; tail, one and three-fourths of an inch. "Total length, five and one-tenth inches; extent of wings, seven and a half inches; wing, from the carpal joint, two and six-tenths inches" (Peale).

COLORS.—Head above yellowish-green, lighter in front; throat yellow, tinged slightly with greenish. Back cinereous; rump, wing-coverts, and outer edges of quills greenish-yellow, nearly uniform with the head. A circle of white around the eye; space in front of it, or lores, dark, nearly black.

Breast and abdomen ashy-white, darker on the sides and inclined to pure white in the middle; under coverts of the tail pale yellow. Quills light-brown, narrowly edged with white on their inner webs, and with greenish-yellow on their outer; tail-feathers light-brown, edged on their outer webs with greenish-yellow. Bill and tarsi light-colored (in skin). "Bill and legs pale brownish-blue; irides light-brown" (Peale).

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington City.

The investigation of this species by us, is one of the instances which

have repeatedly occurred in the course of our examination of the present collection, in which we have been under the necessity of deciding on the claims of a real or supposed species very nearly allied to another, without a sufficient number of specimens to warrant that our decision shall be either reliable or satisfactory even to ourselves. This bird is nearly related to the well-known *Zosterops dorsalis*, of Australia, and is about the same size. It has the same cinereous back, and a very similar general distribution of colors, but the yellow of the throat is more strongly marked and occupies a larger space; the head above is of a lighter shade of yellowish-green, and in the only specimen of the present bird in the collection, there is but a faint tinge of the light-brown on the flanks so strongly marking *Z. dorsalis*. We regard these, however, as but slender grounds for the establishment of a species, especially in this, as it appears to us, intricate and difficult genus.

The specimen before us, according to Mr. Peale, "was killed in a grove of *Casuarina* trees, at Venua Levu, one of the Feejee Islands, on the fifteenth of June."

3. TRIBE TENUIROSTRES.

1. GENUS MOHO, Lesson, Traité d'Orn. I, p. 302 (1831).

1. MOHO ANGUSTIPLUMA (Peale).

Entomiza angustipluma, PEALE, Zool. U. S. Exp. Exp. Birds, p. 147 (1848).

Atlas, Ornithology, Plate XI, fig. 1. Adult?

Supra fusca lineis longitudinalibus albis, gutture flavescenti-albo, pectore et abdomine albis, fusco lineatis, crissis rufis, alis et cauda fuscis, linea suboculari nigra. Long. tot. 13½ pollices.

FORM.—Rather slender; bill curved; wings rather long, with the fourth and fifth primaries longest and nearly equal; tail long, wedge-shaped, the two central feathers exceeding the others; legs and feet strong; plumage of the head, neck, and breast, with the webs of the feathers composed of few filaments, and presenting an open or skeleton-like texture; many feathers of the throat terminated with bristles.

COLORS.—Head and neck above dark brown, every feather having a longitudinal central stripe of dull white, tinged with greenish-yellow on the latter. Other upper parts, including wings and tail, brown; on the back with longitudinal stripes of white; quills and tail-feathers edged with olive-green on their outer webs; rump tinged with olive. Wide stripe, from the base of the bill under the eye, ending in a large spot on the cheek, black. Throat dull white, tinged with yellow; breast and abdomen dull white, every feather margined with brown; flanks and under tail-coverts dark rufous; bill and legs dark.

DIMENSIONS.—Total length (of skin), thirteen and a half inches; wing, six inches; tail, six and a half inches; bill, from the angle of the mouth, one and three-fourths inches; tarsus, about one and three-fourths inches.

HAB.—Island of Hawaii. Specimen in Nat. Mus. Washington.

Though we suspect that the bird above described is not in mature plumage, it appears to be a distinct species of the genus *Moho*, Lesson, of which the only species heretofore known are *Moho nobilis* (Merrem), and probably the bird described as *Certhia pacifica*, Gmelin, Syst. Nat. I, p. 470 (Vieill. and Aud. Ois. Dor. Plate LXIII), and *Moho braccata*, Cassin. It does not appear to belong to the genus *Strigiceps*, Less. Rev. Zool. 1840, p. 266, though evidently related to it.

The feathers of the head and breast in this bird present a remarkable character on account of the filaments composing the webs of the feathers being unusually few in number, and at such a distance from each other as not to touch, nor become adherent. This structure of the feathers gives to the plumage of the parts mentioned, a somewhat hairy appearance, and prevails also, in some measure, on the abdomen and other under parts of the body. Many of the feathers on the throat and neck in front terminate in bristles curved outwardly, and readily discernible on viewing the specimen in profile.

Respecting this curious bird, Mr. Peale's remarks are as follows:

"This rare species was obtained at the Island of Hawaii. It is very active and graceful in its motions, frequents the woody districts, and is disposed to be musical, having most of the habits of a *Meliphaga*; it is generally found about those trees which are in flower."

Dr. Pickering mentions having seen this species "alighting in the tops of the trees and uttering a loud *chuck*."

We regard this bird as one of the most interesting of the ornithological discoveries of the Expedition, and much regret to find a single specimen only in the collection. It is represented, in our plate above cited, of the size of life.

2. MOHO NOBILIS (*Merrem*).

Gracula nobilis, MERR. Beyt. zur. Besond. Gesch. der Vögel, p. 8; Plate II (1784, name on plate).

Merops niger, GM. Syst. Nat. I, 465 (1788).

Merops fusciculatus, LATH. Ind. Orn. I, p. 275 (1790).

Epimachus pacificus, LICHT.

Temm. Pl. Col. 471. Reichenbach, Volst. Naturg. Birds, Plate DCIV, fig. 4098.

The naturalists of the Expedition availed themselves of the opportunity presented to them of making some interesting observations on this singular bird, and in the collection we find several fine specimens. Though apparently not very common in Museums, it is so well known to ornithologists that we have not deemed it necessary to append a detailed description. We may be allowed to observe, though, that it is not without some degree of repugnance that we adopt the generic name *Moho*, which is that having priority of several others. Names so singularly barbarous and in such bad taste ought scarcely to be tolerated, even on the ground of priority.

This bird, the general plumage of which is deep glossy black, has a curious tuft of yellow feathers on each side near the shoulder, which was formerly highly valued by the Hawaiians, as has been related by various naturalists and voyagers, and as we find in the following observations by Mr. Peale:

"The yellow tufts of costal feathers in this beautiful bird furnished the material for the splendid and costly royal robes, capes, and 'lei's' of the Hawaiians in former days. The bunches of feathers, called *hulu*, represented in the wood-cut at the end of this article, are still

prepared and received in payment of a poll-tax to the king; they are afterwards made up principally in 'lei's' or head-bands worn by the ladies, and are beautiful but costly ornaments; but few can afford to wear them. The mantles made of these feathers were, until lately, considered the principal treasures of the crown; now they are not to be seen; the labor of collecting the feathers and attaching them to a network base, a labor of years, being too great. European clothing has entirely superseded the former robes of state.

"The 'Oo' is found in most of the woody districts of the Island of Hawaii; it frequents the thick foliage of the loftiest trees; in voice and manners it has some resemblance to the Oriole of North America (*Icterus Baltimore*). The natives capture it by means of birdlime, and after plucking the yellow feathers from beneath the wings, restore it to liberty, until again wanted to assist in paying the royal tax.

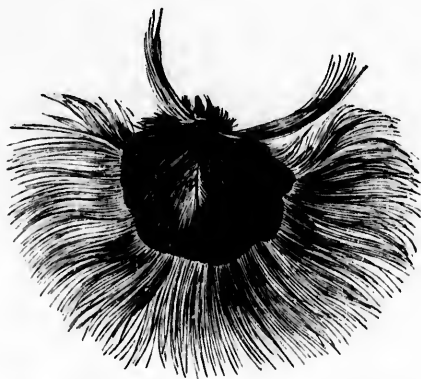
"Another bird is called *Oo* by the natives; it is the *Certhia pacifica* of Latham, and is found in the Island of Kauai, one of the same group. It also has tufts of yellow feathers which have been collected for the same purpose in former days; in it, the yellow feathers are on the thighs, not on the sides as in the genuine *Oo*; they are smaller, much inferior in beautiful texture, and are no longer collected. Both species are black. We killed specimens at Hanalei, a department of the Island of Kauai, where they are found in the woody districts on the mountains."

In Dr. Pickering's notes, we find this species frequently mentioned as occurring in different parts of the Island of Hawaii, and especially in the following:

"Near the upper margin of the forest of Mauna Kea, this bird was commonly to be met with, and flew high, somewhat in the manner of the Boat-tailed Grackle of the United States. Its note was a loud *chuck*, repeated two or three times, and in its habits it reminded me of the Poi-bird of New Zealand. In mature specimens, the middle feathers of the tail are twisted spirally at their ends, and are considerably longer than the others."

Though we are not disposed to regard the native names of animals as entitled to much consideration, we may be allowed to observe that the name of this bird must sound quite differently to different persons. Mr. Peale, as above, is quite confident that it is *Oo*, which we should pronounce simply as double o. Mr. Bloxham, in his Appendix on the Natural History of the Sandwich Islands, in the Voyage of the Blonde,

p. 249 (London, 1826, quarto), says that it is "*Uho*," while M. Lesson appears to have derived his generic designation from the same native name, and makes it "*Moho*." These names are of no zoological or other importance whatever, and are not worth mentioning, except to show that there is no reliance whatever to be placed in them. The other species, which, according to Mr. Peale, is also known to the natives by the name of *Oo*, M. Lesson calls "*Hoho*." We do not agree with Mr. Peale in the supposition that this second species mentioned by him is *Certhia pacifica*, Gm. It is *Mohoa braccata*, Cassin, Proc. Acad. Philadelphia, VII, p. 440 (1855), described by us from a specimen brought by Dr. Townsend, now in the Museum of the Philadelphia Academy.



THE ROYAL TAX OF THE SANDWICH ISLANDS.

2. GENUS LEPTORNIS, *Jac. et. Puch. Zool. Voy. Astrolabe and Zelee*,
Ois. p. 85 (1853).

1. LEPTORNIS SAMOENSIS (*Homb. and Jac.*).

Acrops samoensis, HOMB. et JAC. Ann. des Sci. Nat. Paris, 1841, p. 314.

Entomiza olivacea, PEALE, Zool. U. S. Exp. Exp. Birds, p. 145 (1848).

Leptornis sylvestris, JAC. et PUCH. Zool. Voy. Ast. et Zel. Ois. p. 86 (1853).

Voy. Ast. and Zel. Birds, Plate XVII, fig. 1.

Atlas, Ornithology, Plate XI, fig. 2. Adult.

Mr. Peale observes with reference to this species :

"This is a very active and noisy bird, commonly found amongst the blossoms of the cocoa trees in the Samoan Islands; we sometimes saw it eating ripe bananas. The two sexes are alike in plumage; the female is somewhat more delicate in form than the male, and perhaps not so noisy.

"We saw it in all the islands of the Samoan Group; at Upolu and Tutuila, it was most plentiful."

Several specimens of this bird, in the collection of the Expedition, vary but little from each other, and present no characters different from those given by the authors above cited, and represented in their plate, to which we have referred. It is a large and robustly organized species, with the bill and legs unusually strong and lengthened. Sexes similar.

So far as our judgment goes, this bird is *Merops samoensis*, as described in the *Ann. des Sci. Nat.*, as above cited, but that name is omitted in the volume of the Zoology of the Voyage of the Astrolabe and Zelée, above referred to, though published under the auspice and editorship of Messrs. Hombron and Jacquinot themselves. We regard *Merops samoensis*, Homb. and Jac., as identical with *Leptornis sylvestris*, Jac. and Puch., though these distinguished authors and voyagers have not recognized this identity, or the latter have accidentally overlooked the description by the former, both having reference to the same specimens.

Our figure is of the natural size.

3. GENUS PTILOTIS, Swainson, Cab. Cy. II, p. 326 (1837).

1. PTILOTIS CARUNCULATA (Gmelin).

Certhia carunculata, Gm. Syst. Nat. I, p. 472 (1788).

Aud. & Vieill. Ois. Dor. Plate LIX, LXX.

FORM.—Bill long, curved; a bare space and somewhat projecting caruncle posterior to and in a line with the base of the lower mandible; aperture and membrane of the nostril large; wing rather

long; first quill rudimentary; fourth longest; tail rather long; legs strong; tarsus long; toes moderate; claws large.

DIMENSIONS.—Total length (of skin), about seven and three-fourths inches; wing, four and one-fourth inches; tail, three and a half inches; tarsus, one and one-fourth inches. "Total length, eight and three-fourths inches; extent of wings, twelve inches." (Mr. Peale.)

COLORS.—Bare space and caruncle orange; a narrow edging on the first feathers above, forming a line to the corner of the mouth, and a large spot immediately posterior to which is pale yellow. Anterior to and below the bare space greenish-black.

Entire upper plumage dark olive, tinged with yellow; below, greenish-yellow, tinged with ashy; quills and tail-feathers brown, edged with greenish-yellow. Bill dark; "irides brown; legs dusky green; tongue terminating in a corneous brush. Male." (Mr. Peale.)

HAB.—Feejee, Samoan, and Tonga Islands. Specimen in Nat. Mus. Washington.

Specimens of this bird from various islands are in the collection, and differ from each other only in minute and scarcely observable points. Though a rare species in collections, and little known to ornithologists, it appears to be abundant in the islands that it inhabits.

This bird belongs to the genus *Ptilotis*, and in general appearance very considerably resembles *Ptilotis maculata*, Temm. Pl. Col. IV, Pl. XXIX, fig. 1, but is much larger, and also *Ptilotis chrysotis* (Lath.), Gould, B. of Aust. IV, Pl. XXXII.

The naturalists of the Expedition, according to Mr. Peale, "found this bird to be quite common at Tongatabu, the Samoan, and Feejee Islands. They are very active, and thrush-like in their actions, frequent the brush along the woody shores of the islands, and sing very sweetly.

"The females are a trifle less in size than the males, have the wattle less developed, and the yellow line above it less conspicuous; but in other respects they resemble each other, even in garrulity."

Mr. Peale states that this species is called *E-yow* by the Samoans, and *Foulehaio* by the Tonga Islanders.

4. GENUS PROSTHEMADERA, Gray, List. Gen. Birds, p. 15 (1840).

1. PROSTHEMADERA NOVAE-SEELANDIAE (Gmelin).

Merops novae-seelandiae, GM. Syst. Nat. I, p. 464 (1788).*Merops cinnamata*, LATH. Ind. I, p. 275 (1790).*Sturnus crispicollis*, DAUDIN.

Brown, Ill. Zool. Plate IX; Le Vaill. Ois. d'Af. II, Plate XCII.

Dr. Pickering gives the following interesting note on this species :

"The tui, called also the poé and parson-bird, in allusion to the white feathers under the throat resembling the bands of a clergyman's gown, is the nightingale of New Zealand. It is often kept in cages, and is a great favorite. Its proper song is sweet and musical; but this we did not often hear. In its wild state, we usually saw it perching high among the dead trees about the margins of woods, its note much resembling that of a Samoan species, but louder. At other times it would utter a sort of trumpet cry, that could hardly be called musical. It appears to be easily domesticated, and would be valued highly as a cage-bird in any country, and probably could be easily transported."

5. GENUS MYZOMELA, Vig. and Horsf. Trans. Linn. Soc. London, XV, p. 316 (1825).

1. MYZOMELA NIGRIVENTRIS, Peale.

Myzomela nigriventris, PEALE, Zool. U. S. Exp. Birds, p. 150 (1848).

Atlas, Ornithology, Plate XII, fig. 1. Adult.

Capite, collo, pectore et uropygio phoeniceis, macula ante oculari nigra, partibus ceteris nigris. Long. tot. 4½ pollices.

General form similar to those of *M. erythrocephala* (Gould), and *M. rubra* (Lesson), but is larger than the former and smaller than the latter. Wings and tail rather long, the latter rounded. Head, neck, breast, middle of the back, and rump, fine bright scarlet; spot im-

mediately in front of the eye black; all other parts above and below rich brownish-black; bill and feet black, the latter yellow beneath; iris brown.

DIMENSIONS.—Total length (of skin), four and a half inches; wing, two and three-fourths inches; tail, one and three-fourths inches.

HAB.—Samoa Islands. Specimen in Nat. Mus. Washington.

A beautiful little species, considerably resembling *Myzomela rubrata* (Lesson), *Cinnyris rubrater*, Less. Manuel, II, p. 55, but is smaller and has the bill more curved. In that species, the scarlet is continued on to the abdomen; in the present it is abruptly terminated on the breast, and the remaining under parts are of the same brownish-black as the wings and tail. The colors of this bird more resemble those of *M. erythrocephala*, Gould, but it is considerably larger.

Mr. Peale observes:

"In the dark and thick forests of the Samoan Islands, where this bird is not uncommon, its beautiful scarlet and black plumage renders it a conspicuous object. It is seldom seen in the open or cultivated grounds, or near the habitations of men; in this respect differing from most of its congeners."

Several specimens are in the collection of the Expedition. The sexes present no difference.

Our figure of this little bird is of the natural size.

2. MYZOMELA JUGULARIS, Peale.

Myzomela jugularis, PEALE, Zool. U. S. Exp. Exp. Birds, p. 150 (1848); Zool. Voy. Astrolabe and Zélée, Ois. Pl. XXII, fig. 6.

Myzomela solitaria, JAC. et PUCH. Zool. Voy. Ast. et Zel. Ois. p. 99 (1853).

Atlas, Ornithology, Plate XII, fig. 2. Adult?

Supra fuscescenti-nigra, gutture phoeniceo, pectore flavo, abdomine albo.
Long. tot. 4 pollices.

About the size of the preceding or rather smaller; bill curved; nasal aperture large; wings long; tail rather short, rounded. Entire

upper parts brownish-black, darkest on the head; occipital spot and another on the throat at the base of the under mandible fine scarlet; neck before, and breast yellow, which color fades gradually into the white of the abdomen and under tail-coverts. Wing-coverts tipped with white; quills edged on their outer webs with greenish-yellow, and on their inner webs with white; tail brownish-black, tipped with white. Bill dark; feet light; iris dark-brown.

DIMENSIONS.—Total length (of skin), about four inches; wing, two and a half inches; tail, one and a half inches.

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington.

A very handsome little species, resembling in a measure several species of *Cinnyris*, Cuvier, though in the specimens belonging to the collection of the Expedition, there is no metallic lustre on any part of the plumage.

According to Mr. Peale, this bird inhabits the Feejee Islands:

"We never saw it in any other situation than amongst the cocoanuts and flowers; nectar and insects collected in the flowers appear to constitute its principal food. Its voice is weak and not remarkable, and as it is solitary and habitually lives amongst the lofty cocoanut trees, it is seldom observed."

This interesting bird belongs apparently to an aberrant group of this genus, which includes *Myzomela pectoralis*, *M. nigra*, Gould, and other species. In our plate above cited, it is represented of the natural size.

6. GENUS DREPANIS, *Temminck*.

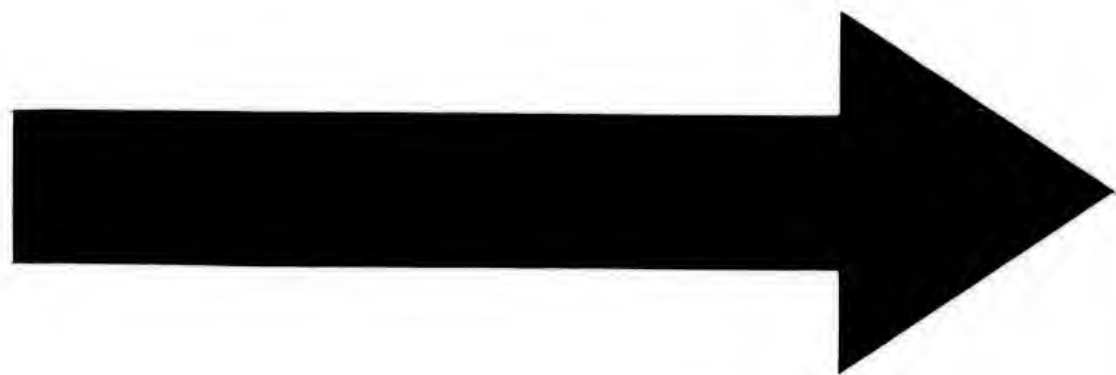
1. DREPANIS COCCINEA (*Merrem*).

Mellisuga coccinea, MERR. Beyt. Bes. Gesch. Vögel, p. 17, Pl. IV (1784, name on plate).

Certhia coccinea, GM. Syst. Nat. I, p. 282 (1788).

Certhia vestitaria, LATH. Ind. Orn. I, p. 282 (1790).

Shaw, Nat. Misc. III, Plate LXXXV; Vieill. Ois. Dor. Plate LII, LIII.



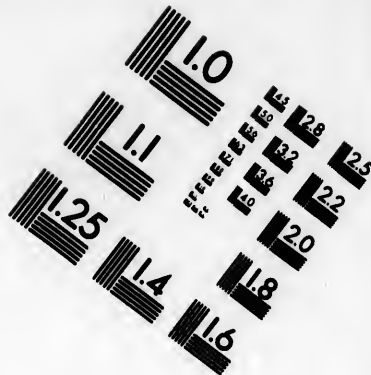
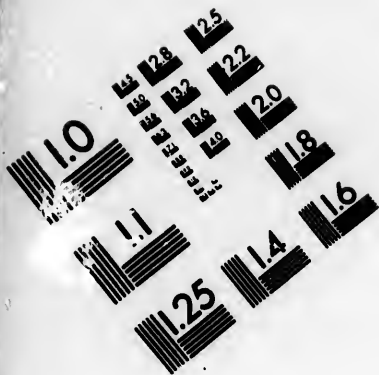
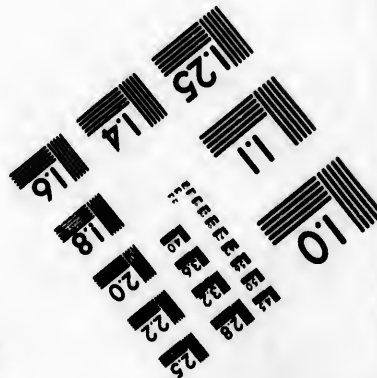
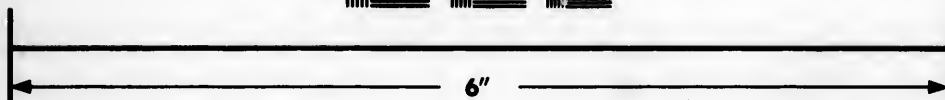
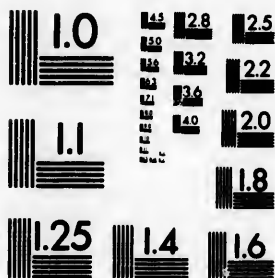


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This beautiful little species appears to be one of the most abundant of the birds inhabiting the Hawaiian Islands, and is perhaps the most frequently met with in ornithological collections. Several specimens in excellent plumage were obtained by the naturalists of the Expedition, and are now in the collection.

Mr. Peale observes respecting this bird :

"This curious and highly colored bird is found inhabiting most of the Hawaiian group of islands, where it is one of the most common species. At Oahu, we found them generally about the gigantic *Lobelia* which characterize the botany of that island. They extract their food from the flowers of the *Lobelia*, for which the singularly formed bill is admirably adapted. The red feathers of this species were usually selected for the ornamental figures on the capes and robes of the ancient Hawaiians, but, by reason of their abundance, were not so highly valued as those of the *Oo*."

7. GENUS HEMIGNATHUS, *Lichtenstein*.

I. HEMIGNATHUS? OBSCURUS (*Gmelin*).

Certhia obscura, *Gm. Syst. Nat. I*, p. 470 (1788).

Aud. and Vieill. *Ois. Dor. II*, Pl. LIII; *Lath. Gen. Syn. I*, Pl. XXXIII, fig. 1.

A single specimen, and the only one that we have ever seen which is clearly the species described and figured by the authors above referred to, is in the collection of the Expedition. Though with a long, gradually curved bill, more as represented in the plate of Aud. and Vieill. than in that of Lath., as above, and with the inferior mandible but little shorter than the superior, this bird appears to us to present very much the characters of *Hemignathus*. The color, too, is nearly the same.

The shape of the bill in this bird is different from that in the genus *Drepanis* (*D. coccinea* and *D. sanguinea*). It either forms a distinct genus, or belongs to the genus *Hemignathus*, in our opinion to the latter; and the half-billed or *Hemignathous* character appears to us to be not completely characteristic.

Bill long, gradually curved, pointed; wing moderate or rather long; third quill slightly longest; tail short, even; legs rather long, strong; toes moderate. Front, and line over the eye, pale greenish-yellow; spot in front of the eye black. Entire upper parts olive-green, tinged with yellow; under parts greenish-yellow; lighter on the throat and under tail-coverts. Bill and legs dark.

Total length (of skin), about six inches; wing, three inches; tail, one and three-fourths inches; bill, one and three-fourths inches.

HAB.—Sandwich Islands. Specimen in Nat Mus. Washington.

Of this interesting and little-known bird, Mr. Peale observes:

"We obtained specimens of this curious bird at the Island of Hawaii only; it was found inhabiting the thick woody districts, and according to our observation, does not inhabit Oahu, or the northern islands of the Hawaiian Group."

A careful examination of Latham's figure, cited above, and comparison with that of Vieill. and Aud., may readily lead to some doubts of the identity of the birds represented. The former possibly represents a true *Hemignathus*, and not the present bird, but it is clearly that represented by the authors last mentioned.

2. HEMIGNATHUS OLIVACEUS (*Lafresnaye*).

Heterorhynchus olivaceus, LAFR. Mag. de Zool. 1839, p. 17.

Guerin, Mag. de Zool. 1839, Pl. X.

In the collection of the Expedition we find specimens which appear to be the bird described and figured under this name by the Baron Lafresnaye, as above cited, though they are, we suspect, not in mature plumage. The specimens before us were obtained at the Sandwich Islands.

Though given by Messrs. Prevost and Des Murs in Zoology of the Voyage of the Venus (*Oiseaux*, p. 192) as identical with the succeeding species, we regard it as quite different.

3. *HEMIGNATHUS LUCIDUS* (*Lichtenstein*).

Nectarinia lucida, LICHT. Mem. Acad. Berlin, 1839, p. 451.

Mem. Acad. Berlin, 1839, Pl. V, fig. 2; Voy. Venus, Ois. Pl. I.

In the curious little birds of this genus there is quite an appreciable diversity in the thickness and degree of curve in the bill in different specimens of apparently the same species. This variation may be, and probably is, dependent in some measure on the age of the individual, and we suspect that the curve is greatest in adult birds. Nor are we sure that the half-billed character, indicated by the name of this genus, is strictly correct, for reasons mentioned in a preceding article.

These birds appear to be restricted to the Sandwich Islands. We have now before us, from the collection of the Expedition, and from the Museum of the Philadelphia Academy, several specimens which appear to be the present and preceding species. They bear a strong general resemblance to each other, but the present is the larger, and has the bill much stronger. It is not surprising that these two birds have been repeatedly mistaken for each other by authors, and they are in fact to be distinguished with difficulty by descriptions only.

According to Mr. Peale, the three birds here included in the genus *Hemignathus* are very similar in their habits, and frequent the same description of locality.

The bills in this bird, and that immediately preceding, are rarely exactly alike in any two specimens. The difference is in length and thickness and curve. In the specimens before us, very few have the bill curved at the same angle, or perhaps it would be more in accordance with the language of mathematics, to say that these bills describe arcs of different circles.

We find nothing recorded by the naturalists of the Expedition in reference to the habits or history of this singular group of birds; nor, we regret to say, elsewhere, except in the volume on the Quadrupeds and Birds of the Voyage of the Venus (p. 183, octavo, Paris, 1855). It is probably very nearly impossible to determine or reconcile with each other the synonyms of these two species, or the instances in which they have been mistaken for each other; but we have given them as they appear to us, and as represented in the plates cited.

4. TRIBE FISSIROSTRES.

1. FAMILY HIRUNDINIDÆ.

1. GENUS PETROCHELIDON, *Cabanis*, Museum Heineanum, p. 47 (1850).

1. PETROCHELIDON FULVA (*Vieill.*).

Hirundo fulva, VIEILL. Ois. d'Am. Sept. I, p. 62.

Hirundo pæciloma, GOSSE, B. of Jamaica, p. 64 (1847).

Hirundo ruficollaris, PEALE, Zool. Exp. Exp. Birds, p. 175 (1st ed. 1848).*

Vieill. Ois. d'Am. Sept. I, Plate XXXII.

FORM.—Very similar to that of *P. lunifrons* (Say), but smaller. Compact and robust; wing long, first quill longest; secondaries short, emarginate; tail rather short, truncate or slightly forked; legs and toes slender.

DIMENSIONS.—Total length (of skin), about five inches; wing, four inches; tail, two inches. "Extent of wings, eleven and one-tenth inches" (Peale); "expanse eleven inches" (Gosse).

COLORS.—Adult. (Specimen from Jamaica, which is *H. pæciloma*, Gosse.) Forehead, ring around the back of the neck, and rump,

* "Crown and head black, with blue reflections; wings and tail sepia-brown, even in length when closed; tail nearly square, the two middle and two outer feathers being equal in length; nuchal collar, rump, band across the breast and flanks rufous-brown; throat and abdomen white; under tail-coverts dusky, edged with white; bill black; feet dusky; irides brown.

"Total length, five and one-eighth inches; extent of wings, eleven and one-tenth inches; wing from the carpal joint, four and two-tenths inches; tail, one and nine-tenths of an inch; middle and outer feathers, one and eight-tenths of an inch; tarsi, seven-twentieths of an inch; middle toe, including the claw, eleven-twentieths of an inch; claw, three-twentieths of an inch; hind toe, four-tenths of an inch; claw, three-twentieths of an inch; bill, two-tenths of an inch; to the angle of the mouth, eleven-twentieths of an inch. Male."

chestnut-brown; head above and back black, with a bluish metallic lustre; quills and tail brownish-black. *Throat*, breast, and flanks, pale chestnut; middle of the abdomen, and under tail-coverts white, the latter tinged with very pale chestnut. Bill black; feet lighter. "Irides dark-brown" (Gosse). Some of the feathers of the back edged with white.

Young (specimen from Peru, which is *H. ruficollaris*, Peale). Upper parts same as in the specimen described above, but with the chestnut of the forehead nearly obsolete. *Throat* dull white; band across the breast and flanks pale chestnut; abdomen white; under tail-coverts dull white, tinged with pale chestnut, and with large subterminal spaces of dark-brown. "Bill black; feet dusky; irides brown. Male" (Peale).

According to Mr. Peale, the specimen in the collection of the Expedition was killed near Callao, Peru, on the twelfth of July.

The two specimens now described, though presenting some differences in the colors of the under parts, we regard as of the same species, and which is regarded by all late ornithologists as the true *Hirundo fulva* of Vieillot. Both sufficiently resemble the figure in Ois. d'Am. Sept. in all respects, except that the tail is there represented as forked, but very probably erroneously by the artist, as it is not so stated in the description.

The difference in the colors of these two birds is not greater than is usual in specimens of many species of the family *Hirundinidae*, and particularly in those like the common *Hirundo rustica* of Europe, or the *Hirundo rufa* of North America, having the under parts more or less of a chestnut color. In *Petrochelidon lunifrons*, a well-known species of the United States, and considerably resembling the bird now before us, there is also much diversity in the extent and shade of the chestnut color of the throat, though in adult specimens, it is nearly confined to that region. In young and immature birds it is quite obscure, and extends to the breast, mixed and shaded with pale brown.

This bird has been mistaken for *Hirundo lunifrons*, Say, of North America, by several authors on American Ornithology, and its name has accordingly been applied to that species erroneously (as in Audubon's Ornithological Biography, V, p. 415). The two species strictly belong to the same group, which is probably subgeneric only, but are so different as to be distinguished with no difficulty on comparison. *Hirundo lunifrons* is the larger, and may always be recognized by its

conspicuous frontal band of white, which is frequently slightly tinged with brownish, but is never of the dark chestnut found in *H. fulva*. In the specimens of the latter, now before us, there is no trace of the black of the throat which characterizes the former.

As a bird of Western South America, we are not aware that this bird has been previously noticed.

2. PETROCHELIDON CYANOLEUCA (*Vieill.*).

Hirundo cyanoleuca, VIEILL. Nouv. Dict. XIV, p. 509.

Hirundo minuta, DE WIED, Beitr. II, p. 369.

Hirundo melampyga, LICHT. Verz. p. 57.

Temm. Pl. Col. 209, fig. 1.

Several specimens are from Peru. Mr. Peale states:

"We found this species very common in the month of July, about Lima and Callao, in Peru. It was quite familiar, entering the courtyards of the houses, and coursing within a few feet of pedestrians."

2. GENUS COLLOCALIA, *G. R. Gray*, List. Gen. Birds, p. 8 (1840).

1. COLLOCALIA CINEREA (*Gm.*).

Hirundo cinerea, GM. Syst. Nat. II, p. 1026 (1788).

Macropteryx leucophæus, PEALE, Zool. Exp. Exp. Birds, p. 178 (1st ed. 1848).*

Atlas, Ornithology, Plate XII, fig. 4. Adult.

This species is nearly related to the succeeding, and is most readily

* "Pale soot-color; beneath lighter; crown, wings, and tail, darkest; webs, of the greater wing-coverts, *undulated*; bill very minute and delicate; forehead full, round; eyes large; irides dark brown; feet dusky red; tail slightly forked.

"Total length, five and one-tenth inches; wing, from the carpal joint, five and three-tenths inches; tail, two and four-tenths inches; tarsi, seven-twentieths of an inch; middle toe, including the claw, four-tenths of an inch; claw, three-twentieths of an inch; hind toe, one-fourth of an inch; claw, one-tenth of an inch; bill, one-tenth of an inch; to the corner of the mouth, nine-twentieths of an inch."

distinguished by its size, and by the rump being uniform in color with the other upper parts, and not cinereous as in the former. In other characters dependent on form the two species are very similar, and with the exception just stated, are similar also in color. The present bird is the larger of the two species.

Mr. Peale observes of the present bird :

"This species was obtained at the Island of Tahiti, where it is not uncommon. Its flight and appearance towards evening, at which time it appears to be most active, is like that of the chimney-swallow of North America (*Chaetura pelagica*, Stev.), but the large and full tail of our bird, and its small bill and feet, destroy further analogy. It is probable that it breeds in caves, like the last-described species (the succeeding) to which it bears a family likeness, but we were not so fortunate as to discover its nest."

Our figure above cited is of the natural size.

2. COLLOCALIA SPODIOPYGIA (Peale).

Macropygia spodiopygius, PEALE, Zool. Exp. Exp. Birds, p. 176 (1st ed. 1848).

Hirundo francica, GM. Syst. Nat. II, p. 1017 (1788) ?

Plate XII, fig. 3. Adult.

Tota fuliginosa, supra saturatior, uropygio taenia transversa lata cinerascienti-alba. Long. tot. 4½ pollices.

FORM.—Bill very short, weak; wings long; second quill longest; tail rather long, wide; tarsi and toes slender; claws curved, rather strong.

DIMENSIONS.—Total length (of skin), about four and one-fourth inches; wing, four and a half inches; tail, two and one-fourth inches.

COLORS.—Rump with a wide transverse band of light cinereous. Entire other upper parts dark fuliginous; lightest on the back, and nearly black on the head, wings, and tail. Under parts pale brownish, fuliginous; lightest on the throat; darker and nearly black on the ends of the under tail-coverts. "Bill black; tarsi dusky flesh-color; extent of wings, ten and seven-eighths inches" (Peale).

HAB.—Upolu, Samoan Islands. Specimen in Nat. Mus. Washington City.

The species of the genus of swallows to which this bird belongs, would be sufficiently difficult to distinguish, with all the appliances and means at hand, but with the brief descriptions of naturalists, and no figures worth mentioning, the case very nearly borders on the impossible. And so, after having in vain examined all authorities within our reach, we are constrained to admit that we find ourselves at a loss to say whether the bird now before us has been previously described or not. In our catalogue of swallows, in the collection of the Academy of Natural Sciences of Philadelphia (Proceedings, VI, July 1st, 1853), we cited Mr. Peale's name as a synonym for *Collocalia francica* (Gm.), relying on the evident similarity of the Expedition's specimens with the description by Gmelin, and on European labels to specimens of a very similar if not identical species in the collection of the Academy. The latter bear as their locality "Mauritius." Gmelin compiles from Buffon (Hist. Nat. des Ois. VI, p. 696), who gives the same locality, (Isle of France). The specimens in the collection of the Expedition are from the Samoan and the Feejee Islands, and are only rather darker in color than those to which we allude above. This character, however, and the widely different locality, have mainly induced us provisionally to regard the present bird as a distinct species.

Mr. Peale's observations on this species are in a high degree interesting:

"When the Expedition visited the Island of Upolu, in the month of November, 1839, Mr. Cunningham, acting British Vice-Consul, informed us that he had discovered in a cave on the south side of that island, some curious swallows, which had never been seen elsewhere, and that they were entirely subterranean, hatching their eggs and feeding and raising their young in the dark recesses of the earth.

"We had previously seen both fishes and reptiles taken in such situations, but were not prepared to hear of subterranean birds. A journey was therefore made to the cave described by Mr. Cunningham. It rained the whole time, which was four days, occupied in going and returning across the mountains, but having become accustomed to marching in mud and water, we enjoyed the tramp, and picked up, besides swallows, many interesting objects, which we saw in numbers every day that we stayed on the island.

"On reaching the cave, we found that it was one which was formerly supposed to be the residence of one of the native gods, 'Moso.' Our Samoan companions pointed out the place, but declined entering, and we found that a wall had been built across the entrance, leaving but a narrow aperture through which the passage was given into utter darkness, but being prepared with matches, candles, and a lantern, we soon were on our way through a regularly formed volcanic tunnel, or passage, which was once an outlet by which lava in its molten state found its way from the mountains to the sea.

"A sound like the rattling of small hard pebbles was heard, and soon traced to numerous swallows, which had been disturbed by our lights, and many others were discovered sitting quietly on their nests placed on slight ridges of the lava. The nests were composed of moss, held together with glue incorporated with the moss in large quantities; like the walls of the cave, they were dripping with moisture; each contained but one egg or young bird, and incubation did not appear to be confined to any particular season. Some were just building, while the young of others had quitted the nest, and were just beginning to fly. Old nests were repaired with new moss, which made it appear that they used the same more than once. Some of the old birds were so unsuspicious that they allowed us to lift them off their egg with our hands, and they immediately returned when we were satisfied. The nests are nearly round, three inches in diameter, and about one and a half inches high. The eggs are pure white, one end nearly as small as the other, three-quarters of an inch long, and half an inch in diameter.

"Notwithstanding that these swallows are known to fly through long subterranean passages in total darkness, they may daily be seen abroad even in clear sunlight, collecting food for themselves and their young, so that it is probable there will be found on careful examination, some anatomical structure which enables them to alter the form of their eyes, and to see in the dark and in the light.

"The two sexes are alike in plumage, which the young also wear from the first moult. We had frequent opportunities of seeing this species at Upolu, and at Tutuila, of the Samoan Islands, and at several of the Feejees."

This bird is represented in our plate of the natural size.

2. FAMILY CAPRIMULGIDÆ.

1. GENUS ANTROSTOMUS, *Gould*.1. ANTROSTOMUS NUTTALLII (*Audubon*).

Caprimulgus Nuttallii, AUD. ORN. BIOG. V, p. 835 (1839).

Aud. B. of Am. oct. ed. VII, Plate CCCCXCV.

A single specimen is in the collection of the Expedition, which was obtained in Oregon. This remarkable and handsome little species is now frequently brought in collections from Western North America, though usually from California.

2. ANTROSTOMUS OCELLATUS (*Tschudi*).

Caprimulgus ocellatus, TSCH. CONSP. WEIGM. ARCHIV. 1844, p. 268.

Tschudi, Faun. Per. Orn. Plate V, fig. 2.

This handsome and strongly characterized species appears to be peculiar to the western countries of South America. Like the preceding, it is one of the smallest of the birds of its genus, and perhaps ought to be regarded as presenting a subgeneric type. Specimens in the present collection are from Peru, in which country the species was originally discovered by the distinguished author above cited.

Though placed by us at present in the genus *Antrostomus*, this bird is different in color from the North American species of this genus, and may be the type of a peculiar subgeneric group. Specimens in the collection of the Expedition are in excellent plumage and preservation.

2. GENUS STENOPSIS, Cassin, Proc. Acad. Philad. V, p. 170 (1851).

1. STENOPSIS LONGIROSTRIS (Bonaparte).^{*}*Caprimulgus longirostris*, BONAP. Jour. Acad. Philad. IV, p. 384 (1825).*Caprimulgus bifasciatus*, GOULD, Proc. Zool. Soc. London, 1837, p. 22.*Caprimulgus decussatus*, TSCHUDI, Consp. Av. p. 8.*Caprimulgus conterminus*, PEALE, Zool. Exp. Exp. Birds, p. 109 (1848).^{*}

Atlas, Ornithology, Plate XIII, fig. 2. Adult.

This is apparently one of the most common species of the family *Caprimulgidae*, which inhabits the western countries of South America. The specimen described by Mr. Peale is not in adult plumage. According to him, it was obtained near Valparaiso, Chili, in the month of May. "It was sitting on the ground when discovered, and uttered a *cluck* when flushed."

The figure in our plate is of the natural size.

2. STENOPSIS PARVULUS (Gould).

Caprimulgus parvulus, GOULD, Proc. Zool. Soc. London, 1837, p. 22.*Caprimulgus æquicaudatus*, PEALE, Zool. Exp. Exp. Birds, p. 168 (1848).[†]

* "Head, back, and smaller wing-coverts rufous, mixed with gray, barred, and minutely spotted with dark brown; scapulars with a black centre; first four quills dark brown, crossed in the middle by an oblique rufous bar; secondaries crossed by five or six bars of rufous spots; tail slightly rounded, the two centre feathers gray, crossed by eight indistinct and broken bars of dark brown, the rest brown, crossed by numerous broken bars and spots of rufous; under coverts tawny; gular spot rufous; breast and abdomen rufous-gray, crossed by numerous small lines of dark brown; legs reddish; the toes dusky; rictal bristles strong and glossy-black; irides dark brown.

"Total length, ten and three-tenths inches; wing, from the carpal joint, six and nine-tenths inches; tail, four and six-tenths inches; tarsi, eleven-twentieths of an inch; middle toe, including the nail, one inch; nail, one-fourth of an inch; hind toe, three-tenths of an inch; nail, one-tenth of an inch; bill, three-tenths of an inch; to the angle of the mouth, one and three-tenths of an inch; second quill longest, third a trifle shorter."

† "Head and back mottled with gray, dark brown, and rufous; breast and abdomen tawny, crossed and spotted with small marks of dark brown and pale rufous; gular spot

Atlas, Ornithology, Plate XIII, fig. 1. Adult.

The specimens of this remarkable little species vary somewhat in size, but are undoubtedly this species. The larger, however, approach in some degree the preceding, and by descriptions only are difficult to be characterized so as to be readily distinguished. The present bird is the smaller, and is one of the smallest species of this family.

According to Mr. Peale, this bird was "found in considerable numbers near Callao, Peru, in the month of July. It was always on the ground during the day, and never uttered any sound when flushed."

Our figure above cited is of the natural size.

3. GENUS CHORDEILES, *Swainson*, Faun. Bor. Am. II, p. 466 (1831).1. CHORDEILES ACUTIFENNIS (*Boddaert*).

Caprimulgus acutipennis, BODD. Tab. Pl. Enl. p. 46 (1783).

Caprimulgus acutus, GMELIN, Syst. Nat. II, p. 1031 (1788).

Caprimulgus exilis, LESSON, Rev. Zool. 1839, p. 44.

Chordeiles tuberculatus, JARDINE, Ann. & Mag. Nat. Hist. 1846, p. 118.

"*Caprimulgus semitorquatus*, LINN. Gm. Pr. Max."—TSCHUDI, Fauna Peruana, Orn. p. 21.

Caprimulgus pruinosis, TSCHUDI, Av. Cons. p. 8.

Chordeiles peruvianus, PEALE, Zool. U. S. Exp. Exp. Birds, p. 172 (1848).*

white; wings dark brown; the first four quills crossed by an oblique white line, which is edged with rufous; secondaries with irregular bars of dark rufous; coverts, with a terminal spot of pale tawny, margined with dark brown; tail even or 'square'; four central feathers gray, crossed by seven irregular bars of dark brown; the rest dark brown; the inner webs tipped with white, and crossed by three bars of tawny near the body; outer web with eight or ten narrow, equidistant bars of pale rufous; tarsi covered with feathers reaching to the toes; irides brown.

"Total length, eight and three-tenths inches; wing, from the carpal joint, five and three-tenths inches; tail, four inches; tarsi, thirteen-twentieths of an inch; middle toe, including the nail, seventeen-twentieths of an inch; nail, three-twentieths of an inch; hind toe, two-tenths of an inch; nail, one-twentieth of an inch; bill, four-tenths of an inch; to the angle of the mouth, one and two-tenths inches."

* "Head, back, scapulars, and two middle tail-feathers, light gray, mixed with tawny; sagittal spot, on the upper part of the throat, white; beneath it, tawny, mottled with dusky; breast gray, finely mottled; belly, vent, and under tail-coverts pale tawny, with dusky bars; wings dusky black; the first four quills crossed at the middle by a white bar; second quill rather longer than the first; the third is shorter; tail notched, dusky; a

Buff. Pl. Enl. 732, Tschudi, Faun. Per. Aves. Pl. 6.

Naturalists might safely desist from the further describing of this species. One of the reasons, however, of its having so many names, is the fact that the acuminations at the tips of the tail-feathers, from which its specific name is derived, are not always present. This character is represented very strongly in Buffon's plate, cited above, and is frequently to be found in specimens. Occasionally, too, the shafts of the tail-feathers terminate abruptly, as if broken off, and sometimes the tail is perfect.

Mr. Peale states of this bird :

"It was found to be a common species near Callao, in Peru, during the month of July, and was seen resting on the ground only, never on fences or trees. It was not heard to utter any cry."

4. GENUS NYCTIBIUS, Vieillot, Analyse, p. 38 (1816).

1. NYCTIBIUS ÆTHEREUS (*De Wied*).

Caprimulgus æthereus, DE WIED, Reise nach Brasilien, I, p. 236.

Atlas, Ornithology, Plate XIV. Adult.

We find in the collection of the Expedition, a fine specimen of this large and well-marked species, which appears to have been obtained in Brazil. As stated by us in "Notes on the *Caprimulgidae*," in Proceedings of the Academy of Natural Sciences of Philadelphia, V, p. 185, this bird is quite distinct from *Nyctibius grandis*, or any other species. It is one of the largest birds known of this family, being fully the size of the species just mentioned.

white band crossing all except the two middle feathers; near the tip, inside of this band, are several gray mottled bars; beneath six decided white bars, the end one being the most conspicuous.

"Total length, eight and one-tenth inches; wing, from the carpal joint, six and nine-tenths inches; tail, middle feathers, three and four-tenths inches; outer feathers, four inches; tarsi, half an inch; middle toe, including the claw, seven-tenths of an inch; claw, two-tenths of an inch; pectination very conspicuous; hind toe, one-fourth of an inch; claw, one-twentieth of an inch; bill, two-tenths of an inch; to the angle of the mouth, nine-tenths of an inch."

In the bird now before us, the ear-like tufts over the eye, which are to be found in several others of this genus, are very obvious, and give to it an additional owl-like character. We are not aware that this species has ever before been figured.

This remarkable bird is represented in our plate above cited, of the natural size.

3. FAMILY HALCYONIDÆ.—The Kingfishers.

1. GENUS CERYLE, *Boie*, *Isis*, 1828, p. 312.

1. CERYLE ALCYON (*Linn.*).

Alcedo alcyon, LINN. Syst. Nat. I, p. 180 (1766).

Alcedo ludoviciana, GM. Syst. Nat. I, p. 452 (1788).

Alcedo jaguacati, DUMONT, Dict. Sci. Nat. I, p. 455 (1816).

Buff. Pl. Enl. 593, 715; Wilson, Am. Orn. III, Plate XXIII, fig. 1; Aud. B. of Am. Plate LXXVII; oct. ed. IV, Plate CCLV.

This species was observed by the naturalists of the Expedition in Oregon and California, occurring more commonly, according to Dr. Pickering, in the latter country. It inhabits, therefore, the entire continent from the Atlantic to the Pacific Ocean, and its range of latitude very probably embraces the whole of temperate North America.

Dr. Pickering occasionally mentions a bird of this group which he states was apparently smaller than the present species. We have also had similar representations made to us by other gentlemen who had visited California, but have never seen any species of kingfisher from that or any other country of Western North America, except the bird now before us. It is possible that it may be a species unknown to naturalists, or perhaps *Ceryle americana*, which has been found in Texas and Mexico, and is a small species. We have also seen *Ceryle amazona* from Mexico, which is, however, but slightly smaller than our present bird.

Ceryle americana inhabits the shores of the Rio Grande, and very probably the whole of Mexico, and may extend its range of locality at least into Southern California. Notwithstanding, however, the

recent extensive investigations and explorations in Western North America, the Zoology of that immense region is yet but fairly entered upon only, and very far from being exhausted. The existence of unknown species in any group of birds is by no means to be doubted, so far as relates to the immense regions between the Rocky Mountains and the Pacific Ocean.

2. GENUS *TODIRAMPHUS*, Lesson, Voy. Coquille, Zool. I, p. 684 (1826).

1. *TODIRAMPHUS TUTA* (Gmelin).

Alcedo tuta et sacra, GM. Syst. Nat. I, p. 453 (1788).

Alcedo collaris, FORSTER, Desc. An. p. 162 (1844).

Dacelo coronata, PEALE, Zool. U. S. Exp. Exp. Vincennes, Birds, p. 160 (1st edition, 1848)*.

"*Alcedo venerata*, GMELIN," Pelzeln. Sitzungs. Akad. Vienna, XX, p. 503 (1856).

Plate XV, fig. 1, Adult. 2, 3, Young.

There is not, perhaps, in the entire circle of Birds, a genus, the species of which are more difficult to determine or more liable to be confounded, than those of the genus *Todiramphus*. In the colors of many of the species there is so much similarity that the consideration of form and measurements as specific characters becomes of a high degree of importance, and there are few groups in which these characters assume such a great value. Several species present marked differ-

* "Crown, back, wings, and tail blue; auriculars black, tipped with blue, a black line reaching from them around the back of the head; throat, coronal band, collar, breast, belly, vent, and under tail-coverts white; collar margined with black and shaded with buff; coronal band also edged with buff; under wing-coverts pale buff; quills dusky, the outer margins blue, shafts dusky beneath, black above, third and fourth quills equal, slightly longer than the second, first and fifth equal; tail rounded, shafts dusky beneath, black above; bill nearly black; lower half of the under mandible white; legs dusky; irides brown.

"Total length, nine inches; extent of wings, thirteen and a half inches; wings, from the carpal joint, three and eight-tenths inches; tail, two and six-tenths inches; tarsi, six-tenths of an inch; middle toe, including claw, seventeen-twentieths of an inch; claw, three-tenths of an inch; hind toe, half an inch; claw, two-tenths of an inch; bill, one and four-tenths of an inch; to the angle of the mouth, one and nine-tenths of an inch. Adult male."

ences in the plumage of the adult and young birds, scarcely possible in all probability to be accurately stated in many of them with our present knowledge, and there are also several species that show that almost peculiarly intimate relationship to which we have frequently alluded in the present volume, as being found to exist in birds inhabiting different islands or groups of islands in the Pacific Ocean.

A close relationship appears as obvious in the present genus, as in any other with which we are acquainted. It is so great, that taking the *Todiramphus chloris* (which is *Alcedo chlorocephala*, Gmelin), as a type of the genus, nearly all the other species so much resemble it, that they may almost be regarded as mere variations of the same form and colors, passing through various shades only of the latter, and modifications of size and the dimensions of the different parts of the body and its members. This genus is what some naturalists would designate a very natural group.

The short and sometimes very imperfect descriptions of the birds of this genus, by the older naturalists, and the rarity of several species in museums on account of their native localities being comparatively seldom visited by voyagers, have rendered the determination of the synonymy, and in fact, the recognition of some described species of this group, a matter of no inconsiderable difficulty. From these causes, too, confusion has arisen in the works of recent learned and reliable ornithologists.

In a future page we shall give the results of an attempt to arrange this group, not without being aware of its intricate character, as we hope to have shown to the reader and to our co-laborers in the great field of Zoological science. We have endeavored also to have our figures prepared with all possible accuracy.

The bird now before the reader we regard as undoubtedly *Alcedo tuta* of Gmelin, and *Alcedo sacra* of the same author (Syst. Nat. I, p. 453), the former being the young (Plate XV, fig. 3, of the Atlas to the present volume), and the latter (fig. 1), the adult, or at least in as adult plumage as we have ever had an opportunity of examining. This bird (the adult), is the same species described and figured by Lesson as *Alcedo sacra*, in Mem. Soc. Hist. Nat. Paris, III, Pl. XI.

Though *Todiramphus divinus*, of the same author (Memoires, as just cited, III, p. 422, Pl. XII), bears a considerable resemblance to the young of the present species, it is quite distinct, and readily detected on comparison of specimens. These species have, however, been re-

garded as the same by very competent authors, but evidently to us, erroneously. We regard the two species described and figured by M. Lesson, as above referred to, as clearly distinct from each other and well established. The error of authors has been mainly in mistaking the young of *T. tuta* for *T. divinus*, which it resembles. Professor Reichenbach in "Die Vollständigste Naturgeschichte," Birds, Plate CCCCXXIII, figs. 3148, 49, 50, 51, has figured the two species here alluded to, under the names *Todiramphus sacer* and *tutu*. The latter apparently represents *T. divinus* (figs. 3150, 51), but the specimens figured in this great work, were not in mature plumage. Several species figured by this author and arranged in *Todiramphus*, do not belong to this genus (for instance, *Haleyon luzuli* and *H. diops*). This is also the case in Bonaparte's *Conspectus Avium*, p. 156.

In an interesting and valuable paper on little-known species of birds described by various authors, the types of which are in the Imperial Museum at Vienna, in "Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften," XX, p. 492, by M. Von Pelzeln, of the Imperial Museum, the original specimen of *Alcedo venerata*, Gmelin, from the Leverian Museum is re-described. It appears to have been acquired by the Austrian Government at the public sale of the Leverian Museum in 1806, and its examination and description by M. Von Pelzeln, is in the highest degree interesting, and a valuable contribution to descriptive Ornithology. According to this description, it is evidently the young of the present bird, or in very nearly that stage of plumage which is *Alcedo tuta*, Gmelin.

Dr. Pickering gives the following:

"The Ornithology of these islands" (the Samoan or Navigator), "is much more rich and varied than is generally supposed, especially in the large Island of Savai, and we have reason to think that we have by no means exhausted it. It is remarkable that among land birds we did not find a single species common to this group and to the Society Islands. The pigeons are still the prevailing family, and as in the group just mentioned, we notice no bird of the *Falcon* family. Sea-birds do not seem abundant, probably as at Tahiti, on account of the coast being inhabited.

"This kingfisher is common in the Islands of Tutuila and Upolu, and is generally seen sitting solitary and silent on a branch, or occasionally uttering a harsh note. Tongue very short and broad, and apparently fleshy to its apex."

Mr. Peale observes of this bird :

"The subjects of the present descriptions were killed at the Island of Tutuila, on the fourteenth of March; they did not appear to be so numerous on the other islands of the Samoan Group, although it is believed they inhabit all. We found them frequenting the cocoanut and bread-fruit groves, always in the vicinity of the native habitations. They are now regarded by many as a sort of domestic appendage, but are not sacred as some of the genus were at the Society Islands when first discovered.

"The young birds of all the species of this genus which we have seen, have the upper mandible hooked; the hook gradually wears away as the bill grows, until finally, by the time they are full grown and the birds have attained the plumage of the second year, there is no vestige of it left."

In the plate of our Atlas, this bird is represented of the size of life. Fig. 1 is the adult male, figs. 2 and 3 are young birds; the last is in the plumage described by Gmelin as *Alcedo tuta*, and which has been mistaken by authors for *T. divinus*, Lesson.

2. TODIRAMPHUS VITIENSIS (Peale).

Dacelo vitiensis, PEALE, Zool. U. S. Exp. Exp. Birds, p. 156 (first edition, 1848).

Atlas, Ornithology, Plate XVI. Adult, and young.

Supra ultramarina, uropygio ad cobaltinum vertente, collari et corpore subtus flavis abdomine saturatiore. Long. 8½ pollices.

FORM.—Short and robust; bill strong; wings short, second, third, and fourth quills longest and nearly equal; tail short, rounded.

DIMENSIONS.—Total length (of skin), adult, eight and one-fourth inches; wing, three and a half inches; tail, two and three-fourths inches. "Extent of wings, twelve and a half inches" (Peale).

COLORS.—Stripe from the nostril over the eye to the occiput, light reddish-yellow (or sienna-yellow). Head above from the bill to the occiput, glossy ultramarine blue, changing to green in some lights,

which color is inclosed, except in front, by the stripe from the nostril. At the base of the bill, slightly below the base of the lower mandible and behind the eye, a stripe of the same blue extends to the occiput, all the feathers of which (stripe) are black at their bases, readily showing that color when disarranged. Back blue, tinged with green; rump blue (cobalt); wings and tail ultramarine.

Entire under parts of the body, inferior coverts of the wings, and a narrow collar on the neck behind, fine sienna-yellow, palest and nearly white on the throat, and deepest on the abdomen and nuchal collar. Tibiæ reddish-yellow, with a few brownish feathers; bill dark, with a large light-colored spot at the base of the lower mandible. "Legs dusky flesh-color; irides brown" (Peale).

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington.

One of the most handsome birds of this group, and which we have not been able to refer to any description with which we are acquainted. It resembles in a considerable measure, the preceding (*T. tutu*), but is smaller, and the under parts at all ages are handsome reddish-yellow, somewhat similar in shade to that color in *T. vagans*, but paler and more delicate. It is evidently a distinct species, and is apparently peculiar to the Feejee Islands.

Several specimens of this bird are in the collection of the Expedition.

According to Mr. Peale: "This pretty species is distributed over a greater part of the Feejee Group of islands. It is solitary in its habits, frequents the mangroves which skirt the inner verge of the coral belts, and is most commonly found near the salt water, where fish and crabs abounding, would lead us to suppose that such were its food, but we never saw it capture anything but insects; fragments of grasshoppers were the ordinary contents of the stomachs of those we dissected. We were not so fortunate as to find the nest or eggs of this species, but killed numbers of the birds, as they were quite common. The females scarcely differ from the males when in full plumage, but are not quite so richly colored."

The fact that the birds of this genus are at least partially insect-eaters, and in some species perhaps mainly dependent on that description of food, is well established by the observations of the naturalists of the Expedition. *T. vagans*, however, according to Dr. Pickering,

appears to be rather an exception, as will appear from his notes in our article on that species. It may be stated generally, that these birds do not capture fishes at all, nor do they show address and courage in plunging into the water like nearly all the birds of this family, but subsist mainly on the lower orders of animals, reptiles, crustacea, and insects. Some species, it is stated, live exclusively in the forest, without even showing any considerable partiality for the vicinity of water.

Our plate represents the adult male and young female of this species of the natural size.

3. TODIRAMPUS VAGANS (*Lesson*).

Alcedo vagans, LESSON, Voy. Coquille, Zool. I, p. 694 (1826).

Alcedo cyanea, FORSTER, Desc. An. p. 76 (1844).

Voy. Erebus and Terror, Birds, Plate I; Reichenbach, Birds, Plate CCCCXIX, figs. 3138, 39.

Numerous specimens of this species are in the collection, all of which are from New Zealand. It is one of the handsomest of the birds of this difficult group, and is one of the most easy to be recognized, though presenting some sexual and other variations in plumage. It appears to have been the only species of the Genus *Todiramphus* observed by the naturalists of the Expedition to prey on fishes.

Of this species, Mr. Peale observes :

"In the recesses between the numerous promontories in the Bay of Islands, extensive groves of trees (*Abiesenia tomentosa*), may be seen growing in the salt water, like mangroves, which are the resorts of ducks, cormorants, and other water-fowl, when the tide rises sufficiently to overflow the soil on which they grow. In such localities we have seen the white-fronted *Dacelo* perched on a dead branch, patiently watching the small fishes. It would plunge into the water, seize and carry its struggling prey to the nearest branch, and there swallow it whole, precisely in the same way and with as much skill as a true kingfisher. At other times, we have followed and shot it in retired forests, where its food was insects."

In Dr. Pickering's notes we find the following in allusion to the present species :

"On the shores of the Bay of Islands, this bird is frequently to be seen perched in the trees, and generally in the immediate vicinity of the water. I did not observe it in the interior of the island. It appears to be solitary and usually silent, though it occasionally uttered a harsh note several times repeated.

"Notwithstanding the fact that nearly related species previously seen by us live habitually in the forests and subsist on land animals, the New Zealand bird has entirely the habits of a kingfisher. I have myself seen it dart into the water after fishes in the same manner."

4. *TODIRAMPHUS RECURVIROSTRIS*, *Lafresnaye*.

Todiramphus recurvirostris, LAFRESNAYE, Rev. Zool. 1842, p. 134 (May).

Halcyon platygrostris, GOULD, Proc. Zool. Soc. London, 1842, p. 72 (June).

Ducelo minima, PEALE, Zool. U. S. Exp. Exp. Birds, p. 159 (1st edition, 1848).*

Atlas, Ornithology, Plate XVII, figs. 1, 2. Male and Female.

Of this, the smallest species of this group yet known to naturalists, we have given figures of adults of both sexes, though well described by the distinguished authors above cited. Several specimens, all of which are from the Samoan Islands, are in the collection of the Expedition, and are generally in excellent plumage and good condition.

* "Crown, back, wings, and tail, cobalt blue; rump lighter; scapulars with a slight tinge of green; collar buff, margined with black, just above it a white nuchal spot, not visible without raising the feathers, which have a white band near the end; auriculars black, tipped with blue, a pale buff spot over each nostril, which joins a narrow superciliary line; throat white; breast, belly, vent, and under tail-coverts, buff or pale cinnamon, darkest near the vent, and gradually fading into the white of the throat. Tail slightly rounded, consisting of twelve feathers, dark lead-color on the under surface, shafts white beneath, black above; wings rounded; primaries black, the outer edge blue, third longest, first and fifth equal; under wing-coverts buff; all the plumage except that of the throat, black near the skin; bill much flattened and shaped like that of *D. nullitorquis*; irides hazel; feet bluish lead-color.

"Total length, seven and three-eighths inches; extent of wings, eleven and a half inches; wings, from the carpal joint, three and a half inches; tarsi, half an inch; middle toe including the nail, seven-tenths of an inch; nail, one-fourth of an inch, broad and flattened to a sharp edge inside; hind toe, four-tenths of an inch; claw, two-tenths of an inch; tail, two and three-tenths inches; bill, one and one-twentieth of an inch; to the angle of the mouth, one and a half inches. Male."

The name *recurvirostris*, applied to this little bird by the Baron Lafresnaye, is that entitled to adoption on account of a very short period of priority. It cannot be regarded, however, as appropriate in any very considerable degree, as the bill of this species is no more recurved than that of other species of this genus, and is only characteristic of young birds, to such extent as to warrant a special designation. The recurved character in adult birds of this group is of the lower mandible only, and very similar in various species.

Mr. Peale's remarks on this bird are as follows :

"This is the smallest species of the genus observed by the members of the Expedition. It was found at the Island of Upolu, one of the Samoan or Navigator's Group, and there confined itself within the recesses of the forest. In manners it much resembles the jacamars (*Galbulæ*), of South America, sitting for hours, as they frequently do, to watch for passing prey. It prefers the shady humid woods; there the snap of its bill, while catching insects by darting from its perch, will probably first call the attention of the hunter to it. Like most of its congeners, it is noisy, but its notes have nothing but their peculiarity to recommend them.

"The females are similar to the males in dimensions and appearance, but they are not so deeply colored, and the blue inclines to a green."

Our figures of this bird are of the size of life, and represent both sexes.

5. *TODIRAMPHUS DIVINUS*, Lesson.

Todiramphus divinus, LESS. Voy. Coquille, Zool. I, p. 667 (1826).

Dacelo nullitorquis, PEALE, Zool. U. S. Exp. Birds, p. 155 (1st ed. 1848).*

Atlas, Ornithology, Plate XVIII, figs. 1, 2, Adults, 3, Young.

* "Head, neck, back, and rump, olive-green; wings dusky verditer-blue, the inner webs of the quills black, third primary longest, under coverts white; tail slightly rounded, above dusky verditer-blue, beneath black; shafts dusky; under coverts white; throat, breast, and abdomen white; bill black above, white beneath; legs dusky red; all the plumage black at the roots, excepting that of the throat, which is entirely white; irides brown. Male.

"Total length, seven and a half inches; bill, one and one-tenth of an inch; to the gape, one and four-tenths of an inch; tarsi, eleven-twentieths of an inch; middle toe, half an inch; claw, one-fourth of an inch; tail, two and seven-tenths inches; wing, from the carpal joint, four inches."

Numerous specimens of this plain but interesting little species are in the collection, and are remarkably uniform in their characters, presenting only differences of minor importance. It appears to inhabit exclusively the Society Islands.

This bird has frequently been confounded with the young of *Todiramphus tuta* (Gmelin), which is the same as *T. sacer*, of the same author, and resembles it very considerably. The two species are, however, quite distinct, and are not difficult to distinguish from each other, on comparison, the present being the smaller. Other points we hope to render intelligible in a synopsis of the species of this genus in the pages succeeding, with the assistance of figures given in the Atlas to our present volume.

In adult plumage, this is one of the most easily recognized birds of the genus *Todiramphus*, and is one of the plainest in plumage, having no pretensions to that beauty of plumage which characterizes nearly all the species of this group. It is, too, a species not very nearly resembling any other when adult, except as above stated, bearing some resemblance to the young of *T. tuta*.

Under the head of this species, Mr. Peale gives the following:

"A party from the Exploring Squadron crossed the Island of Tahiti, from Point Venus, Matavai Bay, following the course of the River Popino, and crossing Lake Waharea to the opposite coast at Wairidi. The route was both difficult and dangerous, owing to the incessant rains which fall on the upper parts of the mountains, and nourish a profuse vegetation on places so steep that it appears to us impossible that the heavy trunks of the *fe'i's* or wild plantains, arborescent ferns, other plants, and even trees, should find sufficient soil to support their roots. By these, in some places, we were obliged to climb in positions which were really frightful, but were gratified by seeing the breeding-places of sundry sea-birds, including the *Æthereal* Tropic bird, Petrels, and the pretty *Thalassidroma pacifica*, all of which secure their eggs and young in holes, while on the less steep ridges, we found Wilkes's pigeon, doves, and many smaller birds.

"In the secluded valleys, the dead silence which generally prevailed was now and then disturbed by the garrulity of a homely bird, the subject of our present description, as it flew from one dead tree to another, where, watching for its prey, which consists of insects, it is usually silent."

We have to regret that we find so little recorded by the naturalists

of the Expedition in reference to this curious and apparently common species. It appears to be, at least to some extent, an insect-eater, though perhaps not exclusively.

We have seen this singular little species only from the Society Islands, and almost without exception from the Island of Tahiti, though we have occasionally seen it cited as an inhabitant of the Sandwich Islands. It may inhabit the latter; but specimens have never come under our notice.

This species may be regarded as the type of a peculiar group, probably subgeneric in its character. It is one of the smallest, as well as plainest colored of the birds of this genus.

The figures in our plate are of the size of life. The adult male and female are represented in figs. 1 and 2, the young in fig. 3. All are from specimens in the collection of the Expedition.

AN ATTEMPT TO ARRANGE AND DESCRIBE THE SPECIES OF
BIRDS OF THE GENUS *TODIRAMPUS*, LESSON.

GENUS *TODIRAMPUS*, Lesson, Voy. Coquille, Zoologie, I, p. 684
(Quarto, Paris, 1826).

ORIG. DESC.—(Types *T. tuta* and *T. Divinus*.) “*Ces todiramphes ont le bec droit, à mandibule inférieure très-légèrement renflée, très-déprimé, plus large que haut, sans arête, à mandibules égales, obtuses au bout et aplaties, à bords entièrement lisses; narines basales en fissure oblique très-peu apparente, bordées par les plumes du front; ailes courtes, arrondies, première rémige plus courte, la quatrième, la plus longue; queue longue, à rectrices égales au nombre de douze; tarses allongées médiocres, reticulées.*”

DESCRIPTION BY US.—Bill straight, broad and depressed, with the ridges of both mandibles more or less rounded and obscure or obsolete; inferior mandible curved upwards from about its middle; commissure nearly straight or slightly curved upwards. Nostrils small, basal; inserted obliquely.

Wings short, rather rounded, first quill shortest, third and fourth usually longest; tail moderate, composed of twelve feathers, generally slightly rounded; tarsi and feet weak, and covered with scales, the latter with the outer and middle toes united to their first joint; claws rather large, curved.

General form short and robust, allied to *Haleyon*, Sw., from which all the species that we have seen may readily be distinguished by the more flattened bill, in which the ridges are scarcely discernible (compared with *H. smyrnensis*, *atricapillus*, and *cyanovenstris*). In *Haleyon*, the bill is nearly quadrangular, and the ridges of both mandibles strongly defined.

Colors of the typical species, generally light-blue (ultramarine and cobalt), with various shades of green (mostly prussian-green), white, and fine orange or buff (sienna). Other species are deep brownish-green, and white; and others of various shades of reddish-brown, green,

and white. Typical species, *T. chloris*, and others, intimately resembling each other. The orange or buff colors appear to prevail, especially in the males when fully adult, but in some species in the young birds.

Species of this genus apparently inhabit all the many islands of the Pacific and Indian Oceans, and some species bear intimate resemblance to each other, but are peculiar to different groups of islands.

A. The species which are well established, and of all of which specimens are now before us, are as follows:

1. *TODIRAMPHUS CHLORIS* (Bodd.).

Alcedo chloris, BODDAERT, Tab. des Pl. Enl. p. 40 (Folio, Utrecht, 1783).

Alcedo collaris, SCOPOLI, Del Flor. et Faun. Insub. pt. II, p. 90 (1786).

Alcedo chlorocephala, GMELIN, Syst. Nat. I, p. 454 (1788).

Todiramphus superciliosus, GRAY, Reichenbach, Vollst. Naturg. Pl. CCCCXVIII, figs. 8184, 35.

Buff. Pl. Enl. 783, fig. 1; Swains. Zool. Ill. I, Plate XXVII; Reichenbach, Vollst. Naturg. Birds, Plate CCCCXVII, figs. 3128, 29.

FORM.—Bill rather compressed towards the point, and with the inferior mandible but slightly curved upwards. Wings with the third quill slightly longest, but with the fourth nearly equal; tail distinctly rounded.

DIMENSIONS.—Total length (of skin), from tip of bill to end of tail, about nine inches; wing, four and one-fourth inches; tail, two and three-fourths to three inches.

COLORS.—A distinct narrow stripe of white from the aperture of the nostril to the eye, and slightly over it, but in some specimens with difficulty traceable to the occiput, on which is a concealed transverse bar of white, formed by every feather having a subterminal bar of this color, and tipped with greenish-blue. Space between the eye and bill black. A broad band commencing at and slightly under the base of the lower mandible, extending to the occiput, composed of feathers which are black at their bases and narrowly tipped with blue. This

band appearing nearly black in some specimens; in others, scarcely to be distinguished from the similar blue of the head.

Head above and superior surface of the body, prussian-green, changing to cobalt-blue on the rump, and ultramarine on the wings and tail.

Entire inferior surface and broad ring around the neck, pure white.

The white spot between the eye and the bill, slightly tinged with fulvous in some specimens, and the inferior surface of the body also very slightly so tinged occasionally, but no trace of fulvous on the occiput, nor of any decided or strong shade of this color on any part.

Bill, with the upper mandible and tip and edges of the under mandible, dark brownish-black, other portion of the under mandible white. Tibia brown, with some bluish feathers.

Young male? Similar to the adult, but with the white stripe from the nostril to the occiput well defined; plumage of the breast narrowly tipped and edged with black; wing-coverts edged with yellowish-white. In another nearly adult specimen from Timor, the superciliary stripe does not exist, and in other respects also it is precisely identical with specimens from Java. This stage of plumage appears to be the bird figured by Reichenbach (Pl. CCCCXVIII, figs. 3134, 35), as *T. superciliosa*, Gray.

Ten specimens of this well-known species are before us, four of which are from the Island of Java, two from Borneo, three from unknown localities, and one represented to be from Abyssinia.

This species appears to be widely distributed throughout the islands of the Malay Archipelago, and the Philippines. We cannot see that there are any differences in the descriptions or figures which we have cited, sufficient to raise a presumption that they apply to distinct species. Gmelin's name is given on the faith of Buffon's description and figure, who, although he first describes the bird as from the Cape of Good Hope, subsequently in the same article states that it inhabits the Island of Bouru.

Scopoli's name is given to a bird described and figured by Sonnerat, in "Voyage a la Nouvelle Guinée," III, p. 67, Pl. XXXIII (Quarto, Paris, 1776). Sonnerat's figure is scarcely recognizable, which is the case with many others in his plates, but it and his description appear to be applicable to the same species described by Gmelin.

There are very slight traces in any of the specimens that we have

seen, of the fine sandy fulvous (sienna), superciliary, or occipital stripes, and none of that color on the under parts of the body, which prevail to a greater or less extent in several of the succeeding species described in this synopsis. There is no distinct superciliary white stripe from the bill over the eye to the occiput in specimens which appear to be adult, much less does that character appear well defined and conspicuous at all ages, as in several of the following, though in general characters, they may be regarded as nearly allied to the present bird. It is possible, however, that the distinctness of the superciliary stripe may be more characteristic of the young of the present bird.

The species now before us, is the best known and apparently the most common and widely diffused bird of this genus.

2. *TODIRAMPHUS OCCIPITALIS*, *Blyth*.

Todiramphus occipitalis, BLYTH, Jour. As. Soc. Bengal, XV, pp. 23, 51 (1846).

Atlas, Ornithology, Plate XIX, fig. 1. Adult.

Very similar in form and colors to the preceding species (*T. chloris*), but with rather a broad and well-defined stripe of white from the nostril over the eye to the occiput, which stripe in the young bird is tinged with fulvous.

Adult. Entire upper parts of body, wings, and tail, blue, tinged on the back with dull green; under parts white. A conspicuous stripe from the nostril over the eye to the occiput white, beneath which is another broad stripe, from the base of the bill, through and under the eye black, tinged with blue, both the white and black stripes very conspicuous on the occiput. Young, with the plumage of the upper parts more tinged with green, and the superciliary stripe and under parts tinged with fulvous.

DIMENSIONS.—Total length (of skin), about nine inches; wing, four and one-fourth inches; tail, three inches; bill, two and one-fourth inches.

HAB.—Nicobar Islands. Timor. Specimen in Mus. Acad. Philadelphia.

Of this species, we have seen only a single specimen which is in nearly adult plumage; and is labelled as from the Island of Timor. It is very nearly related to *T. chloris*, from which in fact it is difficult to distinguish it by any other character than its white superciliary stripe. We copy the description of the young bird from that by Mr. Blyth, as above cited, though all the characters are to be seen in the present specimen, though but faintly marked.

Our plate represents this bird of the size of life.

3. TODIRAMPHUS TUTA (Gm.).

Alcedo tuta et sacra, GMELIN, Syst. Nat. I, p. 453 (1788); LESSON, Voy. Coquille, Zoologie, I, p. 686, and Mem. Soc. Hist. Nat. Paris, III, p. 421, Pl. XI (1827).

Alcedo venerata, GM. Syst. Nat. I, p. 453; PELZELN, Sitzungs Akad. Vienna, 1856, p. 503.

Dacelo coronata, PEALE, Zool. U. S. Exp. Exp. Birds, p. 160 (1st edition, 1848).

Dacelo albifrons, PEALE, Zool. U. S. Exp. Exp. Birds, p. 162 (no description).

Atlas, Ornithology, Plate XV.

Having before us fifteen specimens of this very difficult species, we propose to describe the four stages of plumage into which they appear to us to admit of division. Seven of these specimens are from Tutuila, one of the Samoan Islands, and belong to the collection made by the Expedition; two others, marked as from Viti, one of the Feejees, belong to the same. One other, the most adult, is from Tahiti, one of the Society Islands, and five others are from Borabora, another of the Society Islands. The latter belong to the collection of the Philadelphia Academy. We may, perhaps, be excused for premising that the young bird of this species bears a remarkable resemblance to *Todiramphus divinus*, Lesson (described below), but is clearly distinct. The two specimens from Viti are the larger.

Adult male, is *Alcedo sacra*, Gm. (Pl. XV, fig. 1), which is described subsequently to *A. tuta*, of the same author.

ORIG. DESC.—“*A. ex dilute caeruleo viridis, sultus alba, superciliis pallide ferrugineis, remigibus caudaque nigricantibus. Habitat in insulis Societatis.*”

FORM.—Compact and robust. Smaller than the preceding; bill shorter; tarsi and toes more slender, and the latter shorter. Wings, with the third quill slightly longest, but nearly equalled by the second and fourth; tail rounded.

DIMENSIONS.—Total length of skin, from tip of bill to end of tail, about eight and a half inches; wing, three and three-fourths inches; tail, two and three-fourths inches.

COLORS.—A conspicuous band from the nostril over the eye to the occiput, white, tinged with orange. Head above from the bill to the occiput, fine blue, which color is completely inclosed, except at the base of the bill, by the white band commencing at the nostril, the orange tinge of which latter is most observable on the edges of this blue color. At the base of the bill, slightly under its base, and from behind the eye, a band of the same fine blue extends to the occiput, but the feathers of which are black at their bases; back, rump, wings and tail blue, with a shade of prussian-green on the back, and inclining to ultramarine on the wings and tail, and cobalt on the rump. Entire inferior surface of the body, and collar around the neck, white. Tibia blue; bill, with the superior and point of the inferior mandible, brownish-black; base of the inferior mandible white.

Young male? is *Dacelo coronata*, Peale (Pl. XV, fig. 2).

Bill rather shorter than in the adult. Broad frontal band and wide stripe extending over the eye to the occiput, white, tinged with orange buff. Vertical spot fine blue, widely edged with the deep orange buff which fades into white; band from behind the ear to the occiput narrow, with the blue color distinct only immediately behind the eye, and nearly black thence to the occiput. This occipital band almost obsolete in some specimens, or its place only indicated by a band of pale orange.

Entire inferior surface from the base of the under mandible and wide collar around the hind neck white, in some specimens, slightly tinged with very pale buff, and the collar on the neck behind, edged with a deeper tint of the same color. Back, rump, wings, and tail, as in the adult. Tibia brownish, with some feathers of pale blue, and others of buff; bill as in the adult.

Specimens from Tutuila, in the Samoan Islands.

Male scarcely adult? is the bird described and figured by Lesson as *Alcedo sacra*, Gm.

Similar to the immediately preceding (young male?), but with the frontal, superciliary and occipital band pure white, or so very slightly tinged as to be almost imperceptible; under parts of the body white. Vertex and back with the green predominating, and in some specimens, such is the case on the wings and tail; rump blue, deeply tinged with green, and with a few whitish feathers. Tibia with brown and white plumage; bill as in preceding. In some specimens, the white color predominates on the head.

Specimens from Borabora, in the Society Islands.

Young, is *Alcedo tuta*, Gmelin (Pl. XV, fig. 3).

ORIG. DESC.—“*A. macroura*, *supra olivacea*, *subtus alba*, *superciliis albis*, *torque ex virescente nigro*. *Rostrum nigrum*, *mandibula inferiore alba*, *pedes nigri*. *Habitat in insula Tuhiti*, *incolis sacra*, $8\frac{1}{2}$ pollices longa.”

Stripe from the nostril over the eye to the occiput white, tinged with buff, and many feathers edged and tipped with greenish; band from behind the eye to the occiput, brownish-black; collar on the neck behind, pale buff, every feather tipped with brownish-black. Head above brownish-green, which is also the color of the back, darker and inclining to brownish-black near the neck; wings and tail deep prussian-green; wing-coverts and feathers of the rump and upper tail-coverts, tipped and edged with yellowish-white.

Breast, with an obscure transverse broad band of brownish-black, formed by the feathers having narrow tips of that color; throat and other inferior parts of the body, white. Tibia brown and white; bill as in the preceding.

Specimens described are from Borabora, one of the Society Islands.

This species, in this stage of plumage, resembles *Todiramphus divinus*, Lesson. It is, however, much larger, exceeding that species upwards of an inch in its total length, and is of different colors. *T. divinus* has not the superciliary stripe which is very distinct in this species, in all of the plumages above described.

This bird inhabits, apparently, the Samoan, Society, and Feejee Groups of Islands in the Pacific Ocean.

The name "*Dacelo albifrons*, Peale, MSS.," as above cited, is given by Mr. Peale as a synonyme for *Todiramphus vagans*, but the specimen in the collection of the Expedition to which this name is attached, is the young of the present species.

4. *TODIRAMPUS VITIENSIS* (Peale).

Dacelo vitiensis, PEALE, Zool. Voy. Vincennes and Peacock, Birds, p. 156 (1st ed. 1848).

Atlas, Ornithology, Plate XVI.

Of this species, which is nearly related to the last, we have seven specimens belonging to the collection made by the Expedition, and collected in the Feejee and Tonga Islands. They are invariably smaller than the species immediately preceding (*T. tuta*), and present other differences.

Male, adult? from Venua Levu, one of the Feejee Islands.

FORM.—Short and robust; wings short, with the second, third, and fourth quills very nearly equal and longest; tail rounded.

DIMENSIONS.—Total length of skin, from tip of bill to end of tail, about eight and one-fourth inches; wing, three and a half inches; tail, two and three-fourths inches.

COLORS.—Stripe from the nostril over the eye to the occiput, fine orange buff. Head above from the bill to the occiput, fine blue (ultramarine), with a shade of green, which color is inclosed, except in front at the base of the upper mandible, by the buff stripe commencing at the nostril. At the base of the bill, slightly under the lower mandible and from behind the eye, a stripe of the same blue extends to the occiput, all the feathers of which (stripe) are black at their bases, and appearing black when disarranged. Back blue, deeply tinged with prussian-green; rump cobalt-blue; wings and tail ultramarine.

Entire inferior surface of the body, under wing-coverts, and narrow collar around the hind neck, fine buff or *terra de sienna*, palest and

nearly white on the throat, and deepest on the abdomen and collar. Tibia buff, with a few brownish feathers. Bill dark, with a large white spot at the base of the lower mandible.

Younger male, from Ovolau, in the Feejee Islands.

Superciliary stripe deep orange; head and back more strongly tinged with green, and the stripe from behind the eye nearly black. Superior wing-coverts edged with buff. Inferior parts of the body and collar on the neck behind nearly pure white; plumage on the breast slightly margined with black. Tibia with more brown feathers than the last.

Male? from Viti Levu, one of the Feejee Islands.

Superciliary stripe narrow, and much less tinged with orange; in some specimens nearly white, and in others, almost obsolete. Back prussian-green. Inferior parts of the body and collar on the neck behind white; plumage on the breast slightly margined with black. Tibia with the brown feathers predominating.

There are in the collection of the Expedition two specimens, from a locality not stated, which I have, with some hesitation, concluded to refer to this species. They are both young birds, and present a remarkable character in the almost total obliteration of the superciliary stripe which so strongly marks other stages of plumage of the species now under consideration. These two specimens bear a great general resemblance to the common *T. chloris*, of Java, but are much smaller.

This is one of the most handsome species of this group, and in adult plumage is not difficult to recognize. The young, however, bears some resemblance to that of several other species, especially to the preceding.

5. *TODIRAMPHUS VAGANS* (Lesson).

Alcedo vagans, LESSON, Voy. Coquille, Zoologie, I, p. 694 (1826).

Alcedo cyanea, FORSTER, Desc. An. p. 76 (1844).

Voy. Erebus and Terror, Birds, Plate I; Reichenbach, Vollst. Naturg. Birds, Plate CCCCXIX, figs. 3138-39.

FORM.—About the size of *T. chloris*; bill and wings shorter; bill rounded above, but not flattened; ridge of the under mandible ascending from near the base. Wing rather short, second quill slightly longest; tertiaries nearly as long as the primaries; tarsi and toes short, moderate, or rather slender.

DIMENSIONS.—Total length (of skin), about eight and three-fourths inches; wing, three and three-fourths inches; tail, two and three-fourths inches.

COLORS.—Adult. Head above, back, and scapulars, dull green, with a tinge of blue behind the eye and on the occiput; wing-coverts, outer webs of quills, rump, and tail above, blue, lightest on the rump. Throat white; wide collar around the back of the neck, spot before the eye, and entire under parts (except throat), fine dark buff. A narrow and short superciliary line, white; a band from the base of the bill, under the eye to the occiput, black, tinged with greenish; a partially concealed spot of white on the occiput. Inner webs of quills and tail beneath brownish-black; quills edged with dull white on the inner webs. Younger. Head above, back, scapular, and wing-coverts, dull brownish-green, the last (wing-coverts) tipped with dull yellowish; throat white; other under parts dull yellowish or buff, paler than in the adult; feathers of the breast tipped with dark-brown, predominating on the sides (of the breast).

HAB.—New Zealand. Specimen in Mus. Acad. Philad., and Nat. Mus. Washington.

A rather strongly marked species comparatively, and in adult plumage, or in that plumage represented in the plate of the Voyage of the Erebus and Terror, not difficult to recognize. The buff or sienna color in the adult of this bird is darker than in either of the preceding. It is very handsomely and correctly figured in the Zoology of the Voyage of the Erebus and Terror, as above, and is apparently peculiar to the Island of New Zealand. We have before us, twelve specimens of this species from the collection of the Expedition, and from the Museum of the Philadelphia Academy.

6. *TODIRAMPHUS SORDIDUS* (Gould).

Halcyon sordida, GOULD, Proc. Zool. Soc. London, 1842, p. 72.

Gould, B. of Aust. II, Plate XXIII; Reichenbach, Vollst. Naturg. Birds, Plate CCCCXIX, figs. 3136-37.

FORM.—Size of *T. chloris*. Bill long; ridge of upper mandible distinct, that of the under mandible curved and ascending towards the tip of the bill. Wing with the third and fourth quills longest and nearly equal; tail moderate; tarsi short, robust.

DIMENSIONS.—Total length (of skin), about nine inches; wing, four and one-fourth inches; tail, three inches.

COLORS.—Adult from Northern Australia. Head above, back, scapulars, and wing-coverts, brownish-green. A band from the base of the bill under the eye to the occiput, brownish-black, some feathers of the occiput above the black band, white at their bases; outer webs of quills and tail above light greenish-blue. Collar around the back of the neck, small spot at the nostril, and entire under parts, white, very slightly tinged with dull yellow or buff. Bill dark; base of lower mandible white; legs and feet dark. Under wing-coverts white, some of the feathers narrowly tipped with black. Sexes similar.

HAB.—Northern Australia. Specimen in Mus. Acad. Philadelphia.

About the size of, and of the same general form as *T. chloris*, but with the bill longer and not so robust. The colors of the upper parts in the present species are entirely different from those of the species mentioned.

This species is well characterized and easily recognized. Two specimens in Mr. Gould's collection, now in the Museum of the Philadelphia Academy, and which are the same as figured by him in Birds of Australia, are all that we have seen of this species. It cannot readily be confounded with any other bird of this group.

7. TODIRAMPHUS SAUROPHAGUS (Gould).

Halcyon saurophaga, GOULD, Proc. Zool. Soc. London, 1843, p. 103.

"*Alcedo cyanoleuca*, TEMM." Bonap. Consp. Av. p. 157 (not Vieillot).

"*Alcedo albicilla*, CUV." Dumont, Dict. des Sci. Nat. XXIX, p. 273 ? (1823).

Todiramphus albicilla, REICHENBACH, Vollst. Naturg.

Voy. Sulphur, Birds, Plate XIX; Reichenbach, Vollst. Naturg. Plate CCCCXVII, fig. 3130.

FORM.—The largest species of this genus. Bill long, very robust, wide; ridge of upper mandible rounded and obscure, that of the under mandible ascending from the middle; wing moderate; second and third quills longest, and very nearly equal; tail rather long; tarsus short; toes rather long.

DIMENSIONS.—Total length (of skin), about ten and a half inches; wing, five inches; tail three and a half inches; bill, to gape, two and three-fourths inches.

COLORS.—Adult. Head, neck, and entire under parts white, in some specimens with a very slight tinge of blue on the head. Upper parts of body, outer webs of quills, and tail above, light blue, tinged with green on the back and scapulars. In one specimen now before us, the green of the back is scarcely discernible, in a second, it is the predominating color.

A narrow band behind the eye blue. Inner webs of quills and tail beneath, brownish-black; bill dark; under mandible, for two-thirds of its length from the base, white; feet dark. Under wing-coverts white.

HAB.—New Guinea. Specimen in Mus. Acad. Philadelphia.

The largest of the species of this genus, and in which only the head is entirely white. In this species, the bill is unusually long and wide, and approximates to that of *Halcyon*, the wings and tail are rather long, and its entire organization is robust. It appears to inhabit only the Island of New Guinea.

Two specimens, described above, are all that we have seen, both of which belong to the collection of the Philadelphia Academy. This species is easily recognized, and is very handsomely figured by Mr. Gould, in the Voyage of the Sulphur, above cited.

We regard it as by no means certain that the name *Alcedo albicilla*, Cuvier, is applicable to this species, though adopted by Prof. Reichenbach. In "Etudes sur les Types peu connus du Musée de Paris," in Guérin's Mag. de Zool. 1853, p. 383, Dr. Pucheran states that *A. albicilla* is a distinct species, but in some respects resembling the present bird.

8. TODIRAMPHUS SANCTUS, Vigors and Horsfield.

Halcyon sanctus, VIG. and HORSF. Trans. Linn. Soc. London, XV, p. 206 (1825).

Gould, B. of Aust. II, Plate XXI; White, Voy. to New South Wales, Plate, p. 193; Philips Voy. to Botany Bay, Plate, p. 156; Reichenbach, Vollst. Naturg. Birds, Plate CCCCXVIII, figs. 3131, 32, 33.

FORM.—Smaller than either of the preceding. Bill having more distinct ridges in both mandibles, rather long; ridge of the under mandible slightly ascending; wing moderate; second quill longest; tail moderate; tarsi short.

DIMENSIONS.—Total length (of skin), about seven inches; wing, three and a half to three and three-fourths inches; tail, two and one-fourth to two and a half inches.

COLORS.—Adult, from Australia. Head above, back, scapulars, and lesser coverts of the wings, dull green, with a tinge of blue; greater coverts of the wings, outer webs of quills, rump, and tail above, light blue; a band from the eye to the occiput black, frequently with a gloss of blue or green; a partially concealed spot on the occiput, white, (above the black band). Spot in front of the eye extending somewhat into a superciliary line, band inclosing the neck and entire under parts, buff or sienna, varying in shade in different specimens, generally paler and nearly white on the throat and deeper on the flanks, abdo-

men, and under wing-coverts, sometimes nearly pure white on the entire under parts. Bill dark, the basal portion of the under mandible white; tarsi and feet pale reddish.

Younger. Spots at the base of the upper mandible (in front of the eye), flanks, and abdomen, deep orange; throat white; many feathers of the breast narrowly edged with brown. Another specimen, younger? Entire under parts dull white, slightly tinged with orange or buff; feathers of the breast very distinctly edged with pale brown; wing-coverts edged with dull yellow.

HAB.—Australia. Borneo? Sumatra? Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

A species subject to some variations in the colors of both the upper and under parts, but not sufficient to render it difficult to determine. Of twenty-four specimens now before us, probably representing all the shades of color and all ages, no one could readily be mistaken for another species, unless perhaps for the young of *T. recurvirostris*. The principal differences in specimens of this bird, are the greater or less intensity of the buff of the under parts, quite dark in some, and very light in others, and in the darker or lighter shade, and greater or less extent of the green of the head and upper parts of the body. Specimens from the collection of the Duke of Rivoli, now in the Museum of the Philadelphia Academy, are labelled as from Borneo and Sumatra. They do not differ from Australian specimens.

In a catalogue of the family Halcyonidae, in the Museum of the Philadelphia Academy, we regarded this bird as *Alcedo australasia*, of Vieillot. According to Dr. Pucheran, however, in "Etudes sur les Types peu connus du Musée de Paris," in Guérin's Mag. de Zool. 1853, p. 389, that name is applicable to *Halcyon coronatus*, Müller, and not to this species.

This bird appears to be of common occurrence throughout Australia, and is now one of the best-known species of this group. It is very handsomely and very accurately represented in Mr. Gould's plate, above cited.

9. *TODIRAMPUS RECURVIROSTRIS*, *Lafrénaye*.

Todiramphus recurvirostris, LAFR. Rev. Zool. 1842, p. 184 (May).

Halcyon platirostris, GOULD, Proc. Zool. Soc. London, 1842, p. 72 (June).

Dacelo minima, PEALE, Zool. Voy. Vincennes and Peacock, Birds, p. 159 (1848).

Atlas, Ornithology, Plate XVII.

FORM.—About the size or rather smaller than *T. sanctus*. Bill unusually wide, flattened; culmen nearly obsolete; ridge of under mandible ascending from the middle; wing rather short; third and fourth quills longest and very nearly equal; tail moderate; tarsi and toes short, and rather slender.

DIMENSIONS.—Total length (of skin), about seven inches; wing, three and one-fourth inches; tail, two and three-fourths inches.

COLORS.—Head above, back, rump, wings, and tail, light blue, tinged with green on the head and back, and brightest on the rump. A band from behind and under the eye to the occiput black; a partially concealed spot on the occiput, white above the black band. Small spot in front of the eye, collar around the back of the neck, and entire under parts, white, tinged with dull yellow or buff on the flanks, abdomen, collar, and under coverts of the wings. Tail beneath brownish-black; bill dark; base of lower mandible white; feet dark.

HAB.—Samoan or Navigator Islands. Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

OBS.—In general appearance this species somewhat resembles the common *T. sanctus*, of Australia, but has the bill much wider and flatter, and the ridge of the under mandible more distinctly curved upwards. The color of the upper parts is also of a more distinct shade of blue.

This species appears to present the usual variety of shades of both the upper and under surfaces of the body, but is not difficult to recognize. The only specimens that we have seen are three, in the collection of the Exploring Expedition, now in the National Museum, and

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one in Mr. Gould's collection, now in the Museum of the Philadelphia Academy, and which is the type of his description above cited. All are from the locality above given.

Our figures are of the size of life, and are from specimens in the National Museum, brought by the Expedition in the Vincennes and Peacock.

10. *TODIRAMPHUS DIVINUS*, *Lesson*.

Todiramphus divinus, LESSON, Voy. Coquille, Zool. I, p. 687 (1826).

Ducelo nullitorquis, PEALE, Voy. Vincennes and Peacock, Birds, p. 155 (1848).

Atlas, Ornithology, Plate XVIII.

Mem. Soc. Hist. Nat. Paris, III, Plate XII.

FORM.—About the size of, or rather larger than *T. sanctus*. Bill rather short, wide; ridge of both mandibles obscure, flattened; wing moderate; third and fourth quills longest and nearly equal; tail moderate or rather longer than usual in this genus; tarsus short.

DIMENSIONS.—Total length (of skin), about seven and one-fourth inches; wing, three and a half to three and three-fourths inches; tail, two and three-fourths inches.

COLORS.—Adult male. Entire upper parts dull sea-green, lightest behind the eye, on the outer webs of the quills, and on the tail above; a narrow band from the eye to the occiput black; a partially concealed spot on the occiput white. Small spot before the eye, and entire under parts, white; a few feathers on the breast tipped with dark brown; under wing-coverts white; bill dark; base of under mandible white; tarsus light. Female, adult? Like the preceding, but with a wide band or belt across the breast, brownish-black. Younger. Entire upper plumage dull greenish-brown; pectoral band narrower, but well defined and conspicuous.

HAB.—Tahiti, Society Islands. Specimen in Nat. Mus. Washington, and Mus. Acad. Philadelphia.

The plainest colored and most inconspicuous in general appearance of all the species of this genus. In nearly all stages of plumage usually met with, the band across the breast is a character strongly marked, but is also present in the young of *T. tuta*, described in a preceding page, with which it has been confounded by some authors. This character, however, disappears in the adult male, and probably in the adults of both sexes.

Differences between this species and the young of *T. tuta* are pointed out in our description of the latter, and we have further endeavored to elucidate this point by giving figures of both in the Atlas accompanying the present volume. The present species appears to be peculiar to the Society Islands. We have before us, nine specimens, five of which belong to the collection of the Philadelphia Academy, and four to that of the Exploring Expedition, in the Vincennes and Peacock. These probably represent all the changes of plumage.

Our figures are of the size of life.

11. *TODIRAMPHUS PYRRHOPYGIUS* (Gould).

Halcyon pyrrhopygia, GOULD, Proc. Zool. Soc. London, 1840, p. 113.

Gould, B. of Aust. II, Plate XXII; Reichenbach, Vollst. Naturg. Plate CCCCXX, fig. 3141.

FORM.—Bill moderate; ridge of upper mandible obscure and flattened, that of under mandible slightly ascending towards the tip; wing moderate; second quill longest; tail moderate; tarsus short.

DIMENSIONS.—Total length (of skin), about seven and one half inches; wing, three and three-fourths to four inches; tail, two and three-fourths inches.

COLORS.—Adult. Back and rump light rufous. Head above, dull bluish-green, every feather edged with white. A stripe over the eye to the occiput white, another under and behind the eye to the occiput black, tinged with bluish; scapulars, wing-coverts, outer edges of quills, and tail, light blue, tinged with green on the scapulars and tail.

Collar around the back of the neck and entire under parts white,

except a large spot on the side under the wing, which is bluish-black. Bill dark; base of under mandible white; feet dark. Younger. Bill shorter; head above, scapulars, and wing-coverts, dull green; head more distinctly striped with white, some feathers of the breast edged with dark brown. Sexes alike.

HAB.—Australia. Specimen from Mr. Gould's collection in Mus. Acad. Philadelphia.

The color of the back and rump is a character in this species which distinguishes it from any other, and is present in all of the four specimens now before us, and of very nearly the same extent and shade. These specimens are from Mr. Gould's Australian collection, and the species appears to be restricted to that continent. It is beautifully figured in his great work on the Birds of Australia, cited above.

12. *TODIRAMPHUS CORONATUS* (Müller).

Halcyon coronata, MULL. Verh. Nat. Gesch. I, p. 175 (1844).

Alcedo australasia, VIEILL. Nouv. Dict. XIX, p. 419 (1818).

Atlas, Ornithology, Plate XIX, fig. 1, Adult.

Reichenbach, Vollst. Naturg. Plate CCCCXX, fig. 3142.

FORM.—Small, about the size of *T. sanctus*. Bill moderate; ridge of upper mandible rounded and rather obscure, that of the under mandible ascending for about two-thirds of its length; wing rather short; second and third quills longest and nearly equal; tertiaries long; tail moderate; tarsus short.

DIMENSIONS.—Total length (of skin), about seven inches; wing, three and one-fourth inches; tail, two and a half inches.

COLORS.—Head above and back dull green, the former tinged with blue; wing-coverts, outer edges of quills, and tail above, blue; primaries and tail beneath brownish-black, the former edged with blue on their outer webs, and with dull yellow on the inner. Wide band

from before and through the eye to the occiput, bright fulvous, inclining to rufous; another from the base of the bill, under the eye, around the back of the neck, black, tinged with greenish-blue under the eye; below which black band is another on the upper part of the back of bright fulvous, uniting with the same color of the under parts of the body. Throat paler and nearly white in some specimens. Frontal feathers edged with fulvous. Upper mandible dark; under mandible white, with the tip obscure brown.

HAB.—Timor. Specimen in Mus. Acad. Philadelphia.

The parts which are frequently of various shades of buff or sienna in several other species of this genus, in the present bird are of a much deeper color, in fact, bright rufous, darker on the bands of the occiput and neck, and paler on the under parts of the body. This species is strongly characterized by the wide occipital band of rufous, and presents, when viewed from behind, three wide and very distinct bands on the occiput, neck, and upper part of the back, two of bright rufous with one intermediate of black.

This bird approaches the genus *Halcyon*, in which it might be arranged with nearly equal propriety as in *Todiramphus*. Two specimens only are in the collection of the Philadelphia Academy, both labelled as males, from Timor, and differing in no important character. We insert the name *Alcedo australasia*, Vieill., as a synonyme for this species, on the authority of Dr. Pucheran, an eminent naturalist of Paris, who has rendered essential service in Ornithology, by determining many obscure types from original specimens. His notice of this bird is in Guérin's Magazine, 1853, p. 389. As he observes, Vieillot's name ought not to be adopted, because it conveys an absolute error, though having priority.

This bird is represented in our plate of the size of life.

13. TODIRAMPHUS CINNAMOMINUS (Swainson).

Halcyon cinnamominus, SWAINSON. Zool. Ill. II, p. 1 (1821).

"*Dacelo ruficeps*, CUV." Label on spec. in Rivoli coll. (Mus. Acad. Philad.)

"*Dacelo ruficeps*, CUV. Gal. du Mus." LESSON, Traité, p. 247 (1831)?

"*Alcedo ruficeps*, CUV." Dumont, Dict. Sci. Nat. XXIX, p. 273 (1823)?

Todiramphus Reichenbachii, HARTLAUB, Weigm. Archiv. 1852, p. 21?

Swains. Zool. Ill. II, Plate LXVII; Reichenbach, Vollst. Naturg. Birds, Plate CCCCXX, fig. 3140.

FORM.—About the size of *T. chloris*. Bill long, wide; ridge of upper mandible flattened, obscure; that of under mandible ascending from the middle of its length; wing moderate; third and fourth quills longest and very nearly equal; tail moderate; tarsus short; toes rather long.

DIMENSIONS.—Total length (of skin), about eight and three-fourths inches; wing, three and three-fourths to four inches; tail, three and one-fourth inches.

COLORS.—Adult? Head, neck, and entire under parts fawn, or cinnamon-color, lighter on the throat; a narrow band from behind and below the eye to the occiput, dark blue. Back, rump, wings, and tail above, blue, tinged with green on the back; inner webs of quills and inferior surface of tail brownish-black; bill dark; a large space at the base of the under mandible white; legs light-colored. Under wing-coverts dark fawn-color. Younger? Head above and occipital band as in preceding. Back, wing-coverts, and rump, with the green predominating; entire under parts white, with an obscure band of fawn-color across the breast; under wing-coverts very pale buff; quills and tail as in preceding.

HAB.—Ladrones or Marianna Islands. Specimen in Mus. Acad. Philadelphia.

This is a species of very peculiar appearance, but presenting considerable variations in color. In four specimens now before us, that described first above is apparently the most mature bird, and is precisely as figured and described by Mr. Swainson, in Zoological Illustrations. Two others are of the same general colors, but have the fawn or cinnamon-color paler, while a fourth, undoubtedly the same species, has the entire under parts nearly pure white, with a badly defined band of buff or pale fawn on the breast. The last presents the appearance of being the youngest bird, though possibly may be in a seasonal plumage only different from that of the others.

Specimens in the Rivoli collection now in Mus. Acad. Philadelphia,

are labelled as from the Ladrões or Marianna Islands, which is the locality given by M. Dumont, as above, for "*Alcedo ruficeps*, Cuv." Mr. Swainson gives the locality "New Zealand," probably erroneously. This bird appears to be "*Dacelo ruficeps*, Cuv.," as described by the authors above mentioned, but nowhere by Cuvier to our knowledge.

In rather pale-colored plumage, as alluded to above; the name *Todiramphus Reichenbachii*, appears to be applicable to the present species. This stage is figured by Reichenbach, as cited at the head of this article.

14. TODIRAMPHUS TOROTORO (*Lesson*).

Haleyon torotoro, LESSON. Coquille, Zool. I, p. 689 (1826).

Syma Lessonia, SWAINSON. Cat. Cy. Birds, II, p. 335.

Haleyon flavirostris, GOULD, Jard. Cont. Orn. 1850, p. 105.

Gould, B. of Aust. Supp. Plate (not numbered), Voy. Coquille, Ois. Plate XXXI, fig. 1.

FORM.—About the size of *T. sanctus*. Bill moderate; ridges of both mandibles well defined; that of the under mandible ascending from the middle; edges of both mandibles serrated in some specimens; wing short; third quill slightly longest; tail moderate; tarsus short; toes rather long.

DIMENSIONS.—Total length (of skin), about seven inches; wing, three inches; tail, two and a half inches.

COLORS.—Much resembling those of the last (*T. cinnamominus*). Head, neck, and entire under parts, fawn or cinnamon-color, darker on the head above, and neck behind, and paler on the under parts; nearly white on the throat and abdomen; narrow ring nearly encircling the eye, black; a band across the occiput bluish-black. Back and scapulars dull green; wing-coverts, outer edges of quills, rump, and tail above, blue; under wing-coverts fawn-color. Bill yellow; upper mandible tipped with brown; feet yellow. Other specimens (which are *H. flavirostris*), have the wing-coverts and outer edges of quills dull green; bill shorter than in the preceding. Sexes alike.

HAB.—New Guinea. Northern Australia. Specimen in Mus. Acad. Philadelphia.

This species is much smaller than *T. cinnamominus*, but resembles it, especially the plumage of that stage described above as supposed to be the younger. Though to be distinguished immediately by their size, this similarity will explain M. Lesson's suspicion that the present bird is identical with *Dacelo ruficeps*, Cuv. (Lesson, *Traité d'Ornithologie*, p. 247, and Manuel d'Ornithologie, II, p. 98), which, however, is not the case.

At present, we must regard specimens of *H. flavirostris*, from Australia, now before us, as identical with others from New Guinea. The former appear to present only the characters of younger birds, having the upper parts rather more decidedly of a green color, including the wings, while those apparently adult, have the wing-coverts and edges of primaries blue.

The preceding fourteen species include all that have come under our notice, belonging to the genus *Todiramphus*.

B. The following species may be considered obscure or erroneously assigned to this genus.

1. HALCYON VARIA, *Eyton*, Proc. Zool. Soc. London, 1839, p. 101.

Todiramphus varius (EYTON), Blyth, Proc. Zool. Soc. London, 1839, p. 101.

ORIG. DESC.—“*H. pectore, gula, ventre, strigae oculos cingente ferrugineis; capite, nucha, et striga a mandibula inferiore ad capistrum brunneis, singulis pennis tæniis cæruleis ornatis; primariis, dorso, scapularibusque, brunneis, his externe flavo marginatis, illis maculatis, rostro flavo, culmine obscuro. Long. tot. 8½ unc., rostri 1½, tarsi 1½.* Native name, *Kaing Kaing*.”

Mr. Eyton gives the above description in a “Catalogue of a Collection of Birds from Malaya.” In a paper entitled “Notices and Descriptions of various New or Little-known Species of Birds, by Ed. Blyth, Curator of the Asiatic Society's Museum,” in the Journal of

the Asiatic Society of Bengal, XV, p. 11, we find a further description of apparently the same species:

"*Todiramphus varius*; *Halcyon varia*, Eyton, P. Z. S. 1839, p. 101. What I take to be the adult male (and perhaps the adult of either sex), of this species, is a beautiful bird, the coloring of which serves to connect *Todiramphus* (as exemplified by *T. collaris* and *T. sacer*), with *Halcyon atricapillus* (*v. albiventer*, of Scopoli, a name too inappropriate to be retained), but the beak is strictly that of *Todiramphus*.

"Length, about nine inches, or nearly so; of wing, four inches, and tail, two and three-eighths; bill to forehead (in rather the larger of two specimens), an inch and three-fourths, and to the gape two and one-fourth inches; tarsus, five-eighths of an inch. Cap green, rufescent on forehead, and margined posteriorly with verditer; a broad black stripe commences at the lores, and meets its opposite behind; above this is a slight rufous supercilium, and below it a broad rufous streak, continued to the nape, and comprising the lower ear-coverts; below this again, is a very large purplish-blue moustache, commencing at the base of the lower mandible; the nape and breast are brilliant ferruginous, paling on the throat and belly; and the mantle, wings, and tail, are deep purplish-blue, each feather touched with ultramarine blue on the wings, while the rump and upper tail-coverts are vivid verditer; bordering the ferruginous of the nape, is a band of deep black. Bill dusky above, the rest apparently bright yellow, and legs probably coral red. From Malacca."

From the similarity of these descriptions, and the identity of the localities given, it is very probable that the same species is alluded to, but we consider it as quite evident that it does not belong to the genus *Todiramphus*, as regarded by any ornithologist.

This bird undoubtedly belongs to that group of the genus *Halcyon*, which embraces *H. concreta* (Temm.), *H. Lindsayi* (Vigors), *H. monacha*, Bonap., and others, and the species is very probably *Halcyon concreta*, Temminck, described and figured by that celebrated naturalist in *Planches Coloriées*, IV, Livraison 58, Pl. CCCXLVI, under the name *Dacelo concreta*. Whether the reader can coincide in this opinion or not, he can readily determine by comparing the description either by Eyton or Blyth, with the plate of Temminck, above cited, with or without specimens, especially that by Blyth, inserted in this article.

2. *TODIRAMPHUS FUNEBRIS* (Bonap.).

"*Haleyon funebris*, FORST. Mus. Lugd." Bonap. Cons. Av. p. 157 (1850).

ORIG. DESC.—"*Nigro-viridis, corona occipitali, collari, corporeque subtus albis. Ex Celebes.*"

Though possibly belonging to this genus, the species here indicated cannot be recognized from such a description, and it is for all practical purposes, useless. If properly arranged in the genus *Todiramphus*, this is a remarkable species on account of its color.

3. *TODIRAMPHUS FORSTENI* (Bonap.).

"*Haleyon Forsteni*, TEMM. Mus. Lugd." Bonap. Cons. Av. p. 157 (1850).

ORIG. DESC.—"*Cærulea, subtus alba, corona occipitali nigra, ex Celebes.*"

Another useless indication, almost any species being referable to it, except in point of locality.

4. *ALCEDO ALBICILLA*, Cuvier.

"*Alcedo albicilla*, CUV." Dumont, Dict. des Sci. Nat. XXIX, p. 273 (1823).

"*Alcedo albicilla*, CUV." Pucheran, Rev. et Mag. de Zool. 1853, p. 388.

Dacelo albicilla, LESSON, Traite d'Orn. I, p. 247 (1831).

As we have stated under the head of *Todiramphus saurophagus*, this species is regarded by Dr. Pucheran, a very competent naturalist of Paris, as distinct from all others. The following are his observations and description, as above cited :

"Like the preceding" (*Todiramphus cinnamomeus*), "this bird is a native of the Mariannes Islands, and was derived from the same Expedition" (Voyage of the Uranie).

"The head, the upper part of the neck, all the lower parts, the inferior wing-coverts, are white. A transverse black band occupies the

upper part of the neck, extending from the posterior angle of one orbit to the other, and near the orbits is of a greenish-gray color; the upper part of the back between the wings, the wing-coverts, and upper tail-coverts, are aquamarine green; the first quill is black, the others are blue on the outer, and black on the inner webs; but in proportion as the quill becomes more internal, the first of these colors encroaches upon the second, so much that it is very extensive on the internal webs of the secondaries; the tail-feathers are black beneath and above, like the quills; the lower mandible is yellowish; the upper mandible brownish horn-color; tarsi, toes, and nails, are the same color."

Total length, about ten and a half inches ("266 millimetres"); tail, four inches ("101 millimetres"); bill, two inches ("51 millimetres"); tarsus, eight-tenths of an inch ("2 centimetres").

"We possess two young specimens, brought also from the Mariannes Islands, by Messrs. Quoy and Gaimard. Both are colored beneath like the adult, but in one the green of the back is deeper, in both, the head is green, with white spread here and there upon the feathers, and as this last color occupies a part of the upper part of the neck, it results that these two individuals have a cervical collar of a white color.

"This species appears to me very exactly established. It has intimate relations with that which Mr. Gould has more recently described and figured in the ornithological part of the Voyage of the Sulphur, under the name of *Halcyon saurophaga*. It is distinguished from it, among other characters, by rather smaller size and a shorter and narrower bill."

Subsequently, in the same article, cited above, Pucheran states that *Dacelo albicilla*, Lesson, is the same bird, and that the varieties A and B, of that author (Traite d'Orn. p. 247), are the two young specimens alluded to by him, as above given.

This species we have never seen. We do not, however, regard Cuvier's name as entitled to any consideration, unless a description by him has been published, which is not the case to our knowledge, but would regard Lesson as the proper authority. For a similar reason we have not adopted *Alcedo ruficeps*, Cuv., for *Halcyon cinnamomeus*, Swainson.

5. The following species are included in the genus *Todiramphus* by Bonaparte, in *Conspectus Avium*, p. 156, and by Reichenbach in *Vollständigste Naturgeschichte*, but in our opinion, erroneously:

HALCYON MACLEAYII, *Jard. and Selby*, Gould, B. of Aust. II, Plate XXIV.

ALCEDO LUZULI, *Temminck*, Pl. Col. 508.

ALCEDO DIOFS, *Temminck*, Pl. Col. 272.

These species, with others, are very probably a subgeneric group of the typical genus *Halcyon*.

At present we are acquainted with no other birds which are properly included in the genus *Todiramphus*, nor with any others that have been assigned to it by authors. Specimens of all of the fourteen species described above, are in the Museum of the Philadelphia Academy, and as stated in the preceding pages, this genus is also liberally represented in the collection of the Expedition. For the use of very fine specimens of various species, figured in the Atlas to the present volume, we are indebted to the liberality of the gentlemen of the Academy.

Availing ourselves of the present opportunity, we have had figured for our Atlas, all species of this genus not previously represented in the plates of authors, and whenever practicable, we have given all stages of plumage of which we have specimens. For much the greater part our figures satisfactorily represent the species intended, though in a few instances we could have wished for greater success. The coloring, however, which has been done under the immediate supervision of that accomplished colorist, Mrs. Lavinia Bowen, of Philadelphia, is unexceptionable.

3. GENUS EURYSTOMUS, Vieill. Analyse, p. 37 (1816).

1. EURYSTOMUS ORIENTALIS (Linn.).

Coracias orientalis, LINN. Syst. Nat. I, p. 159 (1766).

Eurystomus fuscicollis, et *cyanocollis*, VIEILL.

Buff. Pl. Enl. 619; Le Vaill. Ois. de Parad. Plate XXXVI.

Specimens of this species from the Philippines, are in the collection of the Expedition.

Mr. Peale notices it as follows:

"Our specimens of this beautiful bird were obtained in the Island of Mindanao. We observed them to frequent the banks of shady streams which run through the forests, sitting quietly on horizontal dead branches of trees at a considerable elevation, and watching for passing insects, which they caught on the wing. Their appearance when sitting on a branch, and their flight was so much like that of a kingfisher (*Alcedo*), that one of our specimens was thus shot by mistake."

Dr. Pickering also records the occurrence of this bird in the same Island, and mentions that "a specimen when wounded uttered a harsh cry, similar to that of some species of parrots."

4. FAMILY MEROPIDÆ.

1. GENUS MEROPS, Linn. Syst. Nat. I, p. 182 (1766).

1. MEROPS PHILIPPINUS, Linn.

Merops philippinus, LINN. Syst. Nat. I, p. 183 (1766).

Buff. Pl. Enl. 57; Le Vaill. Guep. Plate XIV.

This species was observed by the naturalists of the Expedition in

the Island of Mindanao, one of the Philippines, and in the notes of Dr. Pickering we find the following:

"Several specimens of this *Merops* were noticed on the border of an opening in the forest, and when on the wing, reminded me very much of the North American Swallows, sailing somewhat in the same manner. They also appeared to be similar in their habits to the birds of the genus *Galbula*, in some measure. The tongue of this species is not exsertile, and presented no striking peculiarity of formation."

Numerous specimens of this bird are in the collection of the Expedition.

5. FAMILY TROGONIDÆ.

1. GENUS HARPACTES, *Swainson*, *Cab. Cy.* II, p. 337 (1837).

1. HARPACTES ARDENS (*Temm.*).

Trogon ardens, *TEM.* *Pl. Col.* III, p. (liv. 68, about 1827).

Harpactes rodiostrernus, *PEALE*, *Zool. U. S. Exp. Exp. Birds*, p. 166 (first edition, 1848).*

Temm. Pl. Col. 404; *Gould, Mon. Trogon*, Plate XXXV.

Both Dr. Pickering and Mr. Peale mention the occurrence of this fine species in the Island of Mindanao, one of the Philippines. The latter remarks:

* "Head and throat dark vinaceous-brown; back, scapulars, and rump, cinnamon-brown; breast pale rose-color; abdomen and under tail-coverts bright red; wings black; the primaries outwardly edged with white; shafts black; secondaries and coverts transversely crossed with numerous white lines; tail black; the two centre feathers cinnamon-brown, tipped with black; three outer feathers each side, tipped and margined outwardly with white; bill bright yellow, the base green; ophthalmic region ultramarine blue; inside of the mouth yellow; feet olive-green, the palms and claws yellow; irides brown.

"Total length, thirteen and a half inches; wings, from the carpal joints, five and nine-tenths inches; tail, six and two-tenths inches; tarsi, half an inch; middle toe, including the claw, one inch; claw, four-tenths of an inch; outer hind toe, seven-twentieths of an inch; claw, three-twentieths of an inch; inner hind toe, six-tenths of an inch; claw, two-tenths of an inch; bill, eight-tenths of an inch; to the angle of the mouth, one and one-twentieth of an inch. Male."

"Our specimen was killed on the thirty-first of January, near Sambuanga, in the Island of Mindanao. It sits crosswise on the small branches of trees and bushes, and is very active in taking insects on the wing. The clear sunlight at three o'clock in the afternoon did not appear to incommode it, or others observed at the same time."

The specimens in the collection of the Expedition present no important differences from the figures in Mr. Gould's beautiful Monograph, above cited. This species appears to be peculiar to the Philippines, and is very handsomely represented in Mr. Gould's Monograph of this family, cited above.

5. TRIBE SCANSORES.

1. FAMILY PSITTACIDÆ.—The Parrots.

1. GENUS PIONUS, Wagler (1830).

1. PIONUS COBALVINUS (Massena).

Pittacus cobaltinus, Mass. Rev. et Mag. de Zool. 1854, p. 74.

Pittacus menstruus, Gm. Syst. Nat. I, p. 345 (1788)?

Buff. Pl. Enl. 584?

A single specimen in the collection of the Expedition is exactly in the plumage described as a distinct species by Messrs. Massena and Souance, as above, and we have seen others. We cannot confirm this distinctive designation, but believe this bird to be a stage of plumage only of *Pittacus menstruus*, a common species of South America.

2. GENUS TANYGNATHUS, Wagler, Abhand. Akad. München, 1832, p. 501.

1. TANYGNATHUS PILEATUS (Scopoli).

Pittacus pileatus, Scop. Fl. et Faun. Insul. p. 86 (1786).

Pittacus marginatus, Gm. Syst. Nat. I, p. 324 (1788).

Pittacus olivaceus, Gm. Syst. Nat. I, p. 826?

Pittacus lucionensis, LINN. Syst. Nat. I, p. 146? BRISS. Orn. IV, p. 295?

Sonnerat, Voy. III, Plate LXXXIV; Buff. Pl. Enl. 287? Le Vaill. Perr. I, Plate LX? BRISS. Orn. IV, Plate XXII, fig. 2?

FORM.—Robust; bill large, wide, fully curved, and with a distinct lobe on the edge of the upper mandible; wing moderate; tail rather long; tarsus short, which with the toes, is covered with small reticulated scales. A small bare space around the eye.

DIMENSIONS.—Total length (of skin), about eleven and a half inches; wing, seven and a half inches; tail, five and one-fourth inches.

COLORS.—Large space on the head from the crown to the occiput, light blue. Shoulders and lesser wing-coverts bluish-black, nearly every feather narrowly edged with yellowish-green and light blue; greater coverts of the wing bluish-black, widely edged, and tipped with dark bronzed yellow, the latter color forming a large and conspicuous patch on the wing when closed. Plumage of the back, some of the scapulars, and greater coverts, with partially concealed spots of light blue. Bill flesh-colored, lighter and nearly white towards the end. Entire other parts of the head and body above and below, and of the upper surface of the wings and tail, yellowish-green, more deeply tinged with yellow on the under parts of the body. Inner webs of the quills and their under surface, brownish-black; under surface of the tail light silky yellow. Feet grayish.

HAB.—Sooloo Islands. Specimen in Coll. Exp. Exp. Washington City.

Whatever else this species may be, or whatever other name it may be entitled to, the bird above described appears to be the true *Pittacus pileatus*, Scopoli, described by him, as above cited, and by Sonnerat, in "Voyage a la Nouvelle Guinée," III, p. 80 (Quarto, Paris, 1776). It is also *Pittacus marginatus*, Gmelin, but we are not at present prepared to say that it is identical with *P. olivaceus*, Gmelin, figured in Buff. Pl. Enl. 287, or properly *Pittacus gala*, Boddaert (Table des Planches Enlumineez, p. 17, Utrecht, 1783), notwithstanding that the locality of the latter is given as the Philippine Islands.

The descriptions and figures of *Psittacus olivaceus*, represent a bird of nearly the same size as the present species, but the colors are either not given with sufficient accuracy, or are quite different from those of the bird now before us. Buffon's plate (Pl. Enl. 287), represents a bird with olive-green plumage, to which his description accords: "Les grandes pennes sont d'un brun-olivâtre; cette couleur est celle de tout le reste du corps, excepté une tache bleuâtre derrière la tête." (Pl. Enl. VII, p. 122), Le Vaillant's figure is also much too dark, and the green color is of a quite different shade from that of our bird.

Gmelin compiles his description of both *P. marginatus* and *P. olivaceus*, from Latham's Synopsis, merely giving binomial names to the "varied-winged Parrot" and the "lace-winged Parrot," of the latter author, who had also compiled his descriptions, the first from Sonnerat's Voy., and the second from Buffon. It does not appear that either Latham or Gmelin ever saw a specimen of the species they describe.

Several specimens in the Collection of the Philadelphia Academy have been labelled in Europe "*Psittacus marginatus*," but are identical with others labelled "*Psittacus sumatranus*," Raffles, and are the latter species.

We cannot, however, identify any bird in the collections to which we have access as *Psittacus olivaceus*, Gmelin, though we deem it very probable that such a species exists, and is at least of the same genus, if not specifically identical with the present bird.

The name *Psittacus lucionensis*, was adopted by Linnæus from Brisson, as cited above, and if all the names now given by us are synonymous, it must be adopted as the true appellation for this species. The description by Linnæus is compiled from Brisson, and it will be found on comparison of the plates of Brisson and Buffon, that there is sufficient similarity to warrant the suspicion that the latter copied from the former, and possibly gave the colors from Brisson's description.

Brisson describes from a specimen in the cabinet of "M. l'Abbe Aubry." It is quite probable that his description served for the basis of those of Linnæus, Buffon, Gmelin, and Latham, neither of which, it is also probable, ever saw the species.

Though we are under the necessity of leaving this subject at present in some complexity, we have a degree of gratification at least in having it in our power to point out the true species of Scopoli, and have an opportunity further of affording incidentally to the student,

a specimen of what he may expect when he is fairly launched into the literature of Ornithology.

One specimen of the species now described is in the collection of the Expedition, and was obtained at the Sooloo Islands, but we have no notes relating to its habits or history.

3. GENUS CACATUA, *Brisson*, Orn. IV, p. 204 (1760).

1. CACATUA PHILIPPINARUM (*Gmelin*).

Pittacus philippinarum, *Gm.* Syst. Nat. I, p. 331 (1788).

Cacatua minor, *BRISS.* Orn. IV, p. 212, Pl. XXII, fig. 1.

St. Hilaire, Hist. Nat. Perroquets, Plate LXXXI; *Buff.* Pl. Enl. IV, Plate CXCI.

FORM.—Small for this genus; head with a crest of recurved feathers; bill large; wing long, third quill longest; tail moderate, wide; tarsus very short; toes long, beneath padded and flattened. Space around the eye and on the throat, bare.

DIMENSIONS.—Total length (of skin), about twelve inches; wing, nine inches; tail, four and a half inches.

COLORS.—Inferior coverts of the tail, rich reddish-orange, nearly every feather margined and tipped with white. Feathers of the crest at their bases, orange-yellow. Inferior surface of the tail, and inner edges of the quills, pale yellow, the latter readily seen, viewing the wing from below. All other parts white. Bill and feet light.

Of this species, remarkable for its small size when compared with the large congeneric species of Australia, specimens were obtained by the naturalists of the Expedition at the Philippine Islands.

Buffon's description of this species is apparently taken from *Brisson*, and his plate (as cited above), may be safely suspected, at least, of having been copied from that of the same author, and colored from his description. It is apparently rarely to be found in collections, and appears to be little known to naturalists. Specimens are in the collec-

tion of the Expedition in good preservation, and also in the Museum of the Philadelphia Academy.

4. GENUS NESTOR, *Lesson*, *Traite d'Orn.* I, p. 190 (1831).

1. NESTOR MERIDIONALIS (*Gmelin*).

Psittacus meridionalis, *GM.* *Syst. Nat.* I, p. 333 (1788).

Psittacus Nestor, *LATH.* *Ind. Orn.* I, p. 110 (1790).

Psittacus australis, *SHAW*, *Mus. Lev.* p. 85 (1792).

Nestor nova-hollandia, *LESSON*, *Traite d'Orn.* I, p. 191 (1831).

Psittacus hypopolius, *FORST.* *Desc. An.* p. 72 (1844).

Mus. Lev. Plate, p. 87.

Excellent specimens of this interesting Parrot from New Zealand, are in the collection. The bill in the species of this genus attains a greater elongation than in any other group of the family *Psittacidae*, and is used, according to authors, not only for the ordinary purpose of prehension, but for making excavations in trees. It is alluded to by Dr. Pickering, only as having been seen and specimens obtained in the forest near the Bay of Islands, New Zealand.

5. GENUS APROSMICTUS, *Gould*, *Proc. Zool. Soc. London*, 1842, p. 111.

1. APROSMICTUS TABUENSIS (*Gmelin*).

Psittacus tabuensis, *GM.* *Syst. Nat.* I, p. 317 (1788).

Psittacus atropurpureus, *SHAW*, *Mus. Lev.* p. 140 (1792).

Psittacus hyginus, *FORSTER*, *Desc. An.* p. 159 (1844)?

Platyercus atrogularis, *PEALE*, *Zool. U. S. Exp. Exp. Birds*, p. 129 (first edition, 1848).*

* "Head, breast, belly, and vent, dark crimson, each feather dark slate-color at the root, green in the middle, and dark crimson at the tip; back, upper part of the wings, and rump, brilliant emerald-green; feathers black at their roots, a green bar crossing the middle, which is not visible without raising them, which is also the case with a white spot on the occiput; nuchal spot blue; front and cheeks very dark, the interior feathers of the cheeks delicately tinged with blue; throat black; primaries graduated, brilliant

Lear's Parrots, Plate XVI; Gould, Syn. B. of Aust. Pt. IV; Shaw, Mus. Lev. Plate, p. 140; Lath. Syn. I, Plate VII.

Specimens of this beautiful Parrot in the collection of the Expedition, correspond exactly with the plates above cited, but especially with the excellent figure in Lear's Parrots, Plate XVI.

There is, however, some confusion in the plates and descriptions usually cited by authors as relating to the bird now before us, and for the present we are disposed to consider this bird to be distinct from that immediately succeeding (*Aprosmictus Anna*, St. Hilaire), and that they have been mutually regarded as the same by naturalists not acquainted with both, a circumstance not unlikely to happen with species so little known. Some difficulty, too, exists in the descriptions, originating in the fact that Latham (Synopsis I, p. 215), gives this bird as a variety only of the species which is *Aprosmictus scapularis* (Bechtstein). The present species seems, however, to be that described by Gmelin.

Of this fine Parrot, Mr. Peale observes:

"In our numerous excursions along the shores of the Feejee Islands, we met with this species only on the low inundated lands, and almost always during the heat of the day, in the thick foliage of the mangroves which skirt most of the bays. They sit silently, sheltered from the scorching rays of the sun, and sally forth in the evening or early in the morning, vociferating loudly while flying *vang-ha, vang-ha*, a name by which they are known to the natives. Their flight is irregular, their broad and curved tail being spread widely, and undulated between each flap of the wings, giving the body a pitching motion distantly resembling the flight of a butterfly. The fruit of the mangrove constitutes the principal part of their food."

In the bird now before us, the blue nuchal collar is wide and well

blue above, black beneath; fourth quill longest; shafts black; secondaries lighter blue, which gradually runs into the brilliant green of the scapulars; lesser coverts brilliant green, those of the under part of the wing tipped with crimson. Tail, consisting of twelve brilliant blue feathers, the six centre ones having green reflections; all are black beneath, with shafts of the same color; bill bluish horn-color, very strong, the culmen full and rounded; gonyx angular, and elevated at the sides; upper mandible with a sharp notch; nostrils almost round, and partly hid in the rigid short feathers at the base of the bill; legs and claws black; irides bright orange. Male."

"Total length of an adult male, nineteen and seven-eighths inches; extent of wings, twenty-nine inches; tail, nine and a half inches."

defined. The prepared specimen is exactly of the size given in Lear's plate, to which we have above referred. Total length (of prepared specimen), sixteen and a half inches; wing, ten inches, tail, nine and a half inches.

2. APROSMICTUS ANNA (*Bourjot St. Hilaire*).

Conurus Anna, BOURJ. ST. HIL. Hist. Nat. des Perroquets (not paged).

Jard. and Selby, Ill. Orn. II, Plate LXXIV; St. Hil. Perroquets, Plate XXXVIII.

This species, of which a specimen is in the collection of the Expedition, and of which the original specimen described by Bourjot St. Hilaire, is in the collection of the Academy of Natural Sciences of Philadelphia, much resembles the preceding. In form and colors they are alike, so far as relates to general appearance.

The principal distinctive characters of the present bird are the smaller size of all its parts, particularly of the bill and of the tail; and the nuchal collar of blue, wide and conspicuous in the preceding, is in this restricted to a narrow line, scarcely observable without particular examination. In this bird, the feathers of the rump are distinctly edged and tipped with purple, of the same shade as the inferior parts of the body, a character not found in the preceding species.

The dimensions of a prepared specimen now before us, and which is that described and figured by St. Hilaire, are as follows: total length, fifteen and a half inches; wing, eight and a half inches; tail, eight inches. The difference between the two birds that we regard as distinct species, may be readily seen on comparison of the plates in Lear's Parrots, with St. Hilaire's figure above referred to, or with the figure in Jardine and Selby's Illustrations of Ornithology. It is possible, however, that they are opposite sexes of the same species, but with our present information, we must regard them as presenting another of the intricate problems in the Ornithology of the Islands of the Pacific, only to be determined by future and more extended investigation.

In the collection of the Exploring Expedition, the specimen of this bird is labelled as having been obtained at the Feejee Islands; those

in the collection of the Philadelphia Academy are without labels indicating locality.

3. APROSMICTUS SPLENDENS (*Peale*).

Platycercus splendens, PEALE, Zool. U. S. Exp. Exp. Birds, p. 127 (1st ed. 1848).
Coracopsis personata, GRAY, Proc. Zool. Soc. London, 1848, p. 21, Pl. III?

Atlas, Ornithology, Plate XX.

Capite et corpore subtus nitide rubris, collari nuchali lato, remigibus primariis rectricibusque externis coeruleis. Corpore supra, rectricibus intermediis viridibus. Long. tot. 16 pollices.

FORM.—Much resembling in general form *Aprosmictus tabuensis*, *amboinensis*, and *scapulatus*. Bill short; wings rather short; fourth quill longest; tail long, wide, wedge-shaped, the central feathers being about three inches longer than the first lateral feather; legs short; toes padded and flattened.

DIMENSIONS.—Total length (of skin), about sixteen inches; wing, nine inches; tail, eight and a half inches.

COLORS.—Adult female. Head and entire under parts crimson; wide and well-defined nuchal collar, primaries, and outer feathers of the tail, blue. Upper parts of the body and wings and central feathers of the tail green, some other feathers of the tail green at their bases. Inner webs of quills and tail feathers and their inferior surfaces black; inferior coverts of the wings green. Bill and tarsi dark, the former tipped with light yellowish. "Irides bright orange; total length, eighteen inches; extent of wings, 26 inches" (Mr. Peale).

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington.

Of the several instances of nearly allied species which we have found it necessary to investigate in the course of our examination of the present collection, this bird presents the most complex, and we admit it as distinct in specific characters only with hesitation. It may be,

however, another case of a form very nearly allied to a species inhabiting a different group of islands. Our specimen is moreover labelled as a female.

The bird now before us, resembles *A. tabuensis*, and has the same nuchal collar, but the form of the tail appears in the prepared specimens to be different, straight in the present species, curved in *A. tabuensis*. Instead of the colors of that bird, the head and entire under parts in this bird are light crimson, in which respect it approximates to *A. scapulatus*, *amboinensis*, and *dorsalis*, though without the blue on the back, rump, or sides, by which, in some measure, they are characterized. Our present bird has the back and rump green, uniform with the color of the wings, without any vestige of blue whatever, and the crimson of the head and under parts is not so light as in the species just mentioned.

According to Mr. Peale, the bird immediately succeeding (*Aprosmictus personatus*), is the young female of the present species. We have, however, for reasons stated under that head, regarded it as distinct, and deem it more probable that we are either correct, or that it is the young of *Aprosmictus tabuensis*, of which specimens are in the collection of the Expedition from the same islands. If this species is the same as Mr. Gray's species, his name is very probably entitled to adoption, having been published in the Proceedings of the Zoological Society of London, for January, 1848 (p. 21), and is accompanied by a figure which is a faithful representation.

In Mr. Peale's remarks on this species, we find the following:

"It was found inhabiting the shores of Peale's River, in the Island of Viti Levu (Great Feejee), and first attracted our attention by its remarkable flight as it passed the open spaces in the forest or crossed the river. It flaps its wings three times and then soars a short distance, repeating at each soar its cry, *cay-au, cay-au*. When feeding, it is generally silent."

4. APROSMICTUS PERSONATUS (*G. R. Gray*).

Coracopsis personata, G. R. GRAY, Proc. Zool. Soc. London, 1848, p. 21 (January).

Atlas, Ornithology, Plate XX.

Proc. Zool. Soc. London, 1848, Plate XXI.

FORM.—Resembling in general form *Aprosmictus tabuensis*, *scapulatus*, and the preceding. Bill rather large; wing short; fourth quill longest; tail long, cuneated.

DIMENSIONS.—Total length (of skin), about seventeen and a half inches; wing, nine inches; tail, eight and a half inches.

COLORS.—Front, cheeks inclosing the eyes, and throat, black. Middle of the breast, abdomen, and ventral region, orange-yellow, darker on the last, and inclining to red. Outer webs of primaries blue; inner webs of primaries and under surface of the wings and tail black. All other parts of the plumage, above and below, green. Bill and feet dark, the former tipped with yellowish.

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington.

As we have said above, this bird is stated by Mr. Peale to be the young female of the species immediately preceding (*Aprosmictus splendens*), but with not the slightest disposition to undervalue the importance of an observation made by one who at least had superior opportunities, we at present feel constrained to consider this as a mistake. Having now before us numerous specimens belonging to the fine collection of the Academy of Natural Sciences of Philadelphia, of species very similar and nearly allied to *Aprosmictus splendens*, the names of which may be found above in the present and preceding articles, we look in vain for any stage of plumage analogous or similar to that of the bird now in question. The black space around the base of the bill is also a character much more emphatic and distinctive than is usually possessed by young birds, especially in the family of Parrots.

It may be regarded as within the range of possibility, that this bird is the young of *Aprosmictus tabuensis*, which (the young) we have not seen. As pointed out above, if the present bird is the young of the species immediately preceding, Mr. Gray's name at the head of this article is very probably that which must be adopted on account of priority.

6. GENUS CORIPHILUS, Wagler, Abhandl. Akad. München, 1832, p. 494.

1. CORIPHILUS CYANEUS (*Sparrman*).

Psittacus cyaneus, SPARRM. Mus. Carls. Pl. XXVII (1787).

Psittacus taitianus, GM. Syst. Nat. I, p. 329 (1788).

Psittacus porphyrio, SHAW, Nat. Misc. I (not paged, 1789).

Lorius vini, LESSON, Traité d'Orn. I, p. 194 (1831).

Psittacus saphirinus, FORST. Desc. An. p. 201 (1844).

Buff. Pl. Enl. 455, fig. 2; Shaw, Nat. Misc. I, Plate VII; Le Vaill. Perr. Plate LXV.

This beautiful little species is mentioned by Dr. Pickering as of common occurrence in the Islands of Tahiti and Eimeo, inhabiting the cocoanut trees near the coast.

The application of the name *Psittacus notatus*, Bodd., to this species by Mr. G. R. Gray, in Genera of Birds; II, p. 417, appears to be erroneous. The name alluded to was given by Boddaert (Tab. Pl. Enl. p. 27), to the bird figured in Buff. Pl. Enl. 456, fig. 2, and not to that in Pl. 455, fig. 2, which is the present species. Sparrman's name, as above given, is that entitled to adoption for this little parrot, though his figure is so badly colored as to be scarcely recognizable.

2. CORIPHILUS SOLITARIUS (*Latham*).

Psittacus solitarius, LATH. Ind. Orn. Supp. p. 23 (1801).

Psittacus Vaillantii, SHAW, Nat. Misc. XXI (not paged, 1809).

Psittacus coccineus, SHAW, Gen. Zool. VIII, p. 472 (1811).

Psittacus phigy, BECHST.

Le Vaill. Perr. Plate LXIV; Shaw, Nat. Misc. XXI, Plate DCCCCIX.

Numerous specimens are in the collection of the Expedition.

Male. Head above, ventral region, and tibiae, glossy indigo-blue. Other under parts, and band around the neck behind, scarlet; neck

behind (above the scarlet), light green. Middle tail-feathers with a large spot of yellow on their inner webs, and silky yellowish-green beneath. All other parts green, lightest on the rump. Total length (of skin), about seven inches; wing, four and a half inches; tail, three inches.

Female. Similar to the male in color, but rather smaller in size.

Specimens in the collection of the Expedition are from the Feejee Islands.

3. CORIPHILUS AUSTRALIS (Gmelin).

Pittacus australis, GM. Syst. Nat. I, p. 329 (1788).

Pittacus porphyrocephalus, SHAW, Nat. Misc. I, p. 1 (1789).

Pittacus pipilans, Lath. Ind. Orn. I, p. 105 (1790).

Pittacus euchlorus, FORST. Desc. An. p. 160 (1844).

Pittacus fringillaceus, GM. Syst. Nat. I, p. 337?

Shaw, Nat. Misc. Plate I; Le Vaill. Perr. Plate LXXI.

Of this species, also, numerous specimens are in the collection of the Expedition. All appear to have been obtained at the Samoan or Navigator Islands, where it is mentioned by Dr. Pickering as having been common. He states that it frequents the tops of the palm trees, and has a note very much resembling that of the Tahitian species (*C. cyaneus*).

Male. Large spot at the base of the lower mandible, including throat, cheeks, and neck before, and a spot on the middle of the abdomen, scarlet; ventral region, purple. Elongated feathers on the head above, light blue; tibiae darker blue; tail-feathers with their inner webs yellow, and tipped with the same. All other parts of the plumage green, lightest on the neck behind, and rump. "Feet and bill flesh-colored" (Pickering). Total length (of skin), about seven and a half inches; wing, four and a half inches; tail, three inches.

Female. Rather smaller than the male, but similar in color.

2. FAMILY PICIDÆ.—The Woodpeckers.

1. GENUS MELANERPES,
- Swainson*
- ,
- Fauna Boreali Americana*
- , II, p. 316 (1831).

1. MELANERPES TORQUATUS (*Wilson*).

Picus torquatus, *Wils.* *Am. Orn.* III, p. 30, Pl. XX, fig. 3 (1811).

Aud. B. of Am. Plate CCCCXVI; oct. ed. IV, Plate CCLXXII.

This beautiful woodpecker is one of the most abundant of the birds of this group in Western North America. It is contained in nearly all collections made in California, and has been brought by Col. McCall, and others, from Oregon, in which country specimens in the collection of the Expedition also were obtained.

Mr. Peale observes:

"This species is quite numerous in every part of Oregon, where there is timber, during the summer, and probably winters in California. We saw it evidently migrating in that direction in the latter part of the summer."

This species is found also east of the Rocky Mountains. It has been noticed recently in Kansas by Dr. W. A. Hammond, a very talented and efficient young naturalist and surgeon of the United States Army.

2. MELANERPES RUBER (*Gmelin*).

Picus ruber, *Gm. Syst. Nat.* I, p. 429 (1788).

Audubon, *Birds of America*, Plate CCCCXVI; octavo edition, IV, Plate CCLXVI.

Specimens in the collection are from Oregon. Apparently one of the commonest, and certainly one of the most beautiful of woodpeckers, now frequently brought in collections from Western North America, but generally from California.

2. GENUS *PICUS*, *Zinn. Syst. Nat. I, p. 173 (1760).*1. *PICUS HARRISII, Audubon.*

Picus Harrisii, AUDUBON, Orn. Biog. V, p. 191 (1839).

Aud. B. of Am. Plate CCCCXVII, figs. 8, 9; octavo ed. IV, Plate CCLXI.

This bird appears to be peculiar to, but widely diffused over the western countries of the United States. In adult plumage, it presents the clear white and black colors characteristic of other species of the same group, all the under parts being of a pure white, not at all tinged or sordid, as has been represented by authors. Specimens from Oregon are in the collection of the Expedition.

3. GENUS *COLAPTES*, *Swainson, Zool. Jour. III, p. 353 (1827).*1. *COLAPTES MEXICANUS, Swainson.*

Colaptes mexicanus, SWAINS. Philos. Mag. 1827, p. 440.

Aud. B. of Am. Plate CCCCXVI; oct. ed. IV, Plate CCLXXIV.

Now commonly brought in collections from California, this bird was, until within a few years, very rare in collections, and especially prized by American naturalists and collectors, on account of its few but strongly marked points of difference from the common *Colaptes auratus*, of the Atlantic States. Since the acquisition of California and New Mexico, those extensive, and, zoologically considered, exceedingly interesting regions have been visited by several accomplished ornithologists and active and energetic collectors, such as Col. George A. McCall, late Inspector-General in the Army of the United States, Mr. John G. Bell, of New York, Dr. T. Charlton Henry, and Dr. George Suckley, of the Army of the United States, and others, who have contributed in a most important measure to Natural History, especially to that of the birds of those countries. This species appears to be abundantly and widely diffused in Western North America.

Mr. Peale remarks of the bird before us :

"This species was seen in various places on the west coast of America from Puget's Sound in the north to California. It was most common in the southern part of that country, and observed to entirely replace the *Auratus* or golden-winged woodpecker, which was not seen by the members of the Expedition while in that country."

The genus *Colaptes* is one of the groups in which species are separated only by narrow lines of difference, and specimens constantly occur which can be referred with equal propriety to two or perhaps more species. We have seen specimens of the common *Colaptes auratus*, in which the yellow of the quills and tail were tinged with red so deeply, that they might readily have been presumed to have belonged to *Colaptes mexicanus*. It is the same case with the western *Colaptes Ayresii*, Audubon. The several North American species of this genus are, moreover, almost exactly identical in form and size, differing specifically only in colors.

3. FAMILY CUCULIDÆ.—The Cuckoos.

1. GENUS CUCULUS, Linn. Syst. Nat. I, p. 168 (1766).

1. CUCULUS TENUIROSTRIS, Lesson.

Cuculus tenuirostris, LESSON, Traite d'Orn. I, p. 146 (1831); PUCHERAN, Rev. et Mag. de Zool. 1853, p. 69.

Cuculus fucatus, PEALE, Zool. U. S. Exp. Birds, p. 136 (1st edition, 1848).*

* "Crown, back, and rump, dark ashy gray; wings, fuscous; auriculars, throat, and breast, light cinereous-gray; abdomen and under tail-coverts pale ochre-yellow, crossed by waving lines of black; tail rounded, dusky, black at the end and outer margin; each feather tipped with white, and having five or six lengthened white spots on the shafts, and more numerous notch-like spots on the edge of the inner web; wings long, pointed; third quill longest, second and fourth equal; primaries banded with white on the inner webs; secondaries having the basal half of the inner webs white; under coverts buff, crossed with black lines; irides light brown, eyelids and feet bright yellow; bill yellow at base; upper mandible olive, black at the tip; lower mandible olive its whole length; inside of the mouth orange. Male.

"Total length, twelve inches; extent of wings, twenty inches; wings, from the carpal joint, seven and a half inches; tail, five and seven-tenths inches; outer feathers, four and three-tenths inches; tarsi, thirteen-twentieths of an inch; middle toe, including the

Atlas, Ornithology, Plate XXI, fig. 1. Adult.

Of the various species of typical *Cuculus*, all bearing more or less intimate affinity to the well-known European species and type of its genus (*Cuculus canorus*), we cannot at present undertake the difficult task of a critical examination. But we have seen a sufficient number of forms apparently distinct, and presenting remarkable general resemblances to each other to enable us to infer that very considerable difficulties await the ornithologist in this complex group, and in fact, from the short and frequently very imperfect descriptions on which he must rely, we deem it nearly impossible to identify some of the species mentioned in the works of authors.

The bird now before us is one of those to which we allude, though it appears to be that described by Lesson, as above cited, in which conclusion we are confirmed by labels on specimens in the Rivoli collection, now a part of the Ornithological Collection of the Academy of Natural Sciences of Philadelphia.

A specimen of this species in the collection of the Expedition, was obtained in Mangai, one of the Sooloo Islands, and is in good plumage and preservation. It is represented of the size of life in our plate, as above cited.

2. CUCULUS SIMUS, Peale.

Cuculus simus, PEALE, Zool. U. S. Exp. Exp. Birds, p. 134 (first edition, 1843).

Atlas, Ornithology, Plate XXI, fig. 2. Adult.

C. cinerascens similis. Corpore supra saturate olivaceo-fusco, infra rufocastaneo, gutture pallidior. Long. tot. $9\frac{1}{2}$ pollices.

FORM.—Very similar to that of *Cuculus cinerascens*, Vig. and Horsf., but smaller. Bill rather thick, wide at base, curved; wing moderate; third quill longest; tail rather long, graduated; middle feathers

claw, one inch; claw, seven-twentieths of an inch; outer hind toe, eight-tenths of an inch; claw, two-tenths of an inch; bill, seven-tenths of an inch; to the angle of the mouth, one and one-twentieth of an inch; width at the nostrils, three-tenths of an inch."

about one inch and a half longer than the lateral; legs rather short; toes long, slender. A small bare space around the eye, and a distinct naked membrane at the corner of the mouth. Bill wider at base, and thicker than that of *C. cinerascens*.

DIMENSIONS.—Total length (of skin), about nine and a half inches; wing, five inches; tail, five and one-eighth inches. "Extent of wings, fourteen and a half inches" (Mr. Peale).

COLORS.—Head above, back, rump, and wings, dark olive-brown, with a faint greenish bronze-like lustre, darkest on the rump. Entire under parts rufous, pale on the throat and mixed with cinereous, darker, approaching chestnut-color on the abdomen and under coverts of the tail. Cheeks olive-brown, every feather with a central stripe of pale ashy white. Quills olive-brown, each with a large spot of white on its inner web, forming a conspicuous band running obliquely across the wing, obvious on its under surface. Tail above brownish-black, with a faint purple lustre; every feather tipped, and with either bands or pairs of spots of white. "Upper mandible dusky; lower mandible, and corners of the mouth orange; eyelids and feet pale yellow; iris light yellowish-brown; claws black. Male." (Mr. Peale.)

HAB.—Feejee Islands. Specimen in Coll. Exp. Exp. Washington City.

In general appearance, this Cuckoo considerably resembles the common Australian species, above mentioned, from which it is, however, clearly distinct. The much wider and thicker bill on this bird is a strong distinctive character, in addition to which, it is smaller, and the colors darker, though bearing a strong general resemblance to those of the bird mentioned. Though presenting these points of resemblance, it may easily be distinguished on comparison.

One specimen only is in the collection, and is that of an adult male, represented in our plate of the natural size.

Of this bird Mr. Peale observes:

"The specimen from which our description is drawn, was in perfect plumage when killed, at Sandalwood Bay, in the Feejee Islands, on the 20th of July. Its voice was not heard; its actions were somewhat remarkable, the common position when sitting on a branch being

with the body almost perpendicular, its subcrest frequently raised after the manner of some of the hawks and tyrant flycatchers."

2. GENUS COCCYZUS, Vieillot, Analyse, p. 28 (1816).

1. COCCYZUS MINOR (*Gmelin*).

Cuculus minor, GM. Syst. Nat. I, p. 411 (1788).

Cuculus seniculus, LATH. Ind. Orn. I, p. 219 (1790).

Buff. Pl. Enl. 813.

This species, of which a single specimen is in the collection of the Expedition, but of which we have seen many others, is quite distinct from the bird regarded as *C. seniculus*, and figured by Audubon in Birds of America, Plate CLXIX (octavo edition, IV, Pl. CCLXXVII).

Latham's name *seniculus*, is, however, a synonyme for the bird now before us, having been avowedly applied to it after it had been named by Gmelin, as above cited. The description by Latham, in Synopsis of Birds, I, p. 537 (Mangrove Cuckow), is compiled from Buffon, Hist. Nat. Ois. VI, p. 401, and from Pl. Enl. VI, p. 464, Pl. DCCCXIII. Gmelin's description is copied from Latham. It will be found that the original description is by Buffon, whose plate is cited by both of the authors mentioned, and is sufficiently accurate to serve for the identification of the species. It is of no consequence what errors may have been made by naturalists in referring other species to the descriptions of Gmelin and Latham, or in applying the names proposed by them to other birds than that figured and described by Buffon, as above; it is and must be regarded to the end of time as *Cuculus minor*, Gmelin, and *Cuculus seniculus*, Latham.

The bird figured by Audubon, as above cited, and regarded as *C. seniculus*, is probably *Cuculus ridibundus*, GM. Syst. Nat. I, p. 414, a point which it is not within our province to determine at present, but which we shall examine in a future work.

According to Mr. Peale, the specimen of this bird in the collection of the Expedition, was shot near Callao, Peru, and is a female. "Irides brown; eyelids margined with yellow; bill black; total length, ten and a half inches; extent of wings, thirteen and a half inches."

3. GENUS EUDYNAMYS, Vig. and Horsf. Trans. Linn. Soc. London,
XV, p. 303 (1826).

1. EUDYNAMYS TAITENSIS (*Sparrman*).

Cuculus taitensis, SPARRMAN, Musc. Carls. Pl. XXXII (1787).

Cuculus tahitiensis, GM. Syst. Nat. I, p. 412 (1788).

Cuculus fasciatus, FORSTER, Desc. An. p. 160 (1844).

Eudynamys cuneicauda, PEALE, Zool. U. S. Exp. Birds, p. 139 (1st ed. 1848).*

Atlas, Ornithology, Plate XXII, fig. 2. Adult?

The only specimen of this species in the collection of the Expedition, appears to us to be that of a young bird, and although slightly smaller than the average size of numerous other specimens now before us, from the collection of the Philadelphia Academy, it is apparently entirely identical.

Our plate represents this bird about two-thirds of the natural size.

The specimen in the collection was obtained in the Island of Ovolau, one of the Feejees. Its sex is not stated.

* "Above, sepia-brown, with rufous lines on the crown, and white spots on the back; beneath white, the feathers having central lines of sepia-brown; superciliary line, band on the cheek, and throat, pale tawny; wings moderate, pointed; fourth quill longest, third nearly equal; color, sepia-brown, banded with white; shafts white; under coverts white; upper coverts sepia-brown, with a terminal round white spot; scapulars banded with white, and having a terminal white spot like the coverts; tail cuneate, the feathers pointed, sepia-brown, crossed by numerous curved bars of white and pale tawny; shafts brown above, white beneath; upper coverts brown, barred with white; lower coverts white; upper mandible brown; lower mandible yellow; legs dusky.

"Total length, fifteen and two-tenths inches; wings, from the carpal joint, seven and two-tenths inches; tail, eight and one-tenth inches; outer feathers, four and three-tenths inches; tarsi, one and three-tenths of an inch; middle toe, including the claw, one and one-fourth of an inch; claw, four-tenths of an inch; outer hind toe, one and one-tenth of an inch; claw, three-tenths of an inch; inner hind toe, six-tenths of an inch; claw, three-tenths of an inch; bill, nine-tenths of an inch; to the angle of the mouth, one and four-tenths of an inch." (Mr. Peale, as above.)

2. EUDYNAMYS ORIENTALIS (*Linnaeus*).

Cuculus orientalis, LINN. Syst. Nat. I, p. 168 (1766).

Cuculus scolopaceus, LINN. Syst. Nat. I, p. 170.

Cuculus mindanensis, LINN. Syst. Nat. I, p. 169.

Buffon, Pl. Enl. 274, figs. 1, 277, 586; Edwards, Birds, II, Plate LIX.

Specimens of this well-known Asiatic species are in the collection of the Expedition, from the Sooloo Islands.

With reference to this bird, Mr. Peale observes:

"A fine male of this species was killed in the month of February, near Soung, the capita' of the Sooloo Islands. The plumage was very glossy, the iris bright red, and the bill and legs green, all of which is lost in the prepared skins. At the Island of Mangsi, we again saw it, during a heavy storm of rain and wind, when it uttered a loud and clear whistle, whenever disturbed by the firing of guns or the falling of trees.

"A female, obtained at the same time and place, differs materially from Latham's description, being of a dark sepia-brown color above, beautifully spotted with rufous, with chestnut-colored lines on the head. Beneath, it is tawny, brightest on the breast, where it is lined with black, the belly crossed with black bars; irides bright crimson; bill and legs blue-green."

4. GENUS CENTROPUS, *Müller*, Prodrömus, p. 205 (1811).1. CENTROPUS MELANOPS, *Lesson*.

Centropus melanops, LESSON, Traite I, p. 137 (1831); PUCHERAN, Rev. et Mag. de Zool. 1852, p. 473.

Centropus nigrifrons, PEALE, Zool. Exp. Exp. Birds, p. 137 (1st ed. 1848).

Atlas, Ornithology, Plate XXII, fig. 1. Adult.

FORM.—Typical; bill somewhat curved and compressed; wing rather short, rounded; first quill short, subspurious, fifth longest; tail long.

graduated; legs and toes strong, with very distinct scales; claws strong. Feathers of the head and neck with their shafts stiff, almost spinous on the former, and with the filaments of their webs few and separated from each other, presenting an open or skeleton-like character.

DIMENSIONS.—Total length (of skin), seventeen inches; wing, six and a half inches; tail, nine and a half inches.

COLORS.—Forehead and space inclosing the eyes, black. Other parts of the head, the throat, neck, and breast, pale ochre-yellow, nearly white on the throat and breast. Wing-coverts and quills bright chestnut. Back, rump, abdomen, tibiae, and tail, black, with a green metallic lustre on the back and abdomen, and purple and blue on the tail. Bill dark; tarsi lighter. "Irides crimson" (Peale).

HAB.—Mindanao, Philippine Islands. Specimen in Nat. Mus. Washington.

A single specimen of this handsome bird was obtained near La Caldera, in the Island of Mindanao, and appears to be in plumage entirely adult. The feathers of the head and neck are remarkably rigid, and at the points of some of them almost aculeate or spinous. They are also unusually open or loose in their texture, the filaments of the webs being few and detached from each other.

This species is apparently related to *Centropus ateralbus*, Lesson, Voy. Coquille, Birds, Plate XXXIII, but in that bird all the parts are represented as pure white which in the present are dull yellow. The figure in our plate is about two-thirds of the size of life. Nothing relating to the habits of this species is recorded by the naturalists of the Expedition.

3. ORDER RASORES.—The Gallinaceous Birds.

1. FAMILY COLUMBIDÆ.—The Pigeons and Doves.

1. GENUS COLUMBA, *Linn. Syst. Nat. I, p. 279 (1766).*

1. COLUMBA VITIENSIS, *Quoy and Gaimard.*

Columba vitiensis, QUOY AND GAIMARD, *Voy. Astrolabe, Zoology, I, p. 246 (1830).*

Voy. Astrolabe, Ois. Plate XXVIII; Reichenbach, Vollst. Naturg. Birds, Plate CXXXIX, fig. 1288.

FORM.—Strong and robust; bill rather short; wing long, broad; second and third primaries longest and nearly equal; outer webs of quills wide; tail moderate, truncate or slightly rounded, containing twelve feathers. Legs short; tarsus bare, showing in front about six transverse scales; toes but slightly padded; claws rather weak, curved.

DIMENSIONS.—Adult male. Total length (of skin), from tip of bill to end of tail, about fourteen inches; wing, nine and a half inches; tail, five inches; tarsus, one inch; bill, one and one-fourth of an inch.

COLORS.—Adult male. Entire plumage dark bluish ash-color, deepest on the upper parts, and lightest on the abdominal, ventral region, and inferior coverts of the tail, and nearly black on the quills and tail. Large space on the throat, extending around under the eye, white. Head above, and neck, with a beautiful metallic purple lustre, changing to fine green in some lights; back, rump, and breast, metallic green; tertiary quills, wing-coverts, and upper tail-coverts, distinctly edged and tipped with the same. Bill and feet pale.

Younger. Like the adult, but with the head above, neck, rump, and breast, with a comparatively faint metallic green lustre. Bill and

feet not so pure yellow. Throat white; entire other plumage, dark bluish ash or slate-color.

In this plumage, this bird is figured in Voy. Astrolabe, Birds, Plate XXVIII.

Younger? Like the preceding two birds in general color and other characters, but with the head above dull chestnut.

HAB.—Feejee Islands. Celebes? Specimen in Nat. Mus. Washington.

The specimen above described as the adult of this handsome Pigeon, is in the collection of the Academy of Natural Sciences of Philadelphia, and is labelled as coming from the Celebes. Another specimen, very nearly in the plumage described and figured in the Zoology of the Voyage of the Astrolabe, as above cited, is in the collection of the Expedition, and was obtained at the Feejee Islands.

This bird belongs more properly to typical *Columba*, than to the genus *Carpophaga*. It has been properly assigned by Reichenbach to his genus *Janthaenas*, and is congeneric with *Columba janthina*, *metallica*, and others of the same group.

Respecting this bird, Mr. Peale observes:

"Not uncommon at the Feejee Islands. We observed them during the month of June, in parties of three or four, and a few solitary, from which we were led to the conclusion that it was about the last of the breeding season, the parties being generally composed of two old and two young birds. The figure in the Zoology of the Voyage of the Astrolabe, appears to have been taken from a young male. A female measured, when killed, fourteen and a half inches long, and twenty-four and three-fourth inches across the wings; irides yellowish-brown; eyelids and feet dusky lake-red; bill black."

2. COLUMBA CASTANEICEPS, Peale.

Columba castaneiceps, PEALE, Zool. U. S. Exp. Exp. Vincennes, Birds, p. 187 (first edition, 1848).

Atlas, Ornithology, Plate XXIII. Adult?

C. vitiensis similis. Gula alba, capite supra castaneo, corpore supra toto saturate cineraceo-fusco, alis caudaque prope nigris. Long. tot. 14 pollices.

FORM.—Size and general form very similar to the species immediately preceding. Bill moderate, rather slender; wings long, broad; second, third, and fourth primaries longest, and very nearly equal; inner webs of quills wide; tail moderate, truncate, containing twelve feathers; legs short; tarsus naked, and presenting in front about six or seven transverse scales; claws moderate or rather weak.

DIMENSIONS.—Male. Total length (of skin), from tip of bill to end of tail, about fourteen inches; wing, eight and three-fourths inches; tail, five and a half inches; tarsus, one inch; bill, to corner of the mouth, one and one-fourth of an inch.

COLORS.—Male. Large space on the throat, extending around, under, and beyond the eye, white. Head above, chestnut-color. Entire other plumage dark-brown, with an ashy tinge, darker above, and nearly black on the wings and tail, and lightest on the lower parts of the body. Plumage of the neck, back, and rump, edged with fine metallic green, on the breast with the same, and with rich purple. Inferior coverts of the wings, dark ashy-brown. "Irides dark-brown; eyelids, bill, and feet, lake-red" (Peale). Female like the male, but with the colors duller.

HAB.—Upolu, Samoan Islands. Specimen in Nat. Mus. Washington.

This bird is either the young or other immature plumage of the preceding (*Columba vitiensis*), or a very nearly allied species. We have, however, been under the necessity of resting satisfied with being able to determine but small distinguishing characters in species inhabiting the Islands in the Pacific and Indian Oceans, especially when they appeared to us to present these characters constantly, and to be distinct specifically. Though intimately resembling the preceding, the present bird may readily be distinguished by the chestnut-color, without metallic lustre of the top of the head, which appears to be much more distinct than in the young of that species.

Mr. Peale gives the dimensions of this bird :

"Total length, sixteen and one-fourth inches; extent of the wings, twenty-six and one-eighth inches," and observes that this species is "strictly arboreal, and was principally found in the dense forests which cover the mountains of Upolu, one of the Samoan Islands."

Like the preceding, this bird belongs to the group designated as the genus *Janthaenas*, by Reichenbach, which is adopted by Bonaparte, in *Conspectus Avium*, vol. II, p. 44 (Leyden, 1857).

3. COLUMBA FASCIATA, Say.

Columba fasciata, SAY, in Long's Exp. II, p. 10 (1823).

Columba monilis, VIGORS.

And. B. of Am. Plate CCCLXVII; oct. ed. IV, Plate CCLXXIX; Bonap. Am. Orn. I, plate VIII, fig. 3.

This fine species is mentioned by the naturalists of the Expedition as having been frequently met with in Oregon, and occasionally in large numbers. This bird belongs to a minor group of *Columba*, designated by Reichenbach as the genus *Chloroenas*, which includes also the species immediately succeeding.

4. COLUMBA ARAUCANA, Lesson.

Columba araucana, LESSON, Voy. Coquille, I, p. 706 (1826).

Columba denisia, TEMM. Pl. Col. IV (liv. 86, about 1830).

Columba Fitzroyi, KING, Zool. Jour. IV, p. 92 (1828).

Voy. Coquille, Ois. Plate XL; Temm. Pl. Col. 502.

A handsome and abundant bird of Chili, and of other countries of Western South America, of which numerous specimens are in the collection of the Expedition.

2. GENUS CARPOPHAGA, *Selby*, Naturalist's Library, Orn. V, p. 112 (1835).1. CARPOPHAGA NOVAE ZEALANDIÆ (*Gmelin*).*Columba novae zealandiæ*, GM. Syst. Nat. I, p. 773 (1788).*Columba spadicea et zealandica*, LATH. Ind. Orn. II, p. 603, and Supp. p. 60 (1790, 1801).*Columba leucogastra*, WAGLER, Syst. Av. (not paged, 1827).*Columba argytræa*, FORSTER, Desc. An. p. 80 (1844).

Knip & Prev. Fig. II, Plate I; Reichenbach, Vollst. Naturg. Birds, Plate CXXXVIII, fig. 1286, Plate CCCVII, fig. 2480.

Specimens of this magnificent Pigeon are in the collection of the Expedition, and were obtained in New Zealand. On examination and close comparison with others in Mr. Gould's collection in the Museum of the Philadelphia Academy, from Australia and Norfolk Island, we can detect no differences sufficient, in our estimation, to induce a suspicion that there is any specific distinction, though the New Zealand bird has been regarded as distinct by eminent and reliable ornithologists. All the specimens to which we allude are, in our judgment, of one species only, and we regard all the names above given as synonyms.

This fine species is the type of the genus *Hemiphaga*, established by the Prince Bonaparte in his Monograph in Conspectus Avium, II, p. 38. It is probably a subgeneric form only of the genus *Carpophaga*.

Mr. Peale remarks in reference to this bird:

"The *Cucupyi*, or Virgin, as this beautiful Pigeon is called by the natives, was observed in great numbers in the woody districts of the Bay of Islands, New Zealand. We never saw it alight on the ground, but observed that it preferred the hilly country and the dense foliage of the tall forest trees for its retreat.

"The sexes differ but little from each other, the males being a trifle the larger, and more brilliant in golden and copper reflections. A female measured nineteen and one-eighth inches in length, and thirty-

two and a half inches across the wings; irides, bill, and feet, lake-red, the tip of the bill orange color, shaded gradually into the red."

Dr. Pickering also mentions having frequently noticed this bird: "generally solitary in the deep woods and high up among the branches. It did not appear to be very readily procured, though much sought for as a delicacy for the table."

2. CARPOPHAGA AURORÆ, Peale.

Carpophaga auroræ, PEALE, Zool. U. S. Exp. Exp. Vincennes, Birds, p. 201 (1st ed. 1848).

Atlas, Ornithology, Plate XXIV. Adult male and female.

Supra saturate-coerulea, metalico viridi micante. Capite, collo, corpore-que infra pallide cinereis; crissis saturate plumbeis. Long. tot. 16 pollices.

FORM.—Large, about the size of, or rather larger than *Carpophaga perspicillata* (Temm.). Bill rather short, with a large frontal protuberance; wing rather long; third quill longest; primaries tapering towards their ends; tail moderate, wide, truncate, containing fourteen feathers. Tarsus feathered somewhat below the joint with the tibia, and showing about six scales in front; toes moderate; hind toe much padded and flattened; claws rather strong, curved.

DIMENSIONS.—Male. Total length (of skin), from tip of bill to end of tail, about sixteen inches; wing, ten and a half inches; tail, six and a half inches; bill, to corner of the mouth, one and three-tenths of an inch; tarsus, one and a half inches. (Extent of wings, thirty-one inches, according to Mr. Peale.)

COLORS.—Male. Head, neck, and entire under parts, pale cinereous, nearly white at the bases of both mandibles, and very light on the entire head, neck, and breast, deeper on the abdomen, and dark on the ventral region, inclining to lead color. Under coverts of the tail dark lead-color, glossed with metallic green. Back, rump, wings, and

tail, dark metallic blue, with green reflections, the latter color appearing to predominate in some lights. Under wing-coverts and inferior surface of the tail brownish-black; bill and claws black. "Feet lake-red; irides bright crimson" (Mr. Peale).

HAB.—Aurora or Muitea Island, one of the Society Islands. Specimen in Nat. Mus. Washington.

This large and handsome Pigeon belongs to the same group as *Carpophaga perspicillata* (Temm. Pl. Col. 246), and which includes also, *C. aenea* (Linn.), *C. lucernulata* (Temm.), *C. rosacea* (Temm.), *C. oceanica* (Less.), and others. From the species mentioned, the present bird may readily be distinguished by the dark color of the inferior coverts of its wings, but it does not, however, in other respects, intimately resemble either of them. The fine pale cinereous of the head, neck, and breast, of this bird, is without any vinous tinge whatever, and is separated distinctly and abruptly from the dark blue of the upper parts of the body. It bears a greater resemblance to *Carpophaga perspicillata* (Temm.), than to any other species with which we are acquainted, but not to such an extent as to be readily mistaken for it. It also is allied to *C. myristicivora* (Scopoli). The assigning of this species by the Prince Bonaparte to his genus *Globicera* (Consp. Av. II, p. 32), is not strictly correct. It belongs more properly to the group regarded by him as typical *Carpophaga*.

Of this fine species, Mr. Peale observes:

"This beautiful Pigeon was found in great abundance in high woody districts amongst the coral rocks on Aurora or Maitea Island, one of the Society Group. All that we obtained were males, and found solitary amidst the thick foliage of *Guetarda speciosa*, on the fruit and flowers of which they were feeding, and were very fat. Their note was a single deep and sonorous *hoot*, which might readily have been mistaken for that of an owl; they were not shy, but it was difficult to see them when sitting in the thick foliage, as they remained perfectly still on our approach."

This bird may be regarded as one of the most interesting of the zoological discoveries of the Expedition, and is one of the most handsome as well as one of the largest species of the family of Pigeons. The metallic blue of the upper parts is in the adult a very beautiful color, and rarely occurs in this group.

Our plate represents this bird about three-fourths of the size of life.



BILL OF CARPOPHAGA AURORAE.

3. CARPOPHAGA WILKESII, Peale.

Carpophaga Wilkesii, PEALE, Zool. Exp. Exp. Birds, p. 203 (1st edition, 1848).

Atlas, Ornithology, Plate XXV. Adults.

Supra saturate coerulea, viridi micante. Capite, collo et corpore infra saturate fuliginosis, viridescenti metallico micante. Vitta frontali angusta alba. Long. tot. 16½ pollices.

FORM.—In size and general structure much resembling the preceding species (*Carpophaga aurora*, Peale). Bill with a slight elevation at the base of the upper mandible; wing rather long; third quill longest; tail moderate, wide, truncate, composed of twelve feathers. Tarsus feathered somewhat below the joint with the tibia, very strong, and presenting about six scales in front; toes rather long, much padded, especially the inner anterior and the hind toe; claws rather strong, curved. Bill apparently longer and more slender than in the species immediately preceding.

DIMENSIONS.—Male. Total length (of skin), from tip of bill to end of tail, about sixteen and a half inches; wing, eleven inches; tail, seven inches; bill, to the corner of the mouth, one and a half inches; tarsus one and a half inches.

COLORS.—Head, neck, and entire under parts dark fuliginous, lightest on the throat and abdomen, darkest on the top of the head. Narrow band at the base of the bill, white.

Back, rump, wings, and tail above, dark blue, with metallic green reflections, in a strong light appearing to be entirely of the latter color. Under coverts of the wings brownish-black, many of the feathers glossed with metallic green; under tail-coverts dark fuliginous, and with the plumage of the ventral region glossed with metallic green. Bill black; "feet orange-brown; irides lake-red; nails sepia brown" (Peale).

HAB.—Tahiti, Society Islands. Specimen in Nat. Mus. Washington.

The specimen above described, of this fine Pigeon, in size and general form much resembles *Carpophaga aurora*, Peale, but can be immediately distinguished by the dark colors of the head, neck, and inferior surface of the body. The two specimens in the collection of the Expedition have, moreover, but twelve feathers in their tails. The plumage is without any vinous tinge whatever, though this species evidently belongs to the group of species mentioned in our article on the bird immediately preceding.

We regard it as scarcely possible, that the present bird can be the species described under the name of *Columba Forsteri*, by Wagler, in the Isis, 1829, p. 739, and which is *Columba globicea*, Variety 1, of Forster, Descriptiones Animalium, p. 166 (1844).^{*} The descriptions of both of these naturalists are not sufficiently applicable to this species to warrant such conclusion. Wagler states expressly, that the under tail-coverts are ferruginous, and the same is given by Forster.[†] Whatever may be the color of the plumage of this part or of other parts of this bird at any age less mature than that of the specimens now before us, and we have found exceeding caution necessary in investigating the nearly allied species of the beautiful birds of this family, we must at present regard the entirely different color of the inferior coverts of the tail in the present specimens as sufficient, even if no others existed. No dimensions are given by Wagler, nor by Forster, of the bird that he regarded as a variety, and neither of those authors give satisfactory descriptions of their proposed species.

^{*} Cited by Wagler as "Forster in Manuscr." The manuscript alluded to was afterwards (in 1844), published by Professor H. Lichtenstein, under the title of "J. R. Forsteri Descriptiones Animalium in Itinere ad Maris Australis Terras per annos 1772, 74, suscepto observatorum, editit H. Lichtenstein." One volume, octavo, Berlin, 1844.

[†] "Crisso ferrugineo," Wagler. "Crissum ferrugineum," Forster.

Like the preceding, the present bird bears some resemblance to *Carpophaga perspicillata* (Temm.), and belongs to the same generic and subgeneric group. It is given by the Prince Bonaparte in his Monograph, without apparent hesitation or qualification, as *Columba Forsteri*. Wagler, which is, under the circumstances of the case, totally erroneous and improper. As stated above, the descriptions by both the authors mentioned, are insufficient for the identification of this bird, at least, or if intended to be applicable to it, absolutely give erroneous characters. In no case ought the name of Wagler to be adopted for this species.

In reference to this fine species, Mr. Peale observes :

"The natives of Tahiti, in describing the productions of their beautiful island, told us that there was a large species of bird found high up in the mountains, which fed upon the *Fei*, a species of red plantain which grows wild in very elevated situations, and that they had always been unsuccessful in their attempts to get it for the naturalists of the Expeditions which have so frequently anchored in their harbors. We were successful, after great labor and peril, in reaching the region and in shooting several, but felt disappointed at the time, as we believed them to be identical with the last-described species (*C. auroræ*), and, notwithstanding the Tahitian assurances to the contrary, remained of the same opinion until the Expedition returned to the United States, when a comparison of specimens, which could not be made sooner, proved that the Islanders were correct.

"It was raining incessantly all the time we remained in the elevated situation where this Pigeon was obtained, and having no shelter, we were obliged to return without finding its nest, or learning that it had any peculiar habits, further than that it is restricted to certain regions in the mountains, at an altitude of three or four thousand feet, and is seldom, if ever, seen near the coast, being probably limited in its range by its favorite food, the *Fei*. One specimen, now in the National Collection in the City of Washington, was killed by Captain Wilkes (to whom we have dedicated the species), at Aurora, or Maitea Island, in which we did not learn that this plant was produced."

This is a beautiful bird, and like the preceding, one of the most important and interesting of the zoological discoveries of the Expedition. As may be inferred from our plates, this bird bears some resemblance to the species described in our last article, but is entirely distinct, though inhabiting the same group of islands. It is one of the largest of Pigeons, and is probably peculiar to the Society Islands.

The dedication of this fine species to Captain Charles Wilkes, of the United States Navy, under whose command the voyage of the Exploring Expedition was performed, we regard as a just and suitable testimonial to the valuable services to science of that distinguished officer.

Our plate represents this bird about two-thirds of the size of life.

4. CARPOPHAGA LATRANS, *Peale*.

Carpophaga latrans, PEALE, Zoology, Exp. Exp. Birds, p. 200 (1st ed. 1848).

Atlas, Ornithology, Plate XXVI. Adults.

Cauda supra rubro-fusca. Corpore supra saturate fusco, capite et collo cinereis. Corpore infra cinereo-vinaceo, abdomine saturatiore, crissis flavescenti fuscis. Long. tot. 16 pollices.

FORM.—Large, about the size of *C. cineracea* (Temm.). Bill rather long and slender (without a frontal protuberance, in the specimens here described); wing moderate; third primary longest; tail rather long, truncate, or slightly emarginate, containing fourteen feathers; legs short; tarsus feathered for more than half its length, and showing in front three broad scales; toes much flattened on their under surface; hind toe, with a row of bristles on each side of the central row of scales throughout its length. Claws strong, curved, flattened.

DIMENSIONS.—Male. Total length, from tip of bill to end of tail (of skin), about sixteen inches; wing, nine and a half inches; tail, seven inches; bill, to the corner of the mouth, one and a half inches; tarsus, one and one-eighth of an inch.

COLORS.—Male. Tail above, glossy reddish-brown (or liver-brown); below much lighter, with a fine glaucous cast. Head and back cinereous, tinged with reddish; other upper parts dark-brown, glossy. Neck before, and breast, ashy purple (or vinaceous), which color blends into light reddish fulvous on the abdomen; inferior tail-coverts pale yellowish-brown or tawny, every feather darker at its base, and delicately mottled and punctated with brown. Quills brownish-black,

tinged with ashy on their outer webs, and with their inner webs edged with deep rufous at their bases, most conspicuous seen from below. Inferior coverts of the wings dark rufous. Bill black; "irides lake-red; eyelids carmine-red; feet lake-red" (Peale). Female, rather lighter on the upper parts; head and neck somewhat darker.

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington.

This beautiful Pigeon is more nearly related to *Carpophaga cineracea* (Temm. Pl. Col. 563), than to any other species which has come under our notice. It does not, however, resemble that species to such an extent as to justify any suspicion of their identity, and the colors of the present bird, especially the fine brown of the tail, are sufficiently characteristic. Like the preceding two species, it properly belongs to the typical genus *Carpophaga*.

Mr. Peale observes:

"This species was usually found in lofty forest trees with dense foliage, and bearing a fruit on which it feeds. Its voice is quite peculiar, consisting of a puffing blow, not unlike that uttered by a strutting turkey, followed by a *whoo-whoo*, at short intervals, sounding like the barking of a dog, for which reason we have given the specific name *latrans*. The native name appears somewhat similar, *manu* being the Feejee for bird, and *now*, an imitation of its note. We did not see it anywhere but in mountainous districts of the Feejee Islands."

Dr. Pickering also mentions the peculiar note of this species: "by which," he says, "I have repeatedly been deceived for a moment, mistaking it for the barking of a small dog." According to him, it is common in the deep woods of the Feejees, and its note was heard in some localities almost constantly.

This is another of the large and handsome Pigeons, in the discovery of which, the naturalists of the Exploring Expedition were peculiarly successful and fortunate. These discoveries are not only intrinsically of the highest interest, but afford an indication of the results to be obtained from the zoological exploration of the many islands in the Pacific Ocean, a portion only of which have as yet been investigated with that degree of attention which they deserve, by the naturalists of the present and a few other Expeditions. There is no more interesting zoological, and especially ornithological region in the world,

than that comprising the numerous islands and groups of islands to which we allude.

This bird is represented in the plate of our Atlas, above cited, about three-fourths of the natural size.

5. CARPOPHAGA MICROCERA (*Bonaparte*).

Globicera microcera, BONAP. Consp. Av. II, p. 31 (1854).

Atlas, Ornithology, Plate XXIX. Adult.

In the collection of the Expedition are several specimens from the Samoan or Navigator Islands, which appear to be this species. They are in mature plumage and good preservation, and constantly present the characters indicated in the Prince Bonaparte's description, especially the uniform vinaceous coloring of the under parts of the body, and the deep chestnut of the under tail-coverts.

This bird is evidently nearly related to *Columba globicera*, Wagler, described also by Forster in Desc. An. p. 166. It has the appendage attached to the cere at the base of the bill, larger than would be inferred from Bonaparte's specific name, and probably nearly equal to that of any other species of this group. In this respect, the name *microcera*, is not entirely appropriate.

This species appears to be restricted to the Samoan Islands, and is alluded to by Mr. Peale under the name *Carpophaga oceanica*, from which, however, it is quite distinct.

In reference to this bird, Mr. Peale gives the following interesting particulars:

"At the Samoan Islands, particularly Upolu, we saw this species in great abundance; the woods abounded with them wherever fruit or berries occurred; they were exceedingly fat, and afforded us many delicious meals. At Tongatabu, we saw them, but not in such great numbers; and again, a few were seen at the Duke of York's Island.

"While crossing the Island of Upolu, we now and then saw little thatched houses of only four or five feet elevation, by six or seven long, which were built in open spaces on mountain promontories, and we were informed had been constructed as blinds or places of concealment, from which '*Lupis*' were caught with arrows.

"The bows used for this purpose are short, not more than three or four feet long, but the arrows are six or seven feet, made of light cane, and having four pointed and barbed pieces of hard wood inserted at the end, with their barbs pointing inwards; these being slightly elastic, and wide enough between the points to receive the body of a *Lupi*, which is about the size of a domestic pigeon; when the arrow is discharged from the bow, the chances are in favor of the bird being caught between the points, and held there until taken out alive.



"Much time is devoted to capturing and taming this beautiful species of Pigeon, which may be seen in almost every house, and even in their canoes, where perches are erected expressly for it. It is generally kept clean and in good condition.

"The process of taming a wild bird occupies much time, and is accomplished by connecting the two feet by a *hopple*, made of fine cord wrapped with *tapa* so as not to hurt it, which is joined to a cord twenty or thirty yards long, the opposite end of which is fastened to a perch. The bird is then thrown up, and flying to the length of the cord, is gently jerked back; the violence of the jerk being proportioned to the necessary discipline. The operation appears painful, and the distressed pupil is kept flying until it discovers that there is no resting-place but its master's hand or the perch. It soon gains confidence, and not being allowed to receive any food but chewed *taro*, or breadfruit from its master's mouth, becomes very tame.

"While in port at the Samoan Islands, our ships were constantly surrounded by the canoes of the natives, in many of which roosts were stuck up, and pigeons perched on them; they had cords fastened to their feet, though they seldom attempted to fly, all appearing to be on the most familiar terms with their owners, who could seldom be induced to part with their pets. Doves (*Ptilinopus fasciatus*), were frequently seen domesticated by the natives in the same manner, but they were not in as perfect discipline, or so highly valued.

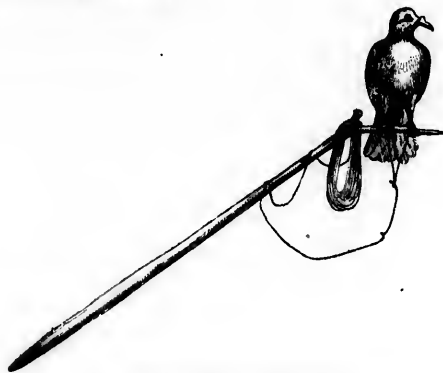
"An average-sized male, killed at Upolu, was sixteen and a half inches long, by twenty-nine inches extent of wings. A female was fifteen and three-fourths inches long, and twenty-eight inches in extent across the wings.

"The knob, or caruncle over the nostrils, was not seen rounded in the form figured by MM. Lesson and Garnot, in the Zoological Atlas to the Voyage of the Coquille, Pl. XLI, but more in the form of the outline below the description of *C. auroreæ*, which was sketched from a living specimen."

According to Dr. Pickering, this species was common in the Islands of Tutuila, Upolu, and Savai, of the Samoan or Navigator Group.

The knob at the base of the bill in this bird is not so greatly developed as in some other species, at least this is the case in the specimens now before us, from the collection of the Expedition. This appendage occurs in several species of the group of fruit-eating Pigeons, and is, we suspect, not only peculiar to, or largest in the male bird, but also most observable at the commencement of the season of incubation, like the appendages on the head and neck, or wattles, of the turkey.

The adult male of this species is represented in our plate rather smaller than the natural size.



SAMOAN PIGEON ROOST.

6. CARPOPHAGA BICOLOR (*Scopoli*).

Columba bicolor, SCOP. Flor. et Faun. Insul. II, p. 94 (1786).

Carpophaga casta, PEALE, Zool. U. S. Exp. Vincennes, Birds, p. 204 (first edition, 1848).*

* "Head, neck, body, half of the tail, wing-coverts above and beneath, scapulars and tertiaries, of a delicate cream-color while the bird is living, but which changes to white in the dried skins. Spurious wings, primaries and secondaries, pure black, with black

Atlas, Ornithology, Plate XXVIII. Adult male.

Scopoli names this species in his Catalogue of the Animals described and figured in Sonnerat's Voyage to China and the East Indies,* which catalogue is in *Deliciæ Floræ et Faunæ Insubricæ* II, Pt. II p. 84 (1786, Folio). His description is, however, scarcely sufficient to identify the species without Sonnerat's Plate (Voyage, vol. III, Pl. CIII), which he evidently, in mistake, cites as representing his *Columba myristicivora*, omitting entirely the citation of any Plate of Sonnerat for the present bird. *Columba myristicivora*, Scopoli, is represented in Sonnerat's Plate CII, of vol. III; *Columba bicolor*, Scopoli, is Plate CIII, of the same volume; and it will be found that Scopoli had already in his Catalogue cited "Plate CII," without mentioning the volume as *Columba chinensis*, but that species is represented in Plate CII, of vol. II, to which he evidently meant to refer. This error, though it has led to confusion respecting the species described, is not important, so far as relates to the identification of the present bird, the colors of which being so easily found to agree with the description and figure as to be immediately recognized.

This species much resembles the Australian *Carpophaga luctuosa* (Temm.), Gould's Birds of Australia, V, Pl. LX, but differs in being rather smaller, and in the ventral region and under coverts of the tail being pure white, and not spotted with black as in *C. luctuosa*. It has, moreover, fourteen feathers in the tail instead of twelve, as in that species; a character which, though very remarkable and liable to be mistaken in prepared specimens, is constant in numerous specimens of both species now before us, including several from Mr. Gould's Australian collection.

shafts; second quill longest; tail slightly rounded, consisting of fourteen feathers, the middle six black half way from their extremities; the others have the black gradually narrower, the outer two being merely tipped; they are margined with black on their outer webs nearly to the body. Bill, eyelids, and feet pale blue; tip of the bill and claws black; irides brown. Male.

"Total length, sixteen and one-half inches; extent of wings, twenty-nine and one-fourth inches; wings, from the carpal joint, ten and one-fourth inches; tail, five and one-half inches; tarsi, one and three-twentieths of an inch; middle toe, including the claw, one and eight-tenths of an inch; claw, one-half of an inch; bill, nine-tenths of an inch; from the corner of the mouth one and one-half inches."

* "Specimen Zoologicum exhibens characteres Genericos et specificos, necnon Nomina trivialia novorum Animalium, quæ Clarissimus SONNERAT, in China et in Indiis orientalibus nuper detexit." Scopoli's Title, as above.

Of the present bird one specimen in the collection of the Philadelphia Academy is labelled as coming from the Island of Amboina. Others are without labels. A single specimen, in excellent plumage and preservation, in the collection of the Expedition, and represented in our plate, is from the Sooloo Islands.

Mr. Peale's account of this bird is as follows:

"This chaste and beautiful Pigeon was seen in large flocks near the town of Soung, the capital of the Sooloo Islands. The specimen from which our drawing was made, was killed on an island nearly opposite to Soung, where we found them, during the heat of the day, sitting quietly amongst the dense foliage of large trees bearing a fruit having the appearance of olives, but smaller. With this fruit their crops were filled, and the birds were in excellent condition. Their voice is a tremulous and continued *ooo*; their flight rapid and dodging, like the domestic pigeons."

This species belongs to the group to which Reichenbach has given the generic name *Myristicivora*, adopted in Bonaparte's Monograph (Consp. Av. II, p. 36). The regarding of this bird as identical with *C. luctuosa*, is an error into which that distinguished author has fallen with others, on account of the obscurity of Scopoli's description and citations of plates above alluded to, and his synonyms are consequently erroneous. We may also take the liberty of saying that the citations of plates of the Atlas to Mr. Peale's volume, given in Conspectus Av., vol. II, are also erroneous, because such Atlas never was published, nor were many of the plates engraved, until during the preparation of the present volume. The Prince Bonaparte cites the plates without having seen them, as given in Mr. Peale's text. This bird is assuredly *not* that represented either in "Knip. Fig. II, t. 40," nor "Gould, Austr. V, t. 60," but is, notwithstanding, we think, the true *Columba bicolor*, Scopoli.

Our figure of this species is about three-fourths of the size of life, and represents the adult male.

7. CARPOPHAGA PICKERINGII, Cassin.

Carpophaga Pickeringii, CASSIN, Proc. Acad. Philada. VII, p. 228 (1854).
Carpophaga chalybura, BONAPARTE, Comptes Rendus, 1854, p. 1074?

Atlas, Ornithology, Plate XXVII. Adult.

FORM.—About the size of *C. aenea*. No frontal knob; bill moderate, rather slender; wings with the second and third quills longest, and nearly equal; tail rather long, consisting of fourteen feathers; legs moderate, or rather strong; upper half of tarsus feathered; lower half presenting in front three or four wide, transverse scales. Claws strong, compressed, curved.

DIMENSIONS.—Total length about fifteen and one-half inches; wing, nine and one-half inches; tail, nine and one-half inches.

COLORS.—Under coverts of the tail light cinereous. Head, neck, and entire under parts purplish, cinereous, or vinaceous, darker, and with the purple most distinct on the top of the head, the breast, and the abdomen, the cinereous mingling gradually with the darker color of the back, which, with the rump, wings, and tail, are dark, ashy brown, with a green, metallic lustre, most brilliant on the tail. Under wing-coverts light cinereous; under surface of the tail light glaucous, ashy. Bill and feet light-colored.

HAB.—Mangsi, Sooloo Islands. Spec. in Coll. Exp. Exp. Washington City.

This is a species resembling *Carpophaga aenea*, a well-known bird of the large islands of the Malay Archipelago, and intimately allied to it in general characters. It differs, however, in having the under tail-coverts light cinereous, instead of dark chestnut; the wings and tail are longer, and in size it appears to be rather larger. It is possible, also, that it is the bird described by the Prince Bonaparte as *Carpophaga chalybura*, as above cited, but does not present the characters relied on by that distinguished author, and comes from a different group of islands.

The only specimens of this bird that we have ever seen, are in the collection of the Expedition, and are from the Sooloo Islands. We have represented the adult male in our plate rather smaller than the natural size.

Mr. Peale observes with reference to this species:

“This species was seen in abundance at Mangsi, one of the Sooloo Islands. Its cry is a single *hoot*, repeated at intervals; and when our

specimens were collected, in the month of January, they did not present any appearance of a knob on their bills. The irides are red; the bill is black, with a light blue tip; the feet are dirty lake-red.

"We found this bird generally amongst the thick foliage of the various species of *Ficus*, and other fruit trees."

This bird is named in honor of Charles Pickering, M.D., one of the naturalists of the Exploring Expedition, and now highly distinguished as an American Zoölogist. In addition to the valuable volumes of the series of the Expedition of which he is author, Dr. Pickering has contributed much of high interest to our present work, and which we have transferred from his manuscript journal, by his permission, most cheerfully and promptly given.

3. GENUS PTILINOPUS, *Swainson*, Zool. Jour. I, p. 473 (1825).

1. PTILINOPUS PURPURATUS (*Gmelin*).

Columba purpurata, GM. Syst. Nat. I, p. 784 (1788).

Columba kurukuru, BONNATERRE, Ency. Meth. p. 240 (1st ed. 1790).

Columba taitensis, LESS. Zool. Coquille, Ois. I, p. 297 (1826).

Ptilinopus furcatus, PEALE, Zool. Exp. Exp. Birds, p. 191 (1st ed. 1848).*

Atlas, Ornithology, Plate XXX. Adult male and female.

Excellent specimens of this very handsome species are in the col-

* "General form rounded; head, neck, and breast cinereous, tinged with green; the bases of the feathers lead-color; the tips of those on the breast bifurcate; a pale purple spot reaches from the bill to the vertex; irides dark orange; feet dusky purple; back, rump, and wing-coverts bronze-green; wings blue, with green reflections; plumbeous beneath; the first quill six-tenths of an inch shorter than the others, and almost even throughout its length, or regularly narrowing towards the tip; shafts black; secondaries edged with pale yellow; belly olive-green; vent and under tail-coverts sulphur-yellow; tail blue-green, with golden reflections; a cinereous spot in each feather, near the tip (in some specimens, it forms a distinct cinereous band); under parts of the tail plumbeous, with a cinereous terminal band.

"Total length nine and one-half inches; tail three and four-tenths inches; bill four-tenths of an inch; tarsi one inch; extent of wings sixteen and three-fourths inches. Male. Killed in September.

"The females vary but little from the males; they are less brilliant in plumage, and have the same frontal spot, and the cinereous band on the tail." (Peale, as above.)

lection of the Expedition, and were obtained in the Island of Tahiti. The difference between the sexes consists in the rather smaller size and less vivid colors of the female, though their general appearance is very similar.

Mr. Peale observes of this bird :

"The voice of this species is a simple *coo-coo-coo*, uttered slowly, at regular intervals, and is much softer than that of the Coral Island Dove. It is not so sprightly in its movements, and the forked tail immediately distinguishes it from all others. It delights in sitting on some dead branch, in the shady recesses of the woods, most commonly one overhanging a path in moist ground."

This is the species properly entitled to the name *Columba purpurata*. It was first described by Latham, in Synopsis of Birds, II, pt. II, p. 626, "from a specimen from Otaheite." Gmelin merely gave the scientific appellation, as above, on the faith of Latham's description; and, it is a matter of no consequence what errors may have been made subsequently by authors, or however inconvenient those may have been found by their successors, this name ought to stand good for this species and no other. The investigation of the group of Pigeons of this genus is undoubtedly sufficiently difficult on account of the resemblance of the species to each other, but naturalists have much increased it by hastily adopting names or applying new ones. To such extent, in fact, have these been practised in this group, that we have been almost inclined to despair of any approximation to success in an attempt to unravel the intricacies of the nomenclature of the few species in the collection of the Expedition. We feel rather well assured, however, that no author that we have yet met with has accomplished anything very considerable towards bringing together the synonyms, or in establishing the correct names in this group, and are by no means certain that the matter is improved at all by the Prince Bonaparte, in his late Monograph in Conspectus Avium.

The original description of this bird is by Latham, as stated above, in General Synopsis of Birds, II, p. 626, in which he states explicitly, "this was described from a specimen from Otaheite." It is true that this author falls into error immediately when he says: "but I find of these birds great varieties, according to the different islands from which they are brought, for they inhabit the whole of the Pacific Ocean within the tropics," but his description applies exactly to the

present species. Gmelin's description also applies sufficiently well to this bird, and his mingling or confounding several species together, as varieties, does not, in the smallest degree, invalidate the application of his name to the species clearly indicated by Latham.

2. PTILINOPUS FASCIATUS, Peale.

Ptilinopus fasciatus, PEALE, Zool. U. S. Exp. Exp. Vincennes, Birds, p. 193 (first edition, 1848).*

Atlas, Ornithology, Plate XXXI. Adult male and female.
Knip & Prevost's Pigeons, II, Plate XXXIV.

This bird, long known to naturalists, has been erroneously regarded as *Columba purpurata*, Gmelin. It is figured in Knip and Prevost's Pigeons, II, Pl. XXXIV, and is carefully and accurately described by them, and by Temminck, in Hist. Nat. des Pigeons et des Gallinaces, I, p. 280 (1813). With Temminck the error originated, the name, *Columba purpurata*, having been first applied by him to this species in his work, to which we have referred, but which is properly applicable to the bird known as *Ptilinopus taitensis*, as can readily be ascertained on examination of the original description by Latham, in Synopsis of Birds, II, pt. II, p. 626. Gmelin, apparently, merely gave the name *purpurata* on the faith of Latham's description, as stated in the preceding article.

Notwithstanding that both the present species and *Ptilinopus tai-*

* "General form rounded; a rich purple spot reaching from the crown to the bill, slightly margined with yellow; head, neck, and breast cinereous (in young birds pale green), with a purple bar, fading into the yellow of the vent feathers, which are black at the base, and white near the tips. Back and rump bronze-green; wings and tail above clear golden-green; the scapulars and secondaries slightly edged with yellow; under parts of the wings and tail plumbeous; quill-shafts black; the web of the first primary very narrow at the tip; tail rounded; feathers blue-green, with golden reflections on the outer web, black on the inner, and tipped with yellow above, yellowish-white beneath; shafts black; legs covered with olive-green feathers; feet dirty-lake; bill emerald-green; irides yellow.

"Total length nine and one-fourth inches; extent of wings sixteen and one-fourth inches; wings, from the carpal joint, five and four-tenths inches; tail three and one-tenth inches; tarsi nine-tenths of an inch; bill one-half an inch; to the angle of the mouth nineteen-twentieths of an inch. Male." (Peale, as above.)



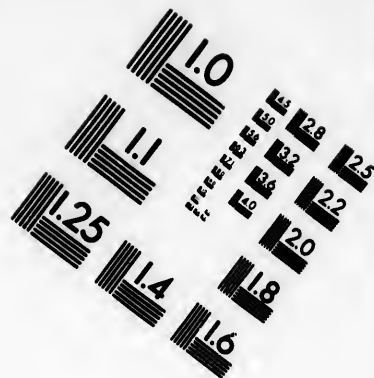
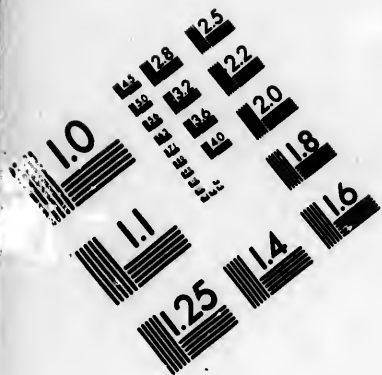
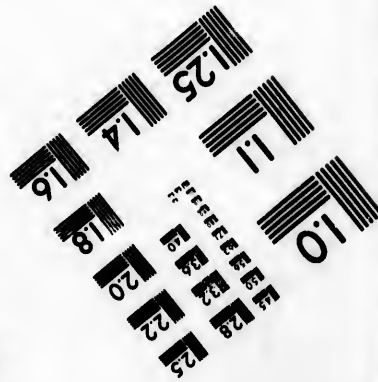
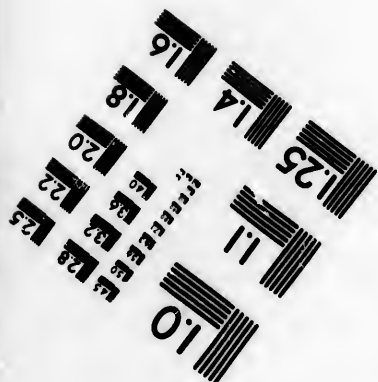
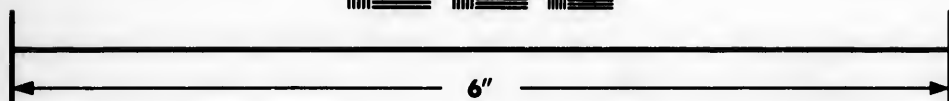
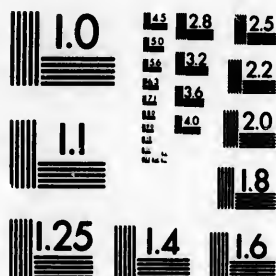


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tensis have been known to naturalists since the time of Latham and Gmelin, it does not appear that any name has been given to the former until described as a new discovery by Mr. Peale, as above cited.

Specimens in the collection of the Expedition are from the Samoan Islands. Our plate represents both sexes of this species of the size of life.

In allusion to the present and other species of Doves which inhabit the Samoan Islands, Mr. Peale observes in his article on this bird :

"The females vary but little from the males, being generally smaller, and not quite so brilliant in color. The young birds are entirely green until the first moult.

"The natives of the Samoan or Navigator's Group enumerate three Doves of this genus, inhabiting their islands; the most common is the *Manu-tagi* or *Manu-tangi*, which, in English, means crying-bird, and is described above; the next, called *Manu-rua*, is about the same size, but entirely green. Having had the misfortune to lose our specimens by the wreck of the U. S. Ship Peacock, we are unable to give a drawing or further description of it. The third species is called *Manu-ma*, or shame-bird, and is the one we have called La Perouse's Dove.

"The *Manu-rua* is not uncommon at the Island of Upolu."

According to Mr. Peale, the *Manu-tagi* (which is the bird now before us), is so called by the Samoans "from its plaintive and distressful note."

As stated above, this bird is well known to naturalists. It has had undoubtedly other names given to it since the publication of Mr. Peale's description, above cited, and possibly before, but we cannot pretend, at present, to ascertain the synonymy of this species. Such an investigation would involve the examination of, and, in fact, a complete study of this entire group, many of the species of which intimately resemble each other, and have been constantly mistaken by authors. Our plate has been carefully prepared, and fairly represents both sexes of this species.

3. PTILINOPUS CORALENSIS, Peale.

Ptilinopus coralensis, PEALE, Zool. U. S. Exp. Exp. Birds, p. 190 (first edition, 1848).

Atlas, Ornithology, Plate XXXII. Adult ?

Capitis vertice macula magna purpurea, flavo marginata. Corpore supra aurato-viridi, capite, collo et pectore viridescenti cinereis, abdomine viri lescenti flavo. Long. tot. 8½ pollices.

FORM.—Strictly congeneric with *Ptilinopus purpuratus*, *P. Swainsonii*, and others of this group, and about the size of the former. Bill moderate or rather short; wing with the fourth and fifth quills longest and nearly equal; tail rather long; legs moderate; *tarsus* covered, for a short distance below the joint with the *tibia*; toes long, padded, and flattened on their under surfaces. Feathers of the neck before and breast deeply emarginated.

DIMENSIONS.—Total length (of skin), eight and a half inches; wing five and a half inches; tail three and three-fourths of an inch. "Total length (of recent bird), nine and a half inches; extent of wings seventeen inches. Male." (Peale.)

COLORS.—Head above with a large purple spot, faintly edged behind with yellow. Head, neck, and breast pale greenish-cinereous. Abdomen greenish-yellow, tinged with cinereous. Ventral region and inferior coverts of the tail pale yellow. Back, rump, wings, and tail above green, with golden and coppery lustre. Primaries edged with very pale yellowish-white; secondaries with pale yellow on their outer webs. Tail-feathers dark cinereous on their inner webs. Tail widely tipped with very pale ashy-white, faintly tinged with yellow; tail beneath pale ashy-white, and showing a subterminal band of brown. "Irides red; legs red; bill yellow." (Peale.)

HAB.—Paumotu Islands. Specimen in Nat. Mus. Washington.

It is not without misgivings that we admit the present bird as a distinct species, on account of the apparent immaturity of its plumage, and its resemblance to several other birds of this genus. Several specimens, however, present entirely uniform characters; and, in view of what to us appears to be the fact, that the islands in the Pacific do, in some instances, present species distinct from, but much resembling each other, we have occasionally felt ourselves constrained to recog-

nize specific characters which, in the course of general or usual zoological investigations, would not be regarded as unexceptionable.

The present bird is nearly allied to *Ptilinopus purpuratus* (Gm.), which is *P. taitensis* (Less.). The color of the head, neck, and breast, the general colors of the upper parts, and the wide terminal band of the tail, are almost precisely the same, but the bill of this bird is pure yellow, and its abdomen is of the same color. We cannot but regard as quite possible, however, that it is the young of either that or another allied species. This bird belongs strictly to the same group as the two preceding, and is regarded by the Prince Bonaparte, in his Monograph, as a distinct genus, under the not very euphonious nor classic name, *Kurutreron*.

Mr. Peale's note on this species is as follows :

"This beautiful Dove was the first bird which attracted our attention at the Island of Carlshoff, by its plaintive *hoot-hoot-hoot*, uttered in rapid succession. The woodland being of very limited extent, we thought it would be an easy matter to find it, but were mistaken, for although the Doves were not wild, their curiosity induced them to sit still on being approached, and their delicate plumage accorded so well with the beautiful green of the foliage, that it was very difficult to see them.

"Specimens were subsequently obtained, during the month of September, on most of the low coral islets of the Paumotu Group, but nowhere else; most of them were males. Their retreats were always in the most wooded and secluded places."

This bird is represented in our plate of the natural size.

4. PTILINOPUS PEROUSII, Peale.

Ptilinopus Perousii, PEALE, Zool. U. S. Exp. Exp. Birds, p. 195 (1st ed. 1848).

Ptilinopus Marie, JACQ. & PUCH. Zool. Voy. Astrol. and Zelee, III, p. 115 (1853).
Voy. Astrolabe and Zelee, Ois. Pl. XXIX, fig. 2.

Atlas, Ornithology, Plate XXXIII. Male, female, and young.

Capite supra et vitta dorsali sanguineis. Corpore supra viridescenti-flavo, subtus flavescenti-alba, fuscia pallide aurantiaca pectorali. Long. tot. 7½ pollices.

FORM.—Small. Bill short, weak; wings rather long; tail moderate, of fourteen feathers; tarsi robust, feathered below the joint with the tibia; toes rather long; feathers, on the breast, deeply emarginate. Large spot on the head in front, and broad transverse band across the back, crimson; head behind, neck, and under parts, white, tinged with yellow, deepest on the abdomen. Feathers of the breast with partially concealed transverse bands of pale pink or lake-red; lower part of the breast with a wide belt of pale orange; under tail-coverts crimson. Back (from the band of crimson), rump, and upper tail-coverts, greenish-yellow; wing-coverts pale cinereous, edged with greenish-yellow; quills brownish-black, with their outer webs green, with metallic lustre; some of the tertiaries have their exposed ends tipped, on both webs, with the same metallic green; under wing-coverts ashy-white. Tail pale cinereous, tipped narrowly with pale yellow. "Bill dark green; legs pale blue; irides red, with an orange-colored ring around the pupil." (Peale.)

DIMENSIONS.—Total length, male (of skin), seven and a half inches; wing five and one-fourth inches; tail three inches.

HAB.—Upolu, Samoan Islands, and Mathuata, Feejee Islands. Specimen in Nat. Mus. Washington.

Several specimens of this beautiful and singularly marked species are in the collection of the Expedition. It is the species named "*Ptilinope de Marie*," by Messrs. Hombron and Jacquinot, on the plate in the Zoological Atlas to the Voyage of the *Astrolabe* and *Zelee*, Birds, Pl. XXIX, fig. 2, and since named *Ptilinopus Mariæ*, in the volume of the zoology containing Birds of the same voyage (Paris, 1853). Mr. Peale's name, as given above, has, however, undoubted priority.

This bird was observed to inhabit mountain gorges, in the Feejee Islands, but was not abundant. It was also seen in Upolu, one of the Samoan Islands.

Mr. Peale, in allusion to the present species, and to the plate prepared from his drawing, which will be found in the Atlas accompanying this volume, gives the following:

"The specimen was a male, in adult plumage (Pl. XXXIII, fig. 1), and was obtained at the Island of Upolu. Fig. 2 differs but little from

the last; the wing-coverts are more ashy, and not so brown; the light color of the neck and lower parts is more pure, and the orange spot is not so much diffused on the breast; besides which, the tertiary feathers are bronze-green, with yellow margins, and not ash-colored, with a bronze spot; otherwise, these two were alike in sex, measurement, color of the bill, feet, irides, &c. It was obtained at the village of Mathuata, in the Feejee Islands, where we observed that they inhabited the mountain gorges, and were not abundant. Fig. 3 was obtained with the last; it is a trifle less, and it is believed to be a younger bird, showing that in their first plumage, they are entirely green; the feathers margined with yellow. It also was a male.

"La Perouse, in the journal of his melancholy voyage, notices beautiful Doves, of various colors, when at the Navigator's Islands, in the same harbor where our first specimens were obtained, probably alluding to this very species to which we apply his name. The native name, *Manu-ma*, means shame, or modest bird."

This is one of the most delicately colored and gracefully formed of the entire family of Pigeons, and is rather an unusual instance of the same species being found to inhabit different groups of islands. It is, perhaps, the most beautiful bird discovered in the course of the voyage of the Expedition, and is a highly interesting addition to the ornithological fauna of the Pacific Islands, in which the birds of this family hold a conspicuous position.

The figures in our plate of this bird are of the natural size.

4. GENUS *CALÆNAS*, *G. R. Gray*, *List of the Genera of Birds*, p. 59 (1840).

1. *CALÆNAS NICOBARICA* (*Linn.*).

Columba nicobarica, *LINN.* *Syst. Nat.* I, p. 283 (1766).

Columba gallus, *WAGLER*, *Syst. Av.* p. (not paged, 1827).

Edward's Birds, VII, Plate CCCXXXIX; Buff. Pl. Enl. 491; Knip & Prevost, Pigeons, I, pt. II, Plate II.

Of this, the most splendid of the Pigeons, and scarcely excelled in any other family of birds, several fine specimens are in the collection of the Expedition. They are all from the Philippine Islands, and present no characters other than have been given by authors.

Mr. Peale observes :

" This fine bird was seen at the Philippine Islands, but subsequently found in greater abundance at the Island of Mangsi, in the Straits of Balabac, during the month of February. We had previously seen them living in confinement, and, as the generic name (*Geophilus*), implies, observed that they preferred being on the ground, and seldom perched on trees or the roosts of an aviary. It was, therefore, a matter of surprise, at Mangsi, to find them decidedly arboreal : not a single specimen was seen on the ground, although the island was diligently hunted with that expectation. They were found on lofty *Ficus* and other fruit-trees of great magnitude, feeding with the Nutmeg Pigeons (*Carpophaga aenea*), but generally at a less elevation. Their call is a clear, deep-toned *coo*, in a voice very like some of the owls.

" Irides red ; legs purple lake-red ; under parts of the toes and nails yellow."

Some of the most beautiful and apparently fully mature specimens of this bird that have ever come under our notice, are in the collection of the Expedition. They are in excellent preservation, and are conspicuous objects even in the magnificent collection of this family which graces the National Museum.

5. GENUS PERISTERA, *Sicainson*, Zool. Jour. III, p. 360 (182.).

1. PERISTERA ERYTHROPTERA (*Gmelin*). The Garnet-winged Pigeon.

Columba erythroptera, GM. Syst. Nat. I, p. 775 (1788).

Columba leucophrys, FORST. Desc. An. p. 168 (1844).

Columba pampusan, QUOY et GAIM. Voy. Uranie, Zool. p. 121 (1824).

Peristera pectoralis, PEALE, Voy. Vincennes and Peacock, Birds, p. 205 (1848).*

Temm. & Knip, Fig. Plate LV ; Voy. Uranie, Birds, Plate XXX.

* " Body robust ; head, neck, and breast fulvous, palest on the forehead ; nape dark purple ; scapulars dark olive-green, having a golden iridescence ; wings, body, and tail, sepia-brown, inclining to dark gray on the upper surfaces of the tail-feathers and quills ; quill-feathers arcuate, the third one longest ; shafts brown ; tail rounded, consisting of twelve feathers, and extending one inch beyond the closed wings ; claws short, nearly straight, and black ; irides reddish-brown ; feet and legs large, and of a reddish-brown ; bill black.

" Total length eight and one-half inches ; tail four and one-half inches ; extent across the wings, fifteen and one-half inches ; bill eleven-twentieths of an inch. Female."

Both the bird described by Quoy and Gaimard, as above, of which specimens are in the collection of the Philadelphia Academy, and that described by Mr. Peale, of which specimens are in the present collection, are the young of *Columba erythroptera*, Gmelin. This species is probably diffused over several groups of islands in the Pacific, or migrates seasonally.

Mr. Peale mentions it as follows :

"Of this plump partridge-like Dove, but little can be said at present; we never saw but two specimens, which were found at Carlshoff, one of the coral islands of the Paumotu Archipelago. The whole island on which they were killed contains but a few acres of forest-land, under the trees of which were dense and tall bushes, from amongst which they flushed like Partridges, their wings producing much the same whirring sound. Not having a dog to rouse them, we were unable to find any more.

"This may possibly prove to be identical with Latham's Garnet-winged Pigeon (*Columba erythroptera*), said to have been found at the Island of Eimeo, by Captain Cook, but the difference of plumage as well as locality, constrains us to offer it as new."

6. GENUS ECTOPISTES, Swainson, Zool. Jour. III, p. 362 (1827).

1. ECTOPISTES CAROLINENSIS (Linn.).

Columba carolinensis, LINN. Syst. Nat. I, p. 286 (1766).

Columba marginata, LINN. Syst. Nat. I, p. 286 (1766)?

Catesby, Carolina, I, Plate XXIV; Wils. Am. Orn. V, Plate XLIII, fig. 1; Aud. B. of Am. Plate XVII; Oct. ed. V, Plate CCLXXXVI.

Specimens in the collection from Oregon present no characters different from those of the common bird of the States on the Atlantic. The range of this species is, therefore, throughout the entire extent of the temperate regions of North America.

The smaller species, discovered by Dr. Woodhouse, on the River Zuni, appears to be a more southern bird. It is *Ectopistes marginella*, Woodhouse, and is quite distinct from the present bird, though much resembling it in all general characters, except size.

These two species have been regarded by the Prince Bonaparte, in his Monograph of the *Columbidae*, recently published (*Conspectus Avium*, II, p. 84, Leyden, 1857), as forming a genus, to which he applies the name, *Zenaidura*. They are scarcely entitled to be classed so high, nor so distinct, being, very probably, subgeneric only, or a minor division of the genus *Ectopistes*. We find nothing recorded by the naturalists of the Expedition in relation to the occurrence of this bird in Oregon, but the present specimens are highly interesting, as demonstrating its very extensive range of locality.

7. GENUS CHAMAEPELIA, Swainson, Zool. Jour. III, p. 361 (1827).

1. CHAMAEPELIA AMAZILIA, Bonaparte.

Chamaepelia amazilia, BONAP. Conspectus Av. II, p. 78 (1854).

"*Chamaepelia minuta*, LINN." PEALE, Zool. Exp. Exp. Birds, p. 207 (1st ed. 1848).

According to Mr. Peale:

"Common in the vicinity of Callao, Peru, in the month of July. It has all the habits of the Ground Dove (*C. passerina*), of the Southern United States, spending the most of its time on the ground, but frequently alighting on bushes."

Like numerous other birds of the family of Pigeons and Doves, that described by Linnaeus as *Columba minuta*, has been mistaken by authors, and confused with other species. The present bird, as stated by Mr. Peale, is of common occurrence on the western coast of South America, and is not rare in collections. It is undoubtedly the species designated by the Prince Bonaparte as above cited, though intimately related to others inhabiting various countries of South America.

8. GENUS PLEIODUS, Reichenbach, Icon. Av. Syn. (1847).

1. PLEIODUS STRIGIROSTRIS (*Jardine*). Reich. Neue. Vog. New Holl. II, p. 158.

Gnathodon strigirostris, JARDINE, Ann. and Mag. Nat. Hist. XVI, p. 174 (1845).

Didunculus strigirostris, PEALE, Zool. Exp. Exp. Birds, p. 209 (1st ed. 1848).

Atlas, Ornithology, Plate XXXIV. Adult male.

Gray, Gen. of Birds, II, Plate CXX; Reich. Vollst. Naturg. Columbide, Plate CLXXVI, fig. 1528.

Reichenbach, in "Die Neuendeeckten Vogel Neu-hollands," II, p. 158, claims to have founded his genus *Pleiodus*, on this very remarkable bird, in the Synopsis to his Icones Avium, in 1847. The latter, in which he gives a figure, well representing this bird, rather unfortunately bears no date, but as this distinguished author distinctly avows his claim and affirms the fact of prior publication, we see no reason that his veracity should be impeached, or that his name should not be adopted. The generic name, *Gnathodon*, proposed by Jardine, as above cited, was previously employed in another department of Natural History, and Peale's name, *Didunculus*, was published in the first edition of the present volume, in 1848. We have, therefore, adopted *Pleiodus*.

This is one of the most remarkable birds, the existence of which have been made known in the present century, and although it cannot properly be regarded as a discovery made by the Expedition, in the Vincennes and Peacock, yet, its proper locality was determined, and Mr. Peale has given some interesting particulars in relation to it, which will be inserted in our present article. It was first described by Sir Will. Jardine, as above cited, in 1845, from a collection purchased in the City of Edinburgh, and containing mainly Australian species, which circumstance induced its describer to regard it as probably a bird of that island. It is also given by Mr. Gould, in his great work on the birds of Australia, above cited.

This bird is especially interesting on account of its affinity to several extinct species, such as the Dodo and others, now to be regarded as having, very probably, belonged to the family of Pigeons. At the time of its first having been brought to the attention of naturalists, it was the only species of its family showing such relationship, which must now, however, very probably, be shared with the curious species from the Marquesas Islands, described by the Prince Bonaparte, in the Revue et Magasin de Zoologie, 1856, p. 401, Pl. XVIII, and named by him *Serrisius galeatus*.

Of this extraordinary bird, two specimens are in the collection of the Expedition, both of which are in sufficiently good preservation to fairly represent the species.

Mr. Peale's observations are as follows :

"This bird formerly abounded in the Island of Upolu, one of the Samoan Islands, but now it is considered a rare species by the natives, and one which will be entirely destroyed in the course of a few years, if the same causes exist which are now operating to their destruction. They build their nests and pass most of the time on the ground, and flush like Partridges or Grouse, with a whirring sound, produced by their wings. Their food is mostly fruit, including a species of fig, growing in the mountainous regions which they inhabit. The tree called *owa* by the natives (*Ficus prolixa?* of botanists), producing the fig, is represented in our plate with the bird; it forms a remarkable feature in the Samoan scenery, its broad and ample branches spreading like umbrellas above all the other forest trees, many of which are gigantic, although covered, in a measure, by these enormous canopies. The trunks of the *owa* trees are little forests in themselves; that from which our sketch was made measured one hundred and two feet in diameter, and about the same from the ground to the main branches.

"The natives of the Samoan Islands, who spend much of their time indolently, are fond of pets, which are mostly Pigeons or Doves, their islands not affording suitable quadrupeds. A few years since a passion arose for cats, and they were obtained by all possible means from the whale ships visiting the islands, were much esteemed for a while, until the other pets were devoured by them; after which, *Pussy* (a name generally adopted by the Polynesians for cats), not liking yams and taro, the principal food of the islanders, preferred *Manu-mea*, and took to the mountains in pursuit of them. There the cats have multiplied, and become wild, and live upon our *Didunculus*, or little Dodo, the *Manu-mea* of the natives, which, it is believed, will, in a very few years, cease to be known, excepting by the miserable fragments now deposited in the National Museum, in the City of Washington, unless some more lucky collectors get them better than we did. They are, however, more perfect than the remains of the great Dodo (*Didus ineptus*, of Linnaeus), which are preserved in the Ashmolean and British Museums. We were enabled by great labor to obtain three specimens, one of which was lost by the wreck of our ship, the other two, deposited as stated, are male and female, but badly preserved.

"At Tahiti, the Garnet-winged Pigeon (*Columba erythroptera*, of Latham), was said to abound; they have, in like manner, been destroyed by cats introduced by early navigators, and since become wild, though retaining their varied colors like those domesticated.

The Pigeons or Doves are now almost unknown, and the cats are driven to the necessity of feeding on lizards."

This bird seems to have escaped the attention of voyagers, and its habits or history is yet but imperfectly known. In a communication by J. H. Gurney, Esq., of London, published in the Proceedings of the Zoological Society of London, for May, 1852, there are some valuable and interesting particulars, derived by that eminent patron of zoological science from Lieut. the Hon. F. Walpole, of the Royal Navy.

According to Lieut. Walpole, this bird is usually found in pairs or small flocks, the largest of which, seen by him, contained nine specimens, and is not strictly terrestrial in its habits, but was constantly seen perching on trees or flying. Its flight is limited "to a transit from wood to wood," and, "though inferior to that of most Pigeons, is of the same swooping and continuous character."

The food of specimens examined was found to consist of the berries of a species of ash, which abounded in the localities frequented by this bird, though it is intimated that it also, very probably, obtains roots or other food by scratching. In the breeding season, it is stated, it retires to the interior of the islands, "where it nests amongst the rocks." Though this gentleman did not observe the nest nor the eggs, he states that "the young are naked and helpless." The male is larger than the female, and does not attain to full plumage until the second year. This bird, according to Lieut. Walpole, is tamed by the Samoan Islanders in the same manner as other species of Pigeons.

The figure in our plate is rather smaller than the natural size.



HEAD OF FLEIODUS STRIGIROSTRIS.

2. FAMILY TETRAONIDÆ.—The Grouse, Partridges, and Quails.

1. GENUS TETRAO, *Linn. Syst. Nat. I*, p. 273 (1766).1. TETRAO UMBELLUS, *Linnaeus*.—The Ruffed Grouse. The American Pheasant.

Tetrao umbellus, LINN. *Syst. Nat. I*, p. 275 (1766).

Tetrao togatus, LINN. *Syst. Nat. I*, p. 275 (1766).

Tetrao umbelloides, DOUGLAS, *Trans. Linn. Soc. London*, XVI, p. 148 (1828)?

Buff. Pl. Enl. 104; Wils. Am. Orn. VI, Plate XLIX; Aud. B. of Am. Plate XLI; Oct. ed. V, Plate CCXCIII.

This species is mentioned by both Dr. Pickering and Mr. Peale, as having been observed in Oregon, but unfortunately no specimens are preserved in the collection. This circumstance is the more to be regretted, as an opportunity would have been presented of comparing specimens from the opposite sides of the continent. The species inhabiting Oregon has been named *umbelloides*, by the celebrated traveller, Douglas, and differences, apparently quite sufficient to establish specific distinction, have been pointed out, in the journal above cited. The most important character is the larger size of the western bird; "the northern bird" (obtained in Canada), he says, "is constantly one-third smaller."

Dr. Pickering mentions this bird under date of the 22d of May, at Puget Sound, Oregon:

"In specimens of *Tetrao umbellus*, obtained here, I can see no material difference from the Ruffed Grouse of the United States. But the bird here appears to be much more arboreal in its habits, and is frequently to be observed in the tops of trees, which is very rarely the case, I believe, with the eastern bird. Iris brown; wings concave, and quite short."

Mr. Peale states:

"Observed in abundance near the Columbia River, but not south of the Elk Mountains, lying north of the Umpqua River. It is subject

to the same variations of plumage on the coast of the Pacific Ocean, which have been observed on the Atlantic coast; some specimens have the rump and tail gray, while others have those parts of a rich ferruginous-brown."

2. *TETRAO OBSCURUS*, Say.—The Blue Grouse. The Dusky Grouse.

Tetrao obscurus, SAY, Long's Exp. II, p. 14 (1823).

Tetrao Richardsonii, DOUG. Trans. Linn. Soc. London, XVI, p. 141 (1828).

Bonap. Am. Orn. III, Plate XVIII; Rich. & Sw. Faun. Bor. Am. Birds, Plate LIX, LX; Aud. B. of Am. Plate CCCLXI; Oct. ed. V, Plate CCXCV.

This is strictly a western species, or, perhaps more properly, north-western, being best known as a bird of Oregon. Several specimens are in the collection of the Expedition, in which, however, we observe no characters other than have been given by previous writers.

Under date of 27th of May, at Puget's Sound, Oregon, we find in Dr. Pickering's Journal, the following memorandum:

"The Dusky Grouse, *Tetrao obscurus*, is not uncommon, and is mostly seen in the spruce trees. Loose skin on the side of the neck in the male, yellow. The nest is said to have been found on the ground, by the side of a small stream, but I did not see the eggs."

Mr. Peale observes:

"Common in Oregon, wherever coniferous evergreens occur, from the Rocky Mountains to the coast, and from Puget's Sound to the northern confines of California, but in this region is not so abundant south of the Umpqua River."

3. *TETRAO PHASIANELLUS*, Linnaeus.—The Sharp-tailed Grouse.

Tetrao phasianellus, LINN. Syst. Nat. I, p. 273 (1766).

Tetrao urophasianellus, DOUG. Trans. Linn. Soc. London, XVI, p. 136 (1828).

Bonap. Am. Orn. III, Plate XIX; Aud. B. of Am. Plate CCCLXXXII; Oct. ed. V, Plate CCXCVIII.

Dr. Pickering notices this species as occurring in Oregon. "It appears to be partial," he says, "to grassy flats along the rivers and other streams, and is sometimes started up in company with Curlews and other waders. In flight, it makes a whirring noise."

4. *TETRAO CANADENSIS*, *Linnaeus*.—The Canada Grouse.

Tetrao canadensis, LINN. Syst. Nat. I, p. 274 (1766).

Tetrao Franklinii, DOUGL. Trans. Linn. Soc. London, XVI, p. 139 (1828).

Buff. Pl. Enl. 131, 132; Faun. Bor. Am. Birds, Plate LXI, LXII;
Aud. B. of Am. Plate CLXXVI; Oct. ed. V, Plate CCXCIV.

Dr. Pickering also mentions a bird under this name, but with a question, indicating doubt as to the species. It inhabits, he states, spruce trees, in the more mountainous parts of Oregon.

We find no specimens in the collection.

5. *TETRAO UROPHASIANUS*, *Bonaparte*.—The Cock of the Plains.

Tetrao urophasianus, BONAP. Zool. Jour. III, p. 213 (1828).

Bonap. Am. Orn. III, Plate XXI; Faun. Bor. Am. Birds, Plate LVIII; Aud. B. of Am. Plate CCCLXXI; Oct. ed. V, Plate CCXCVII.

This species, the largest of the American Birds of this group, is but rarely mentioned by the naturalists of the Expedition. Its proper locality is perhaps more the interior of the country than was visited.

Mr. Peale observes:

"The plains on the Wallawalla River appear to be the western limit of this species, and although over much country south, which seemed to us to be favorable to it, we did not see a 'Cock of the Plains' on our way into California. Our specimens were obtained at Wallawalla."

Excellent specimens of this fine species are in the collection of the Expedition, in good preservation. This bird is now comparatively

well known, and frequently brought in collections, generally, however, from localities east of the Rocky Mountains. Next to the Wild Turkey, this is the largest game-bird of the United States.

2. GENUS *CALLIPEPLA*, Wagler, Isis, 1832, p. 277.

1. *CALLIPEPLA CALIFORNICA* (Shaw).—The California Partridge.

Tetrao californicus, SHAW, Nat. Misc. IX (not paged, 1798).

Shaw, Nat. Misc. IX, Plate CCCXLV; Aud. B. of Am. Plate CCCXVIII; Oct. ed. V, Plate CCXC; Gould, Mon. Odont. Plate XVI.

This fine species is frequently mentioned by the naturalists of the Expedition, and numerous specimens are in the collection. It may now be said to be well known as a bird of California, but, as the researches of few of the American travellers and naturalists have extended to Oregon, this bird has been but little noticed in its northern district, and the notes of Dr. Pickering and Mr. Peale are, therefore, of especial value. The former mentions this bird as repeatedly occurring, and sometimes in large numbers. His observations are, however, substantially the same as those of Mr. Peale, which are as follows:

"This beautiful species was first observed by the Expedition in the mountainous regions of Southern Oregon, near the forty-third degree of north latitude, which may be considered as about its furthest northern range. There the flocks were small, but, as we proceeded south, they continued to increase, and in California great numbers were seen daily. Several flocks or coveys unite in the autumn months, and delight in bushy flats, near the banks of streams. During our march through the Indian countries, north of California, we frequently observed them collecting at night to roost in trees. At such times, their call-note was plaintive, and had a slight resemblance to the words *cut-cut-cut me too*.

"This bird is hardy. A few specimens were kept alive by the members of the Expedition, and brought to the City of Washington by a route equal to the circumference of the earth, having crossed the

Equator twice. They have since produced one brood of young, but which unfortunately all died.

"The young birds are mottled with pale tawny and brown; the head is tawny, with a dark brown stripe reaching from the crown down the back of the neck to the shoulders; each of the wing-coverts has a light-colored tip, and a stripe down the middle."

This species is peculiar to the countries of Western North America, though we see no reason why it might not be readily naturalized in any portion of this continent within the same ranges of latitude.

2. CALLIPEFLA PICTA (Douglas).—The Plumed Partridge.

Ortyx picta, DOUGLAS, Trans. Linn. Soc. London, XVI, p. 143 (1828).

Ortyx plumifera, GOULD, Proc. Zool. Soc. London, 1837, p. 42.

Aud. B. of Am. Pl. CCCCXXII; Oct. ed. V, Plate CCXCI; Gould, Mon. Plate XV.

Specimens of this species are in the collection of the Expedition, and appear to have been obtained in Oregon. The only notice that we find of it, by either of the naturalists, is by Mr. Peale, as follows:

"The Columbia River appears to be the northern limit of this species. We saw it on the Willamette River, but, although in large flocks, it was not common. South of the Umpqua River, we saw it in greater numbers. In California it is in a great measure replaced by the California Partridge.

"Specimens of this Partridge were obtained by Captains Lewis and Clarke, on their journey across the continent to the mouth of the Columbia River, in 1806. Captain Lewis had a drawing made with the intention, it is supposed, of publishing it with his journal, but, as he died without accomplishing that object, the credit of this, with many other discoveries of that Expedition, has been lost."

This handsome and rather singular-looking species does not appear to be so abundant nor so extensively diffused as the preceding. It is apparently restricted to the countries west of the Rocky Mountains, and is yet comparatively rare in collections.

3. GENUS COTURNIX, *Moehring*, *Genera Avium*, p. 54 (1752).1. COTURNIX COMMUNIS, *Bonnaterre*.—The Quail.*Coturnix communis*, BONN. Eney. Meth. p. 217 (1790).*Coturnix dactylisonans*, MEYER.*Coturnix vulgaris*, FLEMING.*Tetrao coturnix*, LINN. Syst. Nat. I, p. 278 (1766).

Naumann, Vog. Deuts. VI, Plate CLXVI; Gould, B. of Eur. IV, Plate CCLXIII.

Specimens in the collection of the Expedition are from the Cape de Verde Islands, and are in apparently adult plumage. They appear to be the same as the European species, but have the bill rather stronger than usual in that bird.

Mr. Peale remarks with reference to this species :

"Quails were found in great abundance at the Island of St. Jago, one of the Cape de Verde Islands. They do not, on examination, present any characteristics by which they can be separated from those found in Europe, but from their being very fat on the 6th of October, and on dissection presenting satisfactory evidence that it was the commencement of the breeding season with them, we cannot suppose them individually the same which have migrated south.

"The retreats of this bird, among high strong grass, were betrayed by the often-repeated cry, *pet-wet-wet*, which can be heard about one hundred yards. On approaching them, they flush within about twenty feet, flying generally in a straight line, and are consequently easily shot."

4. GENUS THINOCORUS, *Eschscholtz*, *Zool. Atlas*, p. 2 (1829).1. THINOCORUS INGÆ, *Tschudi*.*Thinocorus ingæ*, TSCH. Wieg. Archiv, 1843, p. 387. Faun. Per. Orn. p. 279.*Glareola cuneicauda*, PEALE, Zool. Exp. Exp. Birds, p. 244 (first edition, 1848).**Thinocorus Swainsoni*, LESSON, Ill. Zool. p. (not paged, 1831)?

* "In general form and appearance like a Sparrow. Head, neck, and wing-coverts, pale tawny; the back darker; all the feathers of the upper parts are sepia-brown in the

Lesson, Ill. Zool. Plate XVI?

A single specimen, which appears to be that described by Mr. Peale, is in the collection of the Expedition, and is the only representative of this remarkable genus. It is labelled as having been obtained in Peru, and though not in mature plumage, is apparently the species described by Tschudi, in Wiegmann's Archiv and in Fauna Peruana as above. Tschudi mentions no other species as inhabiting Peru. We are at present not without a suspicion that *Thinocorus Swainsoni*, Lesson, will prove to be identical with the Peruvian species now before us, but have not the facilities necessary for a conclusive examination.

Mr. Peale mentions this species thus :

"They were obtained on high sandy plains, at the Island of San Lorenzo, Peru. Their flight is rapid and dodging. On the ground, they have very much the appearance of Brown Larks or Sparrows."

3. FAMILY PAVONIDÆ.—The Cocks, Turkeys, and Pea-fowls.

1. GENUS GALLUS, Linn. Syst. Nat. p. 48 (second edition, 1740).

1. GALLUS BANKIVA, Temminck.—The Wild Cock.—The Jungle Cock.

Gallus Bankiva, TEMM. Hist. Nat. Fig. et Gall. II, p. 87 (1813).

Phasianus Gallus, LINN. Syst. Nat. I, p. 270 (twelfth edition, 1766).

Jard. and Sel. Ill. Orn. III, Plate CXXXIX ; Gray, Ill. Ind. Zool. Plate XLIII, fig. 3.

middle ; the scapulars have a heart-shaped tawny spot, margined with black near their extremities ; throat white, with an obscure blackish border ; belly and under tail-coverts, white ; wings brown above, lighter beneath ; greater coverts, secondaries, and quills, brown, with a light margin ; first quill longest, its outer web white ; shafts of the first three quills white ; tail rounded, the two centre feathers much longer than the rest, which gives the whole a cuneiform appearance ; centre feathers brown, margined with tawny ; the others dark brown or black, margined and tipped with white ; bill yellow at the base, brown at the end ; legs yellow ; claws brown.

"Total length six and two-tenths inches ; wing, from the carpal joint, four and one-tenth inches ; tail, to the end of the middle feathers, two and one-tenth inches ; outer feathers one and four-tenths inches ; bill seven-twentieths of an inch ; the commissure one-half of an inch ; breadth three-tenths of an inch ; tarsi eleven-twentieths of an inch ; middle toe, including the nail, fifteen-twentieths of an inch ; nail two-tenths of an inch ; hind toe, including the nail, two-tenths of an inch ; nail one-tenth of an inch. Male."

Variety, *Gallus tahiticus*, nobis.

The Cock domesticated in the Philippine Islands, and, as was ascertained by the naturalists of the Exploring Expedition in the Vincennes and Peacock, in the Island of Tahiti also, is the nearest approach to the Jungle Cock of India (*Gallus Bankiva*), of any of the numerous domesticated varieties that have come under our notice. It appears, in fact, to be quite unmixed with any other species, and differs only from the parent bird in being of larger size and in having the comb larger and more deeply serrated. All the colors are very nearly absolutely identical.

In the collection of the Expedition we find a well-characterized specimen from Tahiti, and in the collection of the Philadelphia Academy, another, which was received in a collection of birds from the Philippine Islands, recently presented by Mr. William W. Wood, of Manilla, long an energetic and most valuable member. These two specimens are almost precisely identical with each other, and show the slight remove from the *Gallus Bankiva*, to which we allude. We regard it as very probable that the same variety inhabits other islands, possibly coincident with the diffusion of the Malay race.

The fact which appears from Mr. Peale's memoranda given below, that this Cock has again become wild in Tahiti, is of high interest. If retaining in its wild state, the marks which we now consider as indicating a domesticated variety only, its claims to be considered as a distinct species would be an interesting and somewhat novel problem.

The specimens before us are quite different from the domesticated variety known in this country, amongst fanciers as "the Malay." Under usual circumstances, this bird would probably be regarded as a distinct species.

We introduce with much satisfaction the following interesting notes on this Cock by Mr. Peale:

"Fowls are found wild in the unfrequented parts of the Island of Tahiti, which appear to be specifically the same with those held in a state of domestication by the natives at the time of their discovery by Europeans, and continued to the present day. They are less subject to variations of plumage than the domesticated fowls, and are said to retain a wild spirit which is not easily subdued. The young hatched from the eggs of wild hens take to the woods as soon as they are old

enough to leave their foster-mothers, and should a domestic fowl wander a sufficient distance from the dwelling of its master to be heard or seen by the wild ones, a battle ensues, which is almost always fatal to it.

"The Tahitians often take advantage of this belligerent propensity, to obtain a meal of tough poultry, by tying a cord six or eight feet long to the leg of a dunghill bully, and carrying him to the mountains at early dawn; the tame cock crows and is answered by the wild one, and from notes of defiance they are led to join in combat. The Tahitian conceals himself, until by the noise of wings he feels assured the strife has commenced, when he comes to the rescue, and generally finds the cord has bound the combatants together. Any person who has seen a cockfight, will readily understand how this has taken place. The wild fowl instantly loses his head, and the tame one renews the conflict with the next wild one within hearing of his notes of defiance.

"This variety may be indigenous to the group of Society Islands, as it differs in some respects from those of the Indian Ocean, but we cannot but believe them to be specifically the same, and that they were introduced by the Malayan forefathers of the present Tahitians. They give a collateral proof that such was the origin of the human race in Polynesia."

As stated above, this bird is larger than any specimens of the Asiatic Jungle Cock (*G. Bankiva*), that we have ever seen, but is of the same colors and general characters. It is either a peculiar and well-marked variety, or a distinct species.



HEADS OF GALLUS BANKIVA AND TAHITICUS.

(Smaller, *Bankiva*, larger, *Tahiticus*.)

2. GENUS ARGUS, Temm. Fig. et Gallin. III, p. 678 (1815).

1. ARGUS GIGANTEUS, Temminck.—The Argus Pheasant.

Argus giganteus, TEMM. Fig. et Gall. III, p. 678 (1815).

Argus pavoninus, VIEILL. Gall. II, p. 19 (1825).

Phasianus Argus, LINN. Syst. Nat. I, p. 272 (1766).

Vieill. Gal. des Ois. II, Plate CCIV; Lath. Gen. Hist. VIII, Plate CXX.

Some of the finest specimens that we have ever seen of this magnificent bird, are in the collection of the Expedition. We introduce it, however, for the purpose of giving a note from Dr. Pickering's journal, made at Singapore, by which it appears that this bird is occasionally brought alive to that city. "Sometimes brought living," he says, "to this place, but did not appear to be much admired by my informants, one of whom pronounced it 'an ungainly bird.'"

4. FAMILY STRUTHIONIDÆ.—The Ostriches.

1. GENUS RHEA, Moehring, Avium Genera, p. 57 (1752).

1. RHEA AMERICANA, Latham.—The South American Ostrich.

Rhea americana, LATH. Ind. Orn. II, p. 665 (1790).

Struthio Rhea, LINN. Syst. Nat. I, p. 266 (1766).

Buffon, Pl. Enl. 224.

This bird is mentioned in Dr. Pickering's journal under date of February 2d, 1839, at which time the Expedition was at the Rio Negro, Patagonia. In addition to its frequent occurrence at that point being recorded, we find memoranda of an examination of a specimen as follows:

"This specimen had a row of *ciliae* or eyelashes on the upper lid,

tongue very short and fleshy. Two *cæca*, excessively voluminous and convoluted, and of a greater diameter than the *rectum*, from which they arise about eight inches from the vent. Gizzard large, quite muscular, containing grasshoppers and other insects, some grass, small roots, and seeds, spikes of *Scirpi*, &c., but no lizards nor other reptiles.

"Two large external glands at base of throat, and a mass of glands at base of *oesophagus*. Plates of the *tarsus* both before and behind strongly defined, and reminded me of the ventral plates of a serpent. Well-defined plates also on the *phalanges* above. A young bird."

We find no specimen in the collection of the Expedition.

4. ORDER GRALLATORES.—The Wading Birds.

1. FAMILY ARDEIDÆ.—The Herons and Cranes.

1. GENUS GRUS, Linn. Syst. Nat. (first edition, 1735, not paged).

1. GRUS CANADENSIS (Linn.).—The Sandhill Crane.

Ardea canadensis, LINN. Syst. Nat. I, 234 (1766).

Grus poliophaea, WAGLER, Syst. Av. (not paged, 1827).

Edwards, Birds, III, Plate CXXXIII; Aud. B. of Am., Plate CCLXI; oct. ed. V, Plate CCCXIV.

This species is mentioned by the naturalists of the Expedition as occurring in vast numbers in Oregon and California, and appears to have constantly presented the cinereous plumage by which it is characterized and distinguished from the larger *Grus americana*. This fact is particularly alluded to by Mr. Peale, whose observations are given below.

That the present bird and the species just mentioned are specifically identical, which was conjectured only by Wilson, but asserted by Audubon evidently with the most entire sincerity, is an idea which may now be regarded as no longer entertained, the testimony of all the many intelligent observers who have visited the western countries of North America being against it, unanimously. The full investigation of *Grus americana*, especially in its immature stages of plumage, however, must yet be considered a service to be performed in North American Ornithology. We have never seen that species in young plumage, but it will possibly be found to be in some degree similar to that of the adult of the bird now before us, and quite possibly, too, Audubon may have figured the adult and young of the same species. Mr. Peale's observations on this point are of much interest.

In Western North America this is an abundant species, migrating southward in the autumn, and attracting attention by the large numbers in which it appears. Its proper home appears to be the immense regions of this continent north of the territory of the United States.

We introduce the following observations on this bird by Mr. Peale :

" This species was found in great numbers in the latter part of July on the prairies of Oregon, and was seen almost daily in our journey to California. It prefers moist open grounds, and roosts generally on small sand-bars in the rivers where convenient, but never, that we learned, on trees. We do not agree with Wilson or with Audubon, in believing the 'Sandhill' and 'Whooping Cranes' to be the young and old of the same species. If it were so, we would expect to find at least one old bird in many thousand individuals seen by our parties in Oregon and California, but we did not observe a single specimen of the Whooping Crane (*Grus americana*), although the bird was known to several persons of whom we made inquiry, as a rare visitor on that side of the Rocky Mountains. Sandhill Cranes or Storks (*Grus canadensis*), were familiar to every person, being known to breed in the country, and are very abundant. Indians, fur traders, trappers, and persons living in the forests and prairies, are prone to be observers of natural objects, and are, generally speaking, correct in their knowledge of the larger animals of the country where they range. They consider these two birds as distinct species, and we have no reason to disagree with them.

" *Grus americana* is the larger of the two species, and when young, we believe, is of a dusky ferruginous color, having seen it in both stages of plumage in the salt marshes of Florida, and on the prairies of the Missouri, but it is not common near the coast of the Pacific Ocean, while on the contrary, the *Grus canadensis* abounds there."

Dr. Pickering also gives some interesting notes on this bird. The following occurs in his journal kept in Oregon :

" The Sandhill Crane is quite common here, and its nest has been found near our camp. The egg appears to me to be nearly double the size of that of a goose, and is of a dirty white or rather light brown color, with reddish-brown spots, quite irregular in figure, and thinly scattered over its surface.

" The note of this bird, especially during flight, is loud and very distinct, sounding something like the syllables *buck-er-r-rup*. It walks with great facility, and runs swiftly, though in observing its flight, I was constantly impressed with an apparent awkwardness of position, much more than in the Herons. Its flight has, however, a more vigorous character and is evidently capable of long continuance. This Crane alights habitually on dry plains and on the hills, in which re-

spect it differs somewhat from the Herons, though I have never seen it perch on trees. It was found breeding at Port Discovery."

Subsequently, Dr. Pickering frequently mentions the occurrence of this bird in large numbers in California, especially under date of 6th of September, 1841, on the Sacramento River.

Specimens in unusually fine plumage and preservation are in the collection of the Expedition.

2. GENUS ARDEA, Linn. Syst. Nat. I, p. 233 (1766).

1. ARDEA JUGULARIS, Forster.

Ardea jugularis, FORSTER, Desc. An. p. 172 (1844).

"*Herodias Greyi*, GRAY," Gould, B. of Aust. VI (not paged)?

Ardea sacra, Gm. Syst. Nat. I, p. 640 (1788)?

Gould, B. of Aust. VI, Plate LX,—same, Plate LXI?

Numerous specimens of this species, in brown plumage, are in the collection of the Expedition, and also specimens of the white-plumaged bird, which Mr. Gould has characterized as specifically distinct under the name cited above. Both extend their range of locality apparently over the same groups of islands, from the Paumotu and Samoan Groups, to Australia. In the latter country, they are described as abundant by Mr. Gould, as above, who produces also very respectable evidence of their non-identity.

We have doubts of the identity of these birds, not only on account of their entire and unusual dissimilarity in color, but also because there is not in the whole collection, nor in any other collection to which we have access, a single specimen showing an intermediate stage of plumage. They are, however, very similar in their forms and general organization, and were considered identical by the naturalists of the Expedition, as will be seen in Mr. Peale's observations inserted in this article.

The name *Ardea sacra*, Gmelin, may perhaps be applicable to this bird. It was given by Gmelin on the faith of a description by Latham, of a species designated by him as "the Sacred Heron," in General Synopsis of Birds, III, p. 92. Singularly enough, that description would apply only to an intermediate plumage, if at all to this species. Our inability to solve the problem here presented of the identity or

non-identity of these two birds, we much regret, as we probably have a larger number of specimens than has ever before been subjected to the examination of any one investigator. The uniform characters of each induce us to suspect that they are distinct, but we do not at present feel justified in adopting a conclusion.

Mr. Peale mentions this species as follows:

"This species was found to inhabit nearly all the intertropical islands of the Pacific Ocean. We first saw them at the Paumotu Group, then at Tahiti, the Samoan Islands, and subsequently at Tongatabu, and the Feejees. From all these places we have specimens, which, on comparison, are so much alike, that we are constrained to believe them identical. The young birds are generally, but not always, of a dark brownish slate-color, a few being white. The adults, on the contrary, are generally snow-white in plumage, but some, having the elongated back and breast plumes which indicate adult plumage, are found of a dark slate-color, thus indicating that the color depends on other causes, and is not, as in most cases, depending on the maturity of the bird.

"A purple or dark slate-colored specimen, when killed at Carlshoff Island, in September, had the under mandible green; the upper black; legs green; iris yellow. A white specimen, in about the same state of plumage, each having long straight dorsal plumes, but much worn, had a yellow bill, and the legs yellow, tinged with green; lores greenish; eyes bright yellow; both specimens were females. Dimensions: twenty-four inches in length, and thirty-nine and a half inches in extent of wings. In all states of dark plumage there is invariably a white line running perpendicularly along the throat."

This widely diffused species is one of the most handsome birds of its group. Very fine specimens are in the collection of the Expedition.

2. ARDEA STAGNALIS, Gould.

Ardea stagnalis, GOULD, Birds of Australia, VI (not paged, 1848).

Ardea patruelis, PEALE, Zool. Exp. Exp. Birds, p. 216 (1st ed. 1848).*

* "In general appearance and size, this is like the Green Heron (*Ardea virescens*) of North America, and in its voice it also resembles it. Suberested, crown, back, and upper parts of the tail, green, all having cinereous or purple reflections when viewed at particular angles with the light; wing-coverts edged with rufous; primaries dark

Gould, B. of Aust. VI, Plate LXVII.

Specimens from Tahiti in the collection of the Expedition cannot be distinguished from others in the Museum of the Philadelphia Academy, from Northern Australia. The latter are from Mr. Gould's collection, and are the types of his description and figure, above cited. In his article on this species, in *Birds of Australia*, as cited above, Mr. Gould refers to a description in the *Proceedings of the Zoological Society of London*, Nov. 1847, which we do not find in the copy to which we have access, and cite, therefore, his description in the work we have mentioned.

Mr. Peale mentions this bird as "common at Tahiti along fresh water streams."

3. ARDEA HERODIAS, *Linnaeus*.—The Great Heron.

Ardea herodias, LINN. Syst. Nat. I, p. 237 (1766).

Ardea hudsonia, LINN. Syst. Nat. I, p. 238.

Wilson, Am. Orn. VII, Plate LXV, fig. 5; Aud. B. of Am. Plate CCXI; oct. ed. VI, Plate CCCLXIX.

A specimen in the collection from Oregon. This species is noticed by the naturalists of the Expedition as having been seen in that country and in California.

brownish-gray; shafts black; the second quill longest, first and third equal; tail rounded, the shafts black above, white beneath; sides of the neck, breast, belly, and under tail-coverts, tawny ash-color; a white line in front of the neck, which reaches from the bill to the breast, near this the feathers have each a tawny spot on the tip; under parts of the wings ash-colored, with a white margin in front; bill above black, beneath yellow; lores green, with a yellow spot in front of, and above the eye; legs yellow; the claws pale brown.

"Total length, sixteen inches; wing, from the carpal joint, seven and three-tenths inches; tail, two and eight-tenths inches; bill two and six-tenths inches; to the corners of the mouth, three and a half inches; tarsi, one and eight-tenths of an inch; middle toe, including the claw, two inches; claw, seven-twentieths of an inch. Male.

"The females are somewhat larger, but in plumage resemble the males. The young birds have their sides, belly, and under tail-coverts of a ferruginous buff-color, which also descends from the head down the sides of the neck, each feather having longitudinal double lines of dusky black; legs dirty green."

4. ARDEA VIRESCENS, *Linnaeus*.—The Green Heron.

Ardea virescens, LINN. Syst. Nat. I, p. 238 (1766).

Ardea striata, LINN. Syst. Nat. I, p. 238.

Wilson, Am. Orn. VII, Plate LXI, fig. 1; Aud. B. of Am. Plate CCCXXXIII; oct. ed. VI, Plate CCCLXVII.

Noticed by Dr. Pickering on the Sacramento River, California, on the 30th of August, 1841. This well-known species appears to inhabit the whole of the temperate regions of North America.

3. GENUS EGRETTE, *Bonap.* Comp. List. p. 47 (1838).1. EGRETTE CANDIDISSIMA (*Gmelin*).—The Snowy Heron.

Ardea candidissima, GM. Syst. Nat. I, p. 633 (1788).

Ardea nivea, JACQUIN, Beitr. p. 18 (1784)?

Wilson, Am. Orn. VII, Plate LXII, fig. 4; Aud. B. of Am. Plate CCXLII; oct. ed. VI, Plate CCCLXXIV.

Observed in California.

2. EGRETTE THULA (*Molina*).

Ardea thula, MOL. Sagg. Stor. Nat. Chili (1782).

Specimens are in the collection from Chili. This species resembles the North American *E. candidissima*, but is, perhaps, properly to be regarded as distinct, being larger. It is, however, nearly related to that species.

3. EGRETTE GALATEA, *Molina*.—The Greater White Heron.

Ardea galatea, MOL. Sagg. Stor. Nat. Chili (1782).

Ardea egretta, GM. SYST. Nat. I, p. 629 (1778).

Egretta leuce, BONAP. Comp. List. p. 47 (1838).

Wilson, Am. Orn. VII, Plate LXI, fig. 4; Aud. B. of Am. Plate CCCLXXXVI; oct. ed. VI, Plate CCCLXX.

Mentioned by Dr. Pickering as observed on the Sacramento River, California, on the 29th of August, 1841.

4. GENUS NYCTICORAX, *Stephens*, Gen. Zool. XI, p. 592 (1819).

1. NYCTICORAX GARDENI (*Gmelin*).—The Night Heron.

Ardea Gardeni, GM. Syst. Nat. I, p. 645 (1788).

Nycticorax americanus, BONAP. Comp. List. p. 49 (1838).

Ardea cyanocephala, MOL. Stor. Nat. Chili (1782)?

Nycticorax obscurus, BONAP. Consp. Av. II, p. 141 (1855)?

Wilson, Am. Orn. VII, Plate LXI, figs. 2, 3; Aud. B. of Am. Plate CCXXXVI; oct. ed. VI, Plate CCCLXIII.

Numerous specimens from Peru and Chili, that we have examined, do not differ from the bird of North America, except perhaps in being rather larger. Specimens from Chili are in the collection of the Expedition; and this bird was observed also in Oregon. If to be regarded as distinct from the North American species, the proper name for the bird of Peru and Chili is that applied by Molina, as above cited.

This species is mentioned by Dr. Pickering as occurring at Puget's Sound, Oregon, on the 22d of July, 1841.

5. GENUS BOTAURUS, *Stephens*, Gen. Zool. XI, p. 592 (1819).

1. BOTAURUS EXILIS (*Gmelin*)?

Ardea exilis, GM. Syst. Nat. I, p. 645 (1788)?

Ardea erythromelas, VIEILLOT?

Wilson, Am. Orn. VIII, Plate LXV, fig. 4?

Under this name, but doubtfully, Mr. Peale mentions a bird observed at Oahu, of which we find no specimen in the collection.

We give Mr. Peale's remarks:

"When at Oahu, this species, or one closely allied to it, was ascertained to frequent the fresh-water streams and taro patches in the neighborhood of Pearl River, but having lost the specimens in the wreck of the U. S. Ship Peacock, it is now impossible to assert positively that they are identical, but the resemblance is very close."

Botaurus exilis inhabits North America, but we have never seen it from either of the islands in the Pacific, and therefore regard Mr. Peale's statement as possessing peculiar interest. The nearly allied South American bird is regarded as a distinct species, under the name *Botaurus erythromelas* (Vieillot). It is quite probable that the bird alluded to by Mr. Peale is unknown to naturalists.

2. *BOTAURUS LENTIGINOSUS* (*Montagu*).—The American Bittern.

Ardea lentiginosa, MONTAGU, Orn. Dict. Supp. (not paged, 1813).

Ardea minor, WILSON, Am. Orn. VIII, p. 35 (1814).

Wilson, Am. Orn. VIII, Plate LXV, fig. 3; Aud. B. of Am. Plate CCCXXXVII; oct. ed. VI, Plate CCCLXV.

Mentioned by Dr. Pickering as having been noticed on the Sacramento River, California, on the 27th of August, 1841.

2. FAMILY TANTALIDÆ.

1. GENUS IBIS, *Moeching*, Av. Gen. p. 71 (1752).

1. IBIS *ORDII*, *Bonaparte*.—The Glossy Ibis.

Ibis Ordii, BONAP. Comp. List, p. 49 (1838).

"*Ibis falcinellus*, LINN." Auct. American.

Bonap. Am. Orn. IV, Plate XXIII, fig. 1; Aud. B. of Am. Plate CCCLXXXVII; oct. ed. VI, Plate CCCLVIII.

This handsome species is apparently a more northern bird than the succeeding, but the two have been constantly confounded with each other, and with *Ibis falcinellus* of the Old World, so much so, in fact, that it is almost impossible to separate their synonymy.

This bird is larger than the South American species alluded to in the article immediately succeeding, and which appears to be a summer visitor to the southwestern countries of the United States. The present species we have never seen from South America.

Specimens in the collection of the Expedition are labelled as having been obtained in Oregon, into which country this species appears to extend its migration in summer, probably inhabiting the entire western coast of North America. This and allied species are regarded as forming the genus *Falcinellus*, Bechstein, adopted by the Prince Bonaparte in his Monograph of the family *Tantalidæ*, in *Conspectus Avium*, II, p. 149.

Dr. Pickering mentions this bird as occurring at Vancouver, Oregon.

2. IBIS GUARAUNA (*Linn.*).

Scolopax guarauna, LINN. Syst. Nat. I, p. 242 (1766).

Tantalus chalcopterus, TEMM. Pl. Col. V, p. (liv. 86).

Ibis brevirostris, PEALE, Zool. Exp. Birds, p. 219 (first edition, 1848).*

Temm. Pl. Col. V, Plate DXI; Shaw, Nat. Misc. XVII, Plate DCCV.

This species inhabits apparently nearly the entire southwestern regions of the continent of America, from New Mexico and California, to Patagonia. It is of frequent occurrence in Peru and Chili, and,

* "Head, neck, breast, belly, and thighs, sepia-brown, lightest near the head; feathers of the head finely edged with white; back, wings, and tail, olive-green, with a blue and purple gloss; bill short, strong at the base, narrow at the tip, slightly curved, and of a dark brown color; legs very thick, the toes short, and having short, straight black nails; irides brown. Male.

"Total length, twenty and seven-tenths inches; wing, from the carpal joint, twelve inches; tail, four and three-twentieths inches; tarsi, two and seventeen-twentieths inches; bare part of the tibia, one and one-fourth inches; middle toe, including the nail, two and two-tenths inches; nail, four-tenths of an inch; hind toe, including the nail, one inch; nail, seven-twentieths of an inch; bill, three and nine-twentieths inches; to the corner of the month, three and one half inches." Peale, as above.

according to accurate and careful observers in the latter country, migrates further southward. Though bearing a general resemblance to the northern and eastern species, *Ibis Ordii*, Bonap., it is quite distinct, and not difficult to recognize on comparison of specimens. It is frequently brought in collections from New Mexico and Southern California, the more so, perhaps, from the former.

Mr. Peale states in allusion to the present species :

"This interesting bird was observed in flocks of fifteen or twenty, along the banks of fresh-water streams and lakes in Chili, during the month of May. Their flight was easy and graceful. The only specimen saved was in immature plumage, having the head, neck, and belly, sepia-brown, with a double line of white on each of the feathers of the head and neck; bill brown; legs dusky."

The specimen here alluded to is not in mature plumage, but is apparently not so young as that described by Mr. Peale as *Ibis brevirostris*, of which he mentions: "It was killed on the River Rimac, in Peru, in July. But few others were seen, and they were all solitary, and seemed to prefer thick reedy swamps, like the Rallidæ."

As a bird of North America, this species was first noticed by our friend, Dr. S. W. Woodhouse, who procured it on the Rio Zoquete, in Texas, while attached to the Expedition to the River Zuni, commanded by Captain L. Sitgreaves, United States Army. It is included in his catalogue of birds collected during that Expedition, in the Report, p. 98.

3. FAMILY RALLIDÆ.

1. GENUS RALLUS, *Linn. Syst. Nat. I, p. 261 (1766).*

1. RALLUS PECTORALIS, *Lesson.*

Rallus pectoralis, LESSON, *Traite*, p. 536 (1831).

"*Rallus pectoralis*, CUV. *Gal. de Paris*," Less. as above.

Gould, B. of Aust. VI, Plate LXXVI.

Of this handsome species, well known as a bird of Australia, numerous specimens are in the collection from various islands in the Pacific,

but presenting no specific distinctions. Some are without the characteristic pectoral band, but the greater number from all the localities have it either fully or partially developed. We find slight differences only in size and relative dimensions, of no appreciable value in specific determination.

Mr. Peale observes in relation to this species :

"Specimens were procured at the Samoan or Navigator Islands, at the Feejees, Tonga, and New Holland. They vary but little either in size or plumage; all have a ferruginous band across the breast at certain times, and are without it at others. They frequent grassy and shrubby grounds, and it is very difficult to make them take to their wings, but they run with considerable speed; without a dog it is not easy to obtain them, unless by watching a road or path, when a person may now and then see them cross, when it is easy to shoot them.

"The iris is reddish-brown; bill dusky flesh-color; legs yellowish-brown.

"Male, killed at Upolu; total length, thirteen inches; extent of wings, nineteen inches; bill, to the corner of the mouth, one and six-tenths inches.

"Male, killed at Mathuata, Feejees; total length, thirteen and one-eighth inches; extent of wings, nineteen and three-fourths inches; bill, to the corner of the mouth, one and a half inches."

The diffusion of this bird throughout such an extensive range of localities, is a fact of much interest, ascertained by the naturalists of the Expedition. Specimens in the collection are in good order and mature plumage.

2. RALLUS SANGUINOLENTUS, Swainson.

Rallus sanguinolentus, SWAINS. Cab. Cy. III, p. 335 (1838).

Rallus luridus, PEALE, Zool. Exp. Birds, p. 223 (first edition, 1848).*

* "Crown, hind part of neck, back, wings, and tail, rich olive-brown; cheeks, front of the neck, breast, and belly, dark ashy blue, lightest on the throat; thighs and vent tinged with olive-brown; wings dark brown; shafts black; first quill much shorter than the others, fourth longest, second and third slightly shorter; bill curved; both mandibles rounded at the edges; upper mandible blue at the base, green in the middle, and brown at the tip; lower mandible brown at the tip, green in the middle, and reddish at the tip; legs pale red; irides orange.

"Total length, fourteen inches; wing, from the carpal joint, six and two-tenths inches;

Specimens in the collection are from Orange Harbor, Tierra del Fuego. This species appears to be abundant on the western coast of South America. It is related to *Rallus caesi* (Spix. Av. Bras. Plate XCV), but appears to be larger, though specimens vary in measurements quite considerably. We are acquainted with no figure of this species.

Very fine specimens of this bird are also in the National Museum, brought from Chili, by the United States Astronomical Expedition, commanded by Lieut. J. M. Gilliss, United States Navy. It appears to inhabit the western coast of South America, from Chili to Patagonia.

2. GENUS ZAPORNIA, Leach.

1. ZAPORNIA UMBRINA, Cassin.

Zapornia umbrina, CASSIN, Proc. Acad. Philad. VIII, p. 254 (1856).

"*Zapornia spilonota*, GOULD," Peale, Zool. U. S. Exp. Exp. Birds, p. 224 (1st ed. 1848).

Atlas, Ornithology, Plate XXXV, fig. 2. Adult.

FORM.—Small, about the size of *Z. spilonota*, Gould. Bill rather long, slender; membrane of the nostril large; wing moderate; third primary longest; tertiaries long; tail short; tarsus and toes long.

DIMENSIONS.—Total length (of skin), about five and a half inches; wing, three inches; tail, two inches.

COLORS.—Entire upper parts reddish-brown, or snuff-color, darker on the head, and lighter on the wing-coverts, without spots. Quills and tail brownish-black; edge of the first primary white; edge of wing at shoulder white. Under parts light cinereous, nearly white on the throat; under wing-coverts and under tail-coverts, brownish-black,

tail, three inches; bill, two and three-tenths inches; to the corner of the mouth, two and five-twentieths inches; tarsi, one and nineteen-twentieths inches; middle toe, including the nail, two and three-tenths inches; nail, half an inch; hind toe, including the nail, seven-tenths of an inch; nail, three-tenths of an inch." Peale, as above.

spotted with white. On the side below and under the wing, light reddish-brown; bill and legs greenish.

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington City.

A species resembling *Zapornia spilonota*, Gould, but without spots on any portion of the plumage of the upper parts, and having a strong distinctive character in the brown color of the sides, which, when the wing is closed, presents the appearance of a longitudinal band of that color immediately below. *Z. spilonota* inhabits the Galapagos Islands. The present is from the Feejees, and is readily to be distinguished.

The genus *Zapornia* is a peculiar group of small birds, nearly allied to *Porzana*, Vieillot, and probably of very similar habits. The nearest relatives of this group in North America are *Porzana jamaicensis* and *noveboracensis*.

We have only a note by Mr. Peale relating to this species:

"A single specimen was obtained at Ovolau, one of the Feejee Islands. It is without spots on the wings, but in other respects answers to Mr. Gould's description."

Mr. Peale regarded this bird as identical with Mr. Gould's *Z. spilonota*, figured in Voyage of the Beagle, Birds, Pl. XLIX, to which, however, it is only generically related.

This interesting little bird is represented in our plate of the natural size.

3. GENUS FULICA, Linn. Syst. Nat. I, p. 257 (1766).

1. FULICA ALAI, Peale.

Fulica alai, PEALE, Zool. U. S. Exp. Exp. Birds, p. 224 (first edition, 1848).

Atlas, Ornithology, Plate XXXVI. Adult.

F. americana minor, rostro graciliore. Tota profunde cinerea, capite et collo prope nigris. Long. tot. 13 pollices.

FORM.—Rather smaller than *F. americana*, and with the bill more slender. Wing rather short; second quill longest; tertiaries long,

tail short; tarsi robust; frontal extension small, ending in a point on the forehead. Inferior coverts as long as the tail.

DIMENSIONS.—Total length (of skin), about thirteen inches; wing, six and a half inches; tail, two inches; bill to gape, one and one-fourth inches; tarsus, two inches.

COLORS.—Entire plumage dark cinereous, nearly black on the head and neck, lighter on the breast and abdomen, and tinged with olive-brown on the back. Tips of secondaries white, forming an oblique bar on the wing when folded; outer edge of the first primary white; under tail-coverts white. "Bill reddish-white, the frontal knob pale blue; legs bluish-green." (Peale.)

HAB.—Sandwich Islands. Specimen in Nat. Mus. Washington City.

A species much resembling several others of this rather difficult genus, but apparently distinct, and probably restricted to the Sandwich Islands. It has a comparatively longer and more slender bill than the common species of North America, more resembling in that respect *Fulica australis*, Gould, and some other species. It appears also to be uniformly smaller than the species to which we allude. The only specimens that have ever come under our notice, are in the collection of the Expedition, and are in mature plumage and good preservation.

Mr. Peale observes of this bird:

"At the Sandwich Islands it is not uncommon on marshy banks of creeks and in taro patches, and, according to our observations, is restricted to that group."

This species is represented in our plate rather smaller than the size of life.

2. *FULICA AMERICANA*, *Gmelin*.—The Coot. The Mud Hen.

Fulica americana, GM. Syst. Nat. I, p. 704 (1788).

Fulica Wilsoni, STEPHENS, Gen. Zool. XII, p. 236 (1824)

Wilson, Am. Orn. IX, Plate LXXIII, fig. 1; Aud. B. of Am. Plate CCXXXIX; oct. ed. V, Plate CCCV.

This species is frequently mentioned by Dr. Pickering in Oregon, and subsequently on the Sacramento River, and at other points in California. In the latter country, he alludes to it as quite abundant in the month of October, and on the Sacramento. He says: "In all the specimens seen, the frontal enlargement of the bill seemed particularly conspicuous. This bird was seen swimming in the river."

4. GENUS PORPHYRIO, *Brisson*, Orn. V, p. 523 (1760).

1. PORPHYRIO INDICUS, *Horsfield*.

Porphyrio indicus, *HORSF.* Trans. Linn. Soc. London, XIII, p. 194 (1822).

Porphyrio smaragdinus, *Temm.* Pl. Col. V. (liv. 71, about 1825).

Porphyrio samoensis, *PEALE*, Zool. Exp. Birds, p. 220 (1st ed. 1848).*

Temm. Pl. Col. 421.

With several specimens before us in the collection of the Expedition, and numerous others from the Museum of the Philadelphia Academy, we fail to perceive any characters indicative of distinction in species. All the former are, however, from the Samoan Islands, while the latter are from Java, Sumatra, and other islands of the Malay Archipelago. There is, therefore, a wide difference in locality, but we can at present only conclude on identity.

Mr. Peale observes of the present bird :

"This species was found to be abundant in all the fresh-water ponds of the Island of Upolu, one of the Samoan Group, and were also frequently flushed from grassy meadows."

* "Bill and vertex crimson; feet yellow, dashed with crimson; cheeks, and occiput black; back, scapulars, and greater wing-coverts, olive-brown; wings and tail black, with a tinge of blue-green on their outer webs; neck and belly ultramarine blue; breast and upper margin of the wing cobalt blue; all the plumage of the body black next to the body, and having white shafts; under tail-coverts white.

"Total length, seventeen and two-tenths inches; wing, from the carpal joint, nine and four-tenths inches; bill, from the back of the frontal plate, two and a half inches; from the corner of the mouth, one and seven-tenths inches; depth of the upper mandible at its base, eleven-twentieths of an inch; depth of the lower mandible, three-tenths of an inch; tarsi, three and two-tenths inches; middle toe, including the nail, three and eight-tenths inches; nail, seven-tenths of an inch; hind toe, one and eight-tenths inches; nail, thirteen-twentieths of an inch."

2. PORPHYRIO VITIENSIS, Peale.

Porphyrio vitiensis, PEALE, Zool. Exp. Exp. Birds, p. 221 (1st edition, 1848).

Capite, collo, pectore et humeris ultramarinis, tergo, alis et cauda olivaceo-fuscis. Abdomine purpurascens-coeruleo, crissis albis. Long. tot. 13 pollices.

FORM.—Typical, much smaller than the preceding. Bill rather short, high at base, and rather abruptly tapering; frontal extension moderate, circular; wing rather long, fourth quill longest; tertiaries long; tail short; legs robust; tibia naked for about one-third of its length next the tarsus; toes long. Quills pointed.

DIMENSIONS.—Total length (of skin), about thirteen inches; wing, eight inches; tail, two and a half inches; bill to gape, one and one-fourth inches; tarsus, two and one-fourth inches; middle toe, three inches.

COLORS.—Head, neck, breast, and shoulders, ultramarine blue, darker on the occiput and neck behind, and tinged with purple; back, wings, and tail, dark olive-brown; quills on their outer edges greenish-blue; abdomen dull purplish-blue; under tail-coverts white. Bill and tarsi light colored, the former probably red, the latter yellow.

HAB.—Feejee Islands. Specimen in Nat. Mus. Washington.

This is a species very much resembling the preceding, but much smaller, and with the frontal plate comparatively restricted. We regard it as a bare possibility, that it is the young of that bird, but on account principally of its marked difference in size, and also of the fact that it inhabits a different group of islands, at present we regard it as a distinct and hitherto undescribed species.

In form, this bird is strictly the same as *P. smaragdinus*, and other typical species. It is, however, one of the smallest known species of this genus.

The following is the only note that we find on record relating to this bird, and is by Mr. Peale:

"Inhabits swampy grounds and taro ponds of the Feejee Islands, and supposed to be rare, as we obtained but two specimens."

Specimens in the collection of the Expedition are in good preservation.

4. FAMILY SCOLOPACIDÆ.—The Woodcocks and Snipes.

1. GENUS SCOLOPAX, Linn. Syst. Nat. I, p. 242 (1766).

1. SCOLOPAX MERIDIONALIS, Peale.

Scolopax meridionalis, PEALE, Zool. U. S. Exp. Exp. Birds, p. 229 (1st ed. 1848).

Atlas, Ornithology, Plate XXXV, fig. 1. Adult.

Supra nigra et ferruginea, capite lineis duabus longitudinalibus nigris, subtus pallide fulva lineis transversis profunde fuscis. Long. tot. 11½ pollices.

FORM.—About the size of *S. saturata*, Horsfield. General form robust; bill long, strong, thick at base; wing moderate, second quill longest; legs very strong; tail short.

DIMENSIONS.—Total length (of skin), about eleven and a half inches; wing, six and one-fourth inches; tail, two and a half inches; bill, three and one-fourth inches.

COLORS.—Entire upper parts black and ferruginous, the black forming two stripes on the head, with a narrow intermediate stripe of the latter. Every feather on the back and scapulars and the tertiaries, black, with somewhat semicircular or lunated bands of ferruginous, paler on the edges. Rump and upper tail-coverts with irregular transverse bands of black and ferruginous. Quills light brown, the two first paler, and nearly white on their outer webs. Under parts pale fulvous, thickly spotted on the cheeks, neck, and breast, with dark brown; flanks and sides irregularly barred transversely with dark brown; middle of abdomen unspotted. Tail dark brown, with irregular trans-

verse bars of pale reddish-white. Bill dark brown, lighter at base of under mandible. "Irides dark brown; legs pale red" (Peale).

HAB.—Orange Bay, Tierra del Fuego. Specimen in Nat. Mus. Washington City.

This is a very remarkable species, the only specimen of which, that we have ever seen, is in the collection of the Expedition. It belongs to an intermediate group, partaking in almost equal proportions of the characters of the restricted genus *Scolopax*, or the Woodcocks (of which the European *Scolopax rusticola* is the type), and of the genus *Gallinago*, or the Snipes. Its thick and strong bill, and very robust legs, appear to us, however, to give it preferable claims to be regarded as a *Scolopax* or Woodcock.

Scolopax saturata, Horsfield, figured in that eminent author's Zoological Researches in Java, approximates somewhat to the intermediate group to which we allude, and presents greater general resemblance to the present species, than any other with which we are acquainted. The stripes on the head, however, in the present bird, are longitudinal, as in *Gallinago*. The only specimens that we have ever seen of this interesting species, are in the collection of the Expedition, and appear to be in mature plumage.

The only note relating to this bird that we find, is by Mr. Peale, as follows:

"This Woodcock is common in damp thick forests, or moist bushy lands about Orange Bay, Tierra del Fuego. We never saw it on open marshy ground where the Magellanic Snipe is common."

Our figure represents this bird of the natural size.

2. SCOLOPAX AUCKLANDICA (*G. R. Gray*).

Gallinago aucklandica, G. R. GRAY, Zool. Voy. Erebus and Terror, Birds, p. 13 (1845).

Scolopax Holmesii, PEALE, Zool. U. S. Exp. Birds, p. 229 (1st ed. 1848).*

Zool. Voy. Erebus and Terror, Birds, Plate XIII.

* Mr. Peale does not give a description of this species.

The only specimen of this interesting little species that we have ever seen, we find in the present collection. Though not belonging to the same group as the preceding, it appears to us to be more properly arranged in *Scolopax*, than in *Gallinago*. The specimen now before us appears to be younger than that represented in Mr. Gray's plate, though having both the black and the ferruginous markings on the upper parts much more strongly defined than as given in the plate alluded to, but with the bill scarcely as long nor so robust. In our specimen, the ferruginous is especially observable, and the black shows a tendency to form somewhat ovate or cordate spots and lines rather irregularly distributed.

We regret to find no notes relating to this species in the journals of the naturalists of the Expedition, Mr. Peale only mentioning that a single specimen was obtained at Lord Auckland's Islands, by Dr. Holmes, of the United States Navy, to whom he dedicated it, but subsequently ascertained that he had been anticipated, as above.

2. GENUS GALLINAGO, Leach.

1. GALLINAGO PARAGUAYÆ (Vieill.).

Scolopax paraguayæ, VIEILL. Ency. Meth. III, p. 1160 (1823).

Scolopax brasiliensis, SWAINS. Faun. Bor. Am. II, p. 400 (1831).

Scolopax paludosa, GM. Syst. Nat. I, p. 601 (1788)?

Buff. Pl. Enl. 895?

Several specimens from the vicinity of the City of Rio de Janeiro, are in the present collection. Mr. Swainson's description, as cited above, is too short to be satisfactory, but applies apparently to this bird, and at present we regard it as the true *S. paraguayæ*, Vieillot. We are acquainted with no figure of this species, unless it is that represented in Buffon's plate, to which we refer above, and which, by the way, we think, not improbable.

2. GALLINAGO MAGELLANICA (King).

Scolopax magellanicus, KING, Zool. Jour. IV, p. 93 (1828).

Scolopax leucurus, SWAINS. Faun. Bor. Am. II, p. 501 (1831)?

Gray, Genera of Birds, III, Plate CLVII?

Specimens from Orange Bay, Tierra del Fuego, where, according to Mr. Peale, it was observed to be of common occurrence. This species is larger than the preceding, and with the plumage of the upper parts lighter colored, though strictly belonging to the same generic group. It much resembles Mr. Gray's figure, as above cited, and is about the same size, but of the species there represented, *S. leucurus*, we have no specimens for comparison.

3. GALLINAGO STENURA (*Temminck*).

Scolopax stenura, TEMM.

Scolopax Horsfieldii, GRAY, Ill. Ind. Zool. II (name on plate, 1834).

Scolopax biclavata, HODGSON, Proc. Zool. Soc. London, 1837, p. 491.

Scolopax pectenica, PEALE, Zool. U. S. Exp. Exp. Birds, p. 227 (1st ed. 1848).*

Gray, Ill. Ind. Zool. II, Plate LIV.

Specimens in the collection are from Singapore. We find nothing in the notes of the naturalists of the Expedition in relation to this species.

* "Size and general appearance analogous to the foregoing (*S. brasiliensis*, *magellanicus*, and *australis*), the tail-feathers presenting the only striking peculiarity; they are twenty-six in number, the eight outer shafts on each side having very narrow webs, somewhat widened at the ends; the ground color of the head, neck, breast, back, and wing-coverts, pale ferruginous; two stripes of brown pass over the crown, and another from the bill to the eye; neck-feathers lineated with brown; scapulars lineated and barred with brown; lesser wing-coverts barred; under wing-coverts and flanks white, barred with black; primaries brown, first longest; shafts above pale brown, beneath white; tail tipped with white, excepting the two centre feathers, within the white a narrow dark brown band, and within that again, the eight centre feathers have a broad ferruginous band, from that to the roots all are brown, the outer ones being lightest.

"Total length, ten and a half inches; wing, from the carpal joint, five and eight-tenths inches; bill, two and six-tenths inches; to the corner of the mouth, two and a half inches; tarsi, one and three-tenths inches; middle toe, including the nail, one and eleven-twentieths inches; nail, one-fourth of an inch; hind toe, half an inch; nail, three-twentieths of an inch; tail, one and six-tenths inches."

3. GENUS LIMOSA, *Brisson*, Orn. V, p. 261 (1760).

1. LIMOSA FEDOA (*Linn.*).—The Marbled Godwit.

Scolopax fedoa, LINN. Syst. Nat. I, p. 244 (1766).

Edwards, Birds, III, Plate CXXXVII; Wilson, Am. Orn. VII, Plate LVI; Aud. B. of Am. Plate CCXXXVIII; oct. ed. V, Plate CCCXLVIII.

According to Mr. Peale :

"Observed on the northwest coast of America, at Puget's Sound, and in the interior of Oregon not uncommon."

Dr. Pickering also mentions this bird as occurring on the Sacramento River, California, in September, 1841. It appears to be one of the species which wanders over the whole of temperate North America.

2. LIMOSA NOVÆ ZEALANDIÆ, *J. R. Gray*.

Limosa novæ zealandiæ, G. R. GRAY, Voy. Erebus and Terr. Birds, p. 13 (1845).

Limosa lapponica, var. *novæ-zealandiæ*, G. R. GRAY, *ut supra*.

Limosa Forstii, PEALE, Zool. Voy. Exp. Exp. Birds, p. 231 (1st ed. 1848).*

From the specimen in the collection of the Expedition, we do not feel justified in deciding on the absolute identity of this bird with *Limosa lapponica* (which is held to be the same as *Limosa rufa*, and

* "Less than *Limosa hudsonica*. Color pale tawny-brown, lighter beneath; crown and back of the neck mottled with umber; breast and flanks slightly lineated; back-feathers barred with umber; the wing-coverts have umber centres, and light tawny margins; primaries and spurious wings fuliginous; first quill longest; tail light tawny, with eight pale umber bars; it consists of twelve feathers; bill slightly turned upwards, slender towards the point, and dilated at the tip; tip black, the rest reddish; legs nearly black.

"Total length, fourteen and three-fourths inches; wing, from the carpal joint, nine and two-tenths inches; tail, three inches; bill, two and nineteen-twentieths inches; to the corner of the mouth, three and one-tenth inches. tarsi, two and one-twentieth inches; middle toe, including the nail, one and seven-twentieths inches; nail, one-fourth of an inch."

leucophæa), but it is assuredly nearly related to it. It is, however, undoubtedly the bird referred to by Mr. Gray, in the Zoology of the Voyage of the Erebus and Terror, as above.

This bird was obtained at Rose Island, one of the Samoan Group.

4. GENUS NUMENIUS, *Moebling*, Av. Gen. p. 74 (1752).

1. NUMENIUS LONGIROSTRIS, *Wilson*.—The Long-billed Curlew.

Numenius longirostris, WILSON, Am. Orn. VIII, p. 23 (1814).

Wilson, Am. Orn. VIII, Plate LXIV, fig. 4; Vieill. Gal. II, Plate CCXLV; Aud. B. of Am. Plate CCXXXI; oct. ed. VI, Plate CCCLV.

Observed, and specimens obtained in Oregon by the naturalists of the Expedition. Mr. Peale states that this bird is common on the prairies, from the Columbia River to California.

Dr. Pickering mentions this bird as abundant in Oregon in the month of June, 1841. "Large numbers," he observes, "seem to have taken up their residence in the grassy flats and plains, and undoubtedly breed here. Its note is a sort of whistle, not unlike the word *Curlew*, with the last syllable much prolonged, uttered more quickly, and in a more complaining tone when the bird is flying overhead. In one instance, during a rain, I noticed this bird alighting in the top of a tree, frequently repeating its note; once, also, I saw it attack and chase a hawk, which retreated quite precipitately.

"This bird reminds me of the Cayenne Lapwing, seen in South America, and, indeed, the scenery here is not unlike the plains of Chili." Subsequently, in the month of October, he alludes to this bird as occurring in large numbers in California.

2. NUMENIUS HUDSONICUS, *Latham*.—The Short-billed Curlew.

Numenius hudsonicus, Lath. Ind. Orn. II, p. 712 (1790).

Scolopax borealis, WILSON, Am. Orn. VII, p. 22 (1813).

Numenius rufiventris, VIGORS, Zool. Jour. IV, p. 356 (1829)?

Wilson, Am. Orn. VII, Plate LVI; Aud. B. of Am. Plate CCXXXVII; oct. ed. VI, Plate CCCLVI.

South American specimens are in the present collection, but are unfortunately not mature birds. So far as we can judge from them, this species appears to be correctly regarded by authors on Peruvian and Chilian Ornithology as *Numenius hudsonicus*. This bird wanders, apparently, along the sea-coasts of both divisions of the continent of America, throughout almost its entire extent.

The specimens in the collection of the Expedition were killed at the Island of San Lorenzo, Peru, in the month of June.

3. *NUMENIUS FEMORALIS*, Peale.

Numenius femoralis, PEALE, Zool. U. S. Exp. Exp. Birds, p. 233 (1st ed. 1848).

Atlas, Ornithology, Plate XXXVII. Adult.

N. hudsonico major, supra profunde umbrinus, lineis obscure fulvis, subtus obscure flavescens, lineis angustis fuscis. Pennis tilialibus seta longa rigida terminatis. Long. tot. 16 pollices.

FORM.—Rather larger than *N. hudsonicus*. Bill thick at the base, moderately curved; upper mandible deeply grooved in front of the nostril. Wing long, first primary longest; tertiaries long; tail rather short; legs long; tibia feathered for rather more than half its length, all the feathers of which terminate in long, somewhat rigid bristles. Tarsus long; toes moderate.

DIMENSIONS.—Total length (of skin), about sixteen inches; wing, nine and one-fourth inches; tail, four inches.

COLORS.—Upper coverts of the tail dull yellowish-white, unspotted; tail yellowish-white, tinged with fulvous, and having about six or seven transverse narrow bands of brownish-black. Head above, with two wide stripes of dark umber-brown commencing at the base of the bill, and uniting on the occiput; a central stripe on the head, and

another through and behind the eye, light buff-color; throat, neck before and behind, and entire under parts, dull yellowish-white (or buff-color), lightest and nearly pure white on the throat, darker on the abdomen, neck, and breast, with narrow longitudinal lines of brown; sides and flanks with some transverse bars of brown; abdomen, tibiae, and under tail-coverts, unspotted. Back, rump, and wing-coverts, dark umber-brown, nearly every feather edged and spotted, especially on their inner webs, with dull fulvous. Quills brownish-black, with their shafts white, and with transverse imperfect bars of ashy white on their inner webs; bill, with the upper mandible dark; lower mandible light; legs dark ("pale blue," Peale).

HAB.—Vincennes Island, one of the Paumotu Group. Specimen in Nat. Mus. Washington.

The most remarkable character of the bird here described, is the singular form of the feathers of the tibiae, from which Mr. Peale has given it the specific name, as above. The plumage of the upper portion of the tibiae is rather profuse and dense, and the shaft of each feather is continued beyond the end, forming a long, slender, and somewhat rigid hair or bristle. This character is constant in all the specimens in the collection, and is one which we have failed to detect in any other species of which we have specimens or descriptions.

The present bird appears to be a smaller species than *Numenius tahiticus* (Gmelin). It belongs to the group or subgenus of the smaller Curlews, of which *Numenius hudsonicus* and *Numenius phaeopus* are the best-known species, and to them and others of the group, it bears a general resemblance. It is quite different from the bird regarded by us as *N. tahiticus*, in the collection made by the United States Expedition to Japan, and figured in our article on Birds, in the Report, by Commodore Perry, vol. II, Pl. III.

Mr. Peale observes of this species:

"There does not appear to be any difference in the plumage of the two sexes, unless it be a slightly stronger ferruginous tint in the males. When flying, the pale buff tail-coverts, and light-colored tail, form a conspicuous distinguishing character, and when killed, the remarkable form of the feathers on the thighs, which terminate in long bristles; a peculiarity which exists in all our specimens.

"They were abundant on Vincennes Island, one of the Paumotu

Group, in the month of September, when they had become exceedingly fat by feeding on the berries of a species of *Canthium*, then very plenty. They were rather tame, and uttered a clear plaintive whistle, when flushed."

This is one of the most remarkable birds discovered during the voyage of the Expedition. It is represented in our plate, cited above, of the size of life.

5. GENUS TOTANUS, *Bechstein*, Ornith. Taschen. p. 282 (1802).

1. TOTANUS OCEANICUS, *Lesson*.

Totanus oceanicus, LESSON, Comp. aux Œuv. de Buff. p. 244 (1847).

Totanus polynesiæ, PEALE, Zool. U. S. Exp. Birds, p. 237 (1848).

Totanus pulverulentus, MÜLLER, Verhandelingen, p. 153 (1814)?

Scolopax undulata, FORSTER, Disc. An. p. 173 (1844).

Totanus fuliginosus, GOULD, Voy. Beagle, Birds, p. 130 (1841)?

Temm. and Schleg. Faun. Japon. Birds, Plate LXV?

Of this species, specimens from various islands in the Pacific are in the collection, and though they vary somewhat in size, do not, to us, present any reliable distinctive characters. Nearly all of them are in immature plumage, but several specimens are very nearly as described by Lesson in his notice of this species, as above cited.

Those having the appearance of the more mature plumage, are as follows: Entire upper parts, neck before, breast, and sides, dark lead-colored, uniform, and without white marks; throat, middle of the abdomen, ventral region, and under tail-coverts, white. Under wing-coverts white, spotted, and barred with dark lead-color. A stripe of white running from the base of the bill over the eye; lores dark ashy brown; eye inclosed in a narrow circle of white. Quills dark brown; shaft of the first primary white on its upper surface; shafts of other primaries reddish-brown (on their upper surfaces), and of all on their under surfaces white. Tail lead-colored, uniform with the upper parts of the body; shafts of the tail-feathers lead-colored above, white beneath. Wings long, pointed, first primary longest; secondaries short, truncate, emarginate; tertiaries long; tarsi and toes rather short; tibia feathered for about two-thirds of its length.

Total length, about ten and a half inches; wing, six and a half inches; tail, three and one-fourth inches.

Younger birds have the plumage of the upper parts as above, but the entire under parts are transversely barred with white and dark ashy brown, the latter color predominating on the sides and flanks. Throat and middle of the abdomen nearly pure white.

This species can scarcely be distinguished from *Totanus pulverulentus*, Müller, if it is not absolutely identical. The only appreciable difference that we can perceive, is the slightly darker color of the present bird, as pointed out by Lesson, as above, and by Pucheran, in Guérin's *Revue et Magasin de Zoologie*, 1851, p. 571, with reference to this bird, and to the species immediately succeeding.

From the succeeding bird, the present differs only in being somewhat larger. We are not without a suspicion that the conclusion of the learned authors of the *Fauna Japonica* (in article on *T. pulverulentus*, Aves, p. 109), is correct. They regard this bird and the next as one species.

The specimens in the collection of the Expedition are from the Feejee, Tahiti, and the Samoan Group. Recently, this bird has been found inhabiting Northwestern America, having been sent to the National Museum in the very interesting collection made by Dr. J. G. Cooper, who was attached as naturalist and surgeon to the party commanded by Gov. I. I. Stevens, which surveyed the most northern proposed route for a railroad to the Pacific Ocean. Dr. Cooper's specimens were obtained in Washington Territory.

2. TOTANUS BREVIPES, Vieillot.

Totanus brevipes, VIEILL. *Nouv. Dict.* VI, p. 410 (1816); PUCHERAN, *Rev. et Mag. Zool.* 1850, p. 370.

Totanus pedestris, LESS. *Traite*, I, p. 52 (1831).

Totanus griseopygius, GOULD, *Proc. Zool. Soc. London*, 1848, p. 39?

Scolopax pacifica, FORSTER, *Desc. An.* p. 174 (1844).

Gould, B. of Aust. V, Plate XXXVIII?

The specimens that we regard as this species, are from the Paumotu Group, and are in the plain unspotted plumage, very similar to that of the preceding species. We cannot distinguish them from speci-

mens before us, from Mr. Gould's collection, of his *Totanus griseopygius*, except by a slight difference in size, and they are identical with others in the museum of the Philadelphia Academy, from the collection of the Duke of Rivoli, and labelled *Totanus brevipes*. It may be regarded as very probable that the present bird and the preceding are specifically identical, and that all the names given are synonymous.

Specimens in the collection are in good preservation.

3. *TOTANUS MELANOLEUCUS* (*Gmelin*).—The Greater Yellow-shanks Snipe.

Scolopax melanoleuca, GM. Syst. Nat. I, p. 659 (1788).

Scolopax vociferus, WILSON, Am. Orn. VII, p. 57 (1813).

Wilson, Am. Orn. VII, Plate LVIII, fig. 5; Aud. B. of Am. Plate CCCVIII; oct. ed. V, Plate CCCXLV.

Mentioned by Dr. Pickering under date of 3d of September, 1841, on the Sacramento River, California.

4. *TOTANUS MACULARIUS* (*Linnaeus*).—The Spotted Sandpiper.

Tringa macularia, LINN. Syst. Nat. I, p. 249 (1766).

Wilson, Am. Orn. VIII, Plate LIX, fig. 1; Aud. B. of Am. Plate CCCX; oct. ed. V, Plate CCCXLII.

Mentioned by Dr. Pickering as occurring in Oregon, and subsequently under date of 29th of August, 1841, on the Sacramento River, California. This species, and that immediately preceding, are common birds of the coast of the Atlantic, and probably inhabit the entire intermediate country to the Pacific Ocean.

6. GENUS TRINGA, Linn. Syst. Nat. I, p. 247 (1766).

1. TRINGA PARVIROSTRIS, Peale.

Tringa parvirostris, PEALE, Zool. U. S. Exp. Exp. Birds, p. 235 (1st ed. 1848).

Atlas, Ornithology, Plate XXXVIII, fig. 2. Adult.

Rostro brevi, recto, supra umbrina, lineis pallide cinereis et rubescentefulvis, subtus cinerascens-alba, villis angustis transversis profunde fuscis. Long. tot. 7½ pollices.

Bill short, straight, slender; wings long, first, second, and third quills very nearly equal; tertiaries but little longer than the secondaries; tail rather long, wide, rounded; legs and toes long, the former robust; tibia feathered for more than half its length. A distinct stripe over and behind the eye ashy white. Entire upper parts umber-brown, unspotted on the top of the head, but on other upper parts edged and tipped with ashy white and reddish-fulvous. Tail-feathers umber-brown, with irregular and imperfect transverse narrow bands of ashy and pale reddish-white, and tipped with the same. Under parts white, with a tinge of ashy; throat and middle of the abdomen unspotted; breast, sides, and under coverts of the tail, spotted, and with irregular transverse bars of brown, the latter (bars) most apparent on the sides, flanks, and under coverts of the tail. Inferior coverts of the wing ashy white, irregularly spotted with brown. Bill greenish, darker at the tip; legs dark green. "Irides dark brown" (Peale.) Sexes very nearly alike, female slightly paler.

DIMENSIONS.—Total length (of skin), about seven and a half inches; wing, four and one-fourth inches; tail, two and a half inches; "extent of wings, thirteen and a half inches" (Peale).

HAB.—Paumotu Islands. Specimen in Nat. Mus. Washington City.

This remarkable species, which appears only to have been noticed by the naturalists of the Exploring Expedition, may be distinguished

at once from any other species known to us, by its small and slender bill. The legs and feet are, however, strong and fully developed, and the tail unusually long and wide.

Several specimens in the collection of the Expedition are very similar to each other in their colors and other characters, differing only slightly in the shade of the brown color of the upper parts, and in the greater or less prevalence of the brown spots and bars on the under parts. In dimensions they agree almost exactly. Our description is from the most mature specimens; in others, the brown spots of the breast are more numerous, and extend further downwards, but in all, the throat and middle of the abdomen are white, as described above.

To this bird, Mr. Peale alludes as follows:

"Found in considerable abundance on Dog Island, one of the Paumotu Group, on the 21st of August. At that time they had both eggs and young, and were so tame as almost to allow themselves to be taken by hand. They had a plaintive, wailing note, and alighted indiscriminately on bushes or on the ground. Their eggs were found in slight nests, constructed of pieces of broken corals and shells, on the ground, and are large in proportion to the size of the bird, much pointed at one end, and large at the other, of a pale brown ochre-color, spotted with sooty-black.

"Subsequently, this bird was observed at Raraka, another island of the same group, but was not so plentiful."

This singular little bird has the bill unusually short and straight, though it otherwise presents the characters of the genus *Tringa*. It is very probably entitled to a distinct generic or subgeneric designation. Specimens in the collection are in good condition and mature plumage.

Our plate represents this bird of the natural size, and was prepared from a specimen which we regard as an adult male.

7. GENUS STREPSILAS, *Müller*, *Prodromus*, p. 263 (1811).

1. STREPSILAS INTERPRES (*Linn.*).—The Turnstone.

Tringa interpres, LINN. *Syst. Nat.* I, p. 248 (1766).

Wilson, *Am. Orn.* VII, Plate LVII, fig. 1; Aud. B. of Am. Plate CCCIV; oct. ed. V, Plate CCCXXIII.

This little bird is one of the very few species that appear to be at home in all the sea-coasts of the temperate and tropical regions of the globe. Minute and careful comparison of specimens from various localities widely distant from each other, facilities for which are afforded in the collection of the Philadelphia Academy, and that of the Expedition, have resulted in the detection of no appreciable difference whatever.

According to Mr. Peale :

"This species was found common on many of the islands of the Pacific Ocean, north and south of the Equator, but none were seen in full plumage, and all appeared to be migrating. At Mathew's Island, one of the Kingsmill Group, near the Equator, it was seen in large flocks on the 24th of April. Nine specimens were killed at a single discharge from a small fowling-piece, and they were found to be exceedingly fat.

"The specimen exhibited in the National Gallery, was killed at Callao, Peru, in the month of June. It is a female, and has but a few ferruginous and black spots on the scapulars."

In addition to the specimen from Peru, mentioned by Mr. Peale, there is another in the collection labelled as from the Feejee Islands. This bird is mentioned also by Dr. Pickering as occurring at various localities, including nearly all points visited by the Expedition in North and South America, and in the islands of the Pacific Ocean.

8. GENUS PHALAROPUS, *Brisson*, Orn. VI, p. 12 (1760).

1. PHALAROPUS HYPERBOREUS (*Linn.*).—The Northern Phalarope.

Tringa hyperborea et lobata, LINN. Syst. Nat. I, p. 249 (1766).

Bonap. Am. Orn. IV, Plate XXV, fig. 2; Aud. B. of Am. Plate CCXV; oct. ed. V, Plate CCCXL.

Mentioned by both Mr. Peale and Dr. Pickering, as having been frequently observed in Oregon.

The former observes :

"Common in Oregon. Our specimen was obtained on the Willa-

mette River. It was shot while swimming lightly on the water, and throwing its head frequently forward, like some species of geese.

"Large flocks of Phalaropes were seen about midway between the Sandwich Islands and the Columbia River. Their flight was wild and swift, and they frequently alighted on the surface of the sea. At a distance they resembled this species, but none allowed the ship to approach sufficiently near to enable us to feel certain of their identity."

Dr. Pickering notes the occurrence of this bird also on the Sacramento River, California.

9. GENUS RECURVIROSTRA, *Linnaeus*, *Syst. Nat.* I, p. 256 (1766).

1. RECURVIROSTRA AMERICANA, *Gmelin*.—The American Avocet.

Recurvirostra americana, *Gm. Syst. Nat.* I, p. 693 (1788).

Wilson, *Am. Orn.* VII, Plate LXIII, fig. 2; *Aud. B. of Am.* Plate CCCXVIII; oct. ed. VI, Plate CCCLIII.

Noticed by the naturalists of the Expedition in Oregon and California.

Mr. Peale states that this bird is "not uncommon in Oregon, and is common in California. Young birds have the head, back of the neck, and part of the scapulars, pale cinereous." The young of this species he regards as identical with that immediately succeeding, in which conclusion, however, we do not coincide.

2. RECURVIROSTRA OCCIDENTALIS, *Vigors*.—The White Avocet.

Recurvirostra occidentalis, *VIGORS*, *Zool. Jour.* IV, p. 356 (1829).

Voy. Blossom, *Birds*, Plate XII; Cassin, *B. of Cal. and Texas*, I, Plate XL.

Mentioned by Dr. Pickering as occurring in Oregon.

This bird is easily recognized and distinguished from the preceding, by the pure white plumage of the head and the greater portion of the body. It is now a well-known species of Western North America.

10. GENUS HIMANTOPUS, *Brisson*, Orn. V, p. 33 (1760).1. HIMANTOPUS NIGRICOLLIS, *Vieillot*.—The Stilt.*Himantopus nigricollis*, *Vieill.* Nov. Dict. X, p. 42 (1817).*Charadrius himantopus*, *Linn.* Syst. Nat. I, p. 255 (1766).

Wilson, Am. Orn. VII, Plate LVIII, fig. 2; Aud. B. of Am. Plate CCCXXVIII; oct. ed. VI, Plate CCCLIV.

Mentioned by Dr. Pickering, under date of 25th of August, 1841, as occurring on the Sacramento River, California.

5. FAMILY CHARADRIADÆ.—The Plovers.

1. GENUS CHARADRIUS, *Linn.* Syst. Nat. I, p. 253 (1766).1. CHARADRIUS XANTHOCEILUS, *Wagler*.*Charadrius xanthocheilus*, *WAGLER*, Syst. Av. (Charadrius, sp. 36) 1827.*Charadrius fulvus*, *Gm.* Syst. Nat. I, p. 687?

Gould, B. of Aust. V, Plate XIII.

Specimens from the Feejee and Samoan Islands are identical with the Australian bird which Mr. Gould has figured and described in Birds of Australia, as cited above. All in the present collection are unfortunately in immature plumage, though several of them have the under parts so much spotted with black, as to leave no doubt that in the adult bird those parts are of that color.

This is one of the species so nearly related to *Charadrius plumialis*, and resembling also in general appearance *Squatarola helvetica*, as to be only distinguished with difficulty in several stages of plumage. The young of this bird strongly resembles the species first mentioned, but both, with their under parts glossy black, show great relationship to the last. Though we adopt the views of Mr. Gould, in referring

this bird to *Charadrius xanthocheilus*, Wagler, it is in a great measure because we at present are acquainted with no other species from the Southern Islands in the Pacific Ocean to which this description can be applied, and not on account of any especial application of Wagler's description to this bird.

One specimen from the Hawaiian Islands, in the collection of the Expedition, appears to be *Charadrius fulvus*, Gmelin. It is, like those above alluded to, in imperfect plumage, and its only peculiarity is a more uniform brown color on the breast and neck before; in other respects it is similar, and we do not regard it as a distinct species.

Under date of November 13th, 1841, at sea, between the coast of California and the Sandwich Islands, Dr. Pickering alludes to this species as follows:

"A Golden Plover, which had been noticed flying around the ship, came on board towards evening and was captured. It was greatly fatigued, and evidently much out of its course, as we were nearly five hundred miles to the eastward of the Island of Oahu. As it came on board voluntarily, this circumstance was regarded as conclusive evidence of the non-existence of land in this vicinity. In this specimen, the whitish band extending through the frontlet and over each eye, appeared to me as unusually distinct."

Dr. Pickering again mentions this bird as being noticed flying around the vessels of the squadron, on the 22d of December, at sea, some degrees west of the Sandwich Islands. It is evidently widely diffused, and performs very extensive migrations.

2. GENUS SQUATAROLA, Cuvier, Reg. An. I, p. 467 (1817).

1. SQUATAROLA HELVETICA (Linn.).—The Black-bellied Plover.

Tringa helvetica et squatarola, LINN. Syst. Nat. I, p. 250, 252 (1766).

Charadrius apricarius, LINN. Syst. Nat. I, p. 254 (1766).

Wilson, Am. Orn. VII, Plate LVII; Aud. B. of Am. Plate CCCXXXIV; octavo ed. V, Plate CCCXV.

In the collection we find a specimen of this species from California; and Dr. Pickering records its occurrence in both that country and

Oregon. It is widely diffused, being given by Mr. Gould as a bird of Australia.

3. GENUS HIATICULA, *Moehring*, Av. Gen. p. 75 (1752).

1. HIATICULA VOCIFERA (*Linn.*).—The Killdeer.

Charadrius vociferus et torquatus, LINN. Syst. Nat. I, pp. 253, 255 (1766).
Charadrius jamaicensis, GM. Syst. Nat. I, p. 685 (1788).

Wilson, Am. Orn. VII, Plate LIX; Aud. B. of Am. Plate CCXXV; octavo ed. V, Plate CCCXVII.

This strongly marked and well-known bird appears to inhabit the whole of North America except the Arctic regions, and is at least a winter visitor to the southern division also of this continent. Dr. Pickering notices this bird as having been observed in Oregon and in California, more abundantly in the latter country. One specimen in the collection was obtained in the vicinity of Callao, Peru, which, though apparently strictly identical with the northern species, Mr. Peale states, "had the eyelids yellow when fresh, and not red like the northern birds, a difference arising probably from age." We can detect no material differences in specimens from North and South America.

Dr. Pickering mentions this bird as especially abundant on the Sacramento River, California, in the month of September, and previously at Puget Sound, Oregon, in the month of June, 1841.

2. HIATICULA FALKLANDICA (*Latham*).

Charadrius falklandicus, LATH. IND. Orn. II, p. 747 (1790).
Charadrius annuligerus, WAGLER, Syst. Av. (not paged, 1827).
Charadrius trifasciatus, LICHT. Verz. p. 71 (1823)?

Portlock's Voyage, Plate at page 36.

One specimen from Patagonia, which, though apparently in young

plumage, is the species alluded to in the descriptions by Latham and Wagler, cited above. It appears to be rather a common bird of Western South America.

3. HIATICULA FUSCA (Gould).

Squatarola fusca, GOULD, Voy. Beagle, Birds, p. 126 (1841).

Charadrius rubecola, KING, Zool. Jour. IV, p. 96 (1828)?

From Tierra del Fuego. Specimens in the collection of the Expedition, and in that of the Philadelphia Academy, have to us the appearance of young birds, though undoubtedly the species described by Mr. Gould, as above; *Charadrius rubecola*, King, may be the adult of this bird, and, judging from the description, it is approached by one specimen in the present collection, in which the wide pectoral band assumes a light rufous color. It has also some indications of the black subpectoral band as described originally, as above cited.

Though we have little doubt that the birds here alluded to are identical, and that the names above cited are synonymes, neither of them is, by any possibility, identical with *Vanellus cinctus*, Lesson, Voy. Coquille, Pl. XLIII, as has been supposed by several ornithologists. Of the last bird, specimens are in the collection of the Philadelphia Academy.

4. GENUS SARCIOPHORUS, Strickland, Proc. Zool. Soc. London, 1841, p. 32.

1. SARCIOPHORUS TRICOLOR (Vieillot).

Charadrius tricolor, VIEILL. Nouv. Diet. XXVII, p. 147 (1818).

"*Charadrius pectoralis*, CUV. Mus. Paris," Wagler Syst. Av. (1827).

Charadrius vanelloides, PEALE, Zool. Exp. Birds, p. 240 (1st ed. 1848).*

* "In general aspect and habits, like the 'Spur-wing Plovers' of South America and Australia (*Vanellus Cayensis* and *Gallinaceus*), but not much more than half their size. Crown, suborbital stripe, and breast, black; auricular stripe, throat, belly, thighs, and tail-coverts, white; back yellowish-brown, very pale on the back part of the neck, and darkening towards the ends of the scapulae, which are very long, and towards the ends of the greater wing-coverts, which are nearly black, the whole glossed with delicate pur-

Gould, Birds of Aust. VI, Plate XI.

Specimens of this well-known bird in the collection of the Expedition were obtained, according to Mr. Peale, "in the district of Argyle, New South Wales. They were not plentiful," he continues, "and seemed to prefer drier ground than the Spur-wing Plover (*Vanellus gallinaceus*), of Jardine and Selby, which is supposed to be the Wattled Sandpiper of Latham, a common bird in moist meadows of the same district of country."

5. GENUS ESACUS, Lesson, *Traite d'Orn.* I, p. 547 (1831).

1. ESACUS MAGNIROSTRIS (Temm.).

Ellicnemus magnirostris, TEMM. Pl. Col. V, p. (liv. 65, about 1824).

Temm. Pl. Col. 387.

Specimens from the Island of Mangsi.

Mr. Peale says of this bird:

"It is common in the Philippine and Sooloo Islands, where we saw it frequently. The two sexes are alike in size and plumage, they are not gregarious, but are usually seen in pairs, or solitary. This species has all the habits and even the shrill voice of the Oyster-catchers (Genus *Hæmatopus*), and like them, it frequents only the shores where the water is salt, probing the sand and gravel beaches for *crustacea*, which seem to constitute the principal part of its food."

ple; wings having a rudimentary spur on the carpal joint, and another, smaller, on the next joint; the first naked, the second covered by the feathers; they are of a dark sepia-brown color, lighter beneath; under coverts white; secondaries white, with black tips; greater coverts dark brown, tipped with white; tail slightly rounded, consisting of twelve feathers, white, with a black band near the tip; bill and eyelids pale yellow; irides yellow; wattle in front of the eye lake red; legs lake red, with sooty scales.

"Total length, eleven inches; wing, from the carpal joint, seven and nine-tenths inches; bill, seventeen-twentieths of an inch; to the corners of the mouth, one and one-tenth inches; tarsi, one and seven-tenths inches; middle toe, including the nail, one inch; nail, one-fourth of an inch; tail, three and three-tenths inches.

"The two sexes are nearly alike in size and plumage, the male being somewhat darker in color, and having the richer purple gloss."

We observe nothing peculiar in the specimens before us, from the collection of the Expedition, and they are apparently exactly identical with others from various Asiatic localities. They are in mature plumage.

6. GENUS HAEMATOPUS, *Linn. Syst. Nat. I, p. 257 (1766).*

1. HAEMATOPUS PALLIATUS, *Temminck*.—The American Oyster-catcher.

Haematopus palliatus, TEMM. *Man. d'Orn. II, p. 532 (1820).*

Haematopus brasiliensis, LICHT. *Verz. p. 73 (1823).*

Wilson, *Am. Orn. VIII, Plate LXIV, fig. 2*; Aud. B. of Am. Plate CCXXIII; oct. ed. V, Plate CCCXXIV; Jard. and Selby, *Ill. of Orn. new series, I, Plate VII.*

Specimens in the collection of the Expedition from the coasts of Brazil and Peru, are precisely identical with the bird of the Atlantic coast of the United States. Mr. Peale mentions that this species was not noticed on the Pacific coast of North America.

2. HAEMATOPUS NIGER, *Cuvier*.—The Black Oyster-catcher.

Haematopus niger, CUVIER, *Règne Animal, I, p. 469 (1817).*

Haematopus ater, VIEILL. *Gal. des. Ois. II, p. 88, Pl. CCXXX (1825).*

Haematopus Townsendii, Aud. *Orn. Biog. V, p. 247 (1839).*

Quoy and Gaim. *Voy. Uranie, Birds, Plate XXXIV*; Aud. B. of Am. Plate CCCXXVII, fig. 3; oct. ed. V, Plate CCCXXVI.

This species is noticed by the naturalists of the Expedition as having been observed in abundance at Orange Bay, Tierra del Fuego, and on the coast of Chili. Young birds, according to Mr. Peale, have all the feathers tipped with rufous.

If this bird was obtained in Oregon by Dr. Townsend, it inhabits nearly the entire western coast of the continent of America, but of

this there is no evidence, Mr. Audubon merely stating that it came in Dr. Townsend's collection. He says, however, that he had seen other specimens from California. Dr. Townsend does not give this species in his list of birds in the Narrative of his Journey.

3. HAEMATOPUS BACHMANI, *Audubon*.—Bachman's Oyster-catcher.

Haematopus Bachmani, AUD. Orn. Biog. V, p. 245 (1839).

Aud. B. of Am. Plate CCCCXXVII, fig. 1; octavo edition, V, Plate CCCXXV.

Observed, and specimens obtained at Puget Sound, Oregon. This species is in some respects similar to that immediately preceding, but is smaller, and otherwise quite distinct. It appears to be exclusively North American.

Under date of 29th of July, 1841, at Puget Sound, this bird is alluded to by Dr. Pickering as follows :

"A dark-colored *Haematopus*, very similar to a species seen by us in Chili, is of frequent occurrence here. Mr. Case has obtained the egg, as he felt quite assured from having noticed the birds in the immediate vicinity, and apparently the parents. It is rather smaller than that of a hen, and more spherical, of a dirty white or pale brown color, with numercus small blackish spots. It was found on a rock on the northern shore of the Straits, with a few sticks and grasses thrown together, scarcely to be called a nest."

5. ORDER NATATORES.—The Swimming Birds.

1. FAMILY ANATIDÆ.—The Ducks, Geese, &c.

1. GENUS PHOENICOPTERUS, Linn. Syst. Nat. I, p. 230 (1766).

1. PHOENICOPTERUS CHILENSIS, Molina.

Phoenicopterus chilensis, MOLINA, Sagg. Stor. Nat. Chili, p. 203 (2d ed. 1810).

Phoenicopterus ignipalliatus, GEOFF. et D'ORB. Mag. de Zool. 1833 (not paged).

Gray's Genera of Birds, III, Plate CLXIII; Guerin's Mag. de Zool. 1833, Ois. Plate II.

This handsome species of Flamingo appears to be peculiar to the western countries of South America, and is especially numerous in Chili, from which country it is brought in nearly all collections. From the species inhabiting the Atlantic coast, and occasionally visiting Florida (*Phoenicopterus ruber*, Linn.), it is readily distinguishable by its comparatively pale colors, which, in fact, assimilate it much more greatly with the Flamingo of the Old World (*Phoenicopterus antiquorum*, Temm.). It is one of several instances of birds inhabiting the western countries of the Continent of America, which bear greater resemblance to species of Western Europe, than others of the same or nearly allied genera found in Eastern America.

One of the most interesting of the specimens of this species in the present collection, is that of a young bird, the plumage of which differs in some points from that of the adult, and of which we append a description: Head, neck, and under parts of body, white, with a tinge of brown on the head and upper part of neck; back pale ashy brown, every feather edged or tipped with dull white, and with their shafts dark brown; wing-coverts pale red at base, with their tips dark brown. Quills brownish-black; upper tail-coverts and tail, pale reddish-white. On the wing-coverts, the dark brown-color predominates,

and the pale rosy tinge is only to be observed on examination, or when the feathers are displaced.

This specimen has the plumage of the head and neck somewhat downy, and is evidently that of a young bird. The rose-red of the adult is in the young only to be seen on the wings, as above stated, and more clearly on the tail-coverts and tail. In the plumage here alluded to, this bird more nearly approaches the description by Molina, above cited, than any other specimen that has come under our notice, and we have accordingly adopted his name. In the study of, or readjustment of the species and names of the birds of this group, it must not be overlooked, however, that there are now two well-determined species of Flamingos which inhabit Chili and other countries of Western South America. The second species is *Phoenicopterus andinus*, Philippi, *Annales de la Universidad de Chile*, August, 1854, a translation of the description of which is in Gilliss's *Astronomical Expedition to the Southern Hemisphere*, Vol. II, p. 198.

2. GENUS *ANSER*, *Barrere*, *Orr.* 7. 16 (1745).

1. *ANSER ALBATUS*, *Cassin.*—The Western Snow Goose.

Anser albatas, *CASSIN*, *Proc. Acad. Philad.* VIII, p. 41 (1856).

This is a species related to the Snow Goose of Northern Europe and America, but uniformly smaller, and presenting other distinguishing characters. Though first described by us from specimens obtained on the coast of New Jersey, where it is a very rare visitant, it is, we suspect, much more abundant on the western coast of the United States. A single specimen is in the collection of the Expedition, which appears to be that of a male in nearly adult plumage.

Smaller than *Anser hyperboreus*, bill shorter; bare space at the base of the upper mandible not extending so far into the feathers (on the sides of the bill in front). Wing long, second quill longest; tail short, but comparatively rather longer than in *A. hyperboreus*, which is also the case with the tarsus.

Total length (of skin), about twenty-five inches; wing, fifteen and three-fourths inches; tail, five and three-fourths inches; bill, two inches; tarsus, two inches. Female smaller.

Entire plumage white, except the primaries, which are pale cinereous at base, and black in the terminating two-thirds of their length. Front and cheeks spotted with ferruginous; bill and feet red. Young, with the primaries entirely cinereous, and the entire upper plumage of that color.

This species has never been figured; and five specimens, four of which are in the collection of the Philadelphia Academy, and one in that of the present Expedition, are all that have come under our notice. Though allied to and resembling the Snow Goose of the Atlantic States, this bird is not difficult to distinguish on comparison.

Under the name of *Anser hyperboreus*, but in allusion, as we think, to the present bird, Mr. Peale gives the following:

"It is quite impossible to convey to our readers an idea of the incessant clatter of sounds emitted by these, the two last-mentioned Geese" (the present and the White-fronted Goose), "and the Storks, or Sandhill Cranes, when disturbed at night by some prowling wolf, as they all roost on the ground in wet prairies. The old Snow Geese generally keep together, and their white plumage contrasted with the dark ground presents the appearance of snow banks.

"Rarely seen in the water; they remain all winter in California, and the southern parts of Oregon. When they first arrive from the north, they are very tame, allowing persons to approach very near, and a skilful rider on a horse is enabled to catch them with a *lasso* (the 'noose used by the Californians for catching cattle and horses). By this process, we have seen four that were taken one afternoon, by a Californian."

The occurrence of Geese in large numbers is also mentioned by Dr. Pickering, in Oregon and California.

2. *ANSER GAMBELII*, *Hartlaub*.—The American White-fronted Goose.

Anser Gambelii, HARTLAUB, Rev. et Mag. de Zool. 1852, p. 7.

"*Anser albifrons*, GM." Auct. American.

Aud. B. of Am. Plate CCLXXXVI; oct. ed. VI, Plate CCCLXXX.

This species appears to be quite distinct from that of Europe, with which it has been usually regarded as identical, a fact first pointed out

by our friend, Dr. Gustav Hartlaub, Director of the State Museum of the City of Bremen, and one of the most accomplished of European Ornithologists. The American bird is constantly the larger, and the greater length and thickness of the bill is a marked characteristic, as is correctly stated by Dr. Hartlaub, in his description, above cited.

Dr. Pickering mentions the occurrence of immense numbers of Geese of various species, on the coasts of California and Oregon, in the month of April, and subsequently in October. He particularly mentions the present bird as observed in abundance, and seen either flying in lines generally bifurcating from a point, but frequently irregular, or walking on the ground in search of food.

Mr. Peale observes of this species :

"About the middle of October, vast numbers of White-fronted or Laughing Geese arrive in Oregon and California from the north. They are generally found on moist prairies, and feed almost entirely on grass. None were seen that were black, except having patches of that color on the breast. The black color is probably that of the summer plumage of adult birds."

3. GENUS BERNICLA, *Stephens*, Gen. Zool. XII, Pt. II, p. 45 (1824).

1. BERNICLA CANADENSIS (*Linn.*).—The Canada Goose.
The Wild Goose.

Anas canadensis, *LINN.* Syst. Nat. I, p. 198 (1766).

Buff. Pl. Enl. 346 ; Wilson, Am. Orn. VIII, Plate LXVII ; Aud. B. of Am. Plate CCI ; oct. ed. VI, Plate CCCLXXVI.

Under the head of this species, Mr. Peale says :

"A few were seen on our journey from the Columbia River to California. Most of that journey was remote from extensive sheets of water, and as this species is more aquatic in its habits than the following (*A. Hutchinsii* and *A. albifrons*), this may account for their being seen in the least numbers."

On account of the fact that no specimens of this bird are in the collection of the Expedition, we have admitted it with hesitation, and

especially as there is in the countries of Western North America, a species nearly related to the present bird, and readily to be confounded with it. It is smaller, and a strong character is to be found in the feet, which are disproportionately smaller. The species alluded to, was first described by us as *Anser parvipes*, in Proceedings of the Academy of Natural Sciences of Philadelphia, VI, p. 187 (1852). We have only seen the bird alluded to from the shores of the Pacific Ocean.

Dr. Townsend also records having observed *Anser canadensis* in Oregon (Narrative of a Journey across the Rocky Mountains, p. 336).

2. BERNICLA HUTCHINSII (*Richardson*).—Hutchins' Goose.

Anser Hutchinsii, RICH. FAUN. BOR. AM. II, p. 470 (1831).

Aud. B. of Am. Plate CCLXXVII; oct. ed. VI, Plate CCCLXXVII.

No specimens of this Goose being in the collection, for similar reasons to those mentioned in the preceding article, we admit it with doubt. All the specimens that we have ever seen from the Pacific coast, are *Bernicla leucopareia*, a species first pointed out as an inhabitant of Russian America, by Professor Brandt, an accomplished Russian naturalist. It much resembles Hutchins' Goose, but may readily be distinguished by a white ring around the neck at the junction of the black color with the lighter colors of the body. *Bernicla leucopareia*, is figured in our Birds of California and Texas, I, Pl. XLV.

Under the head of *Anser Hutchinsii*, Mr. Peale says:

"This Goose was found in great numbers on the flat and wet prairies of Upper California, where they arrive from the north about the middle of October. They are generally seen in large flocks by themselves, but sometimes are associated with the Snow Goose, and the White-fronted Goose."

3. BERNICLA ANTARCTICA (*Gmelin*).—The Antarctic Goose.

Anas antarctica, GM. Syst. Nat. I, p. 505 (1788).

Anas candida, VIEILL.

Anas ganta, FORST. Desc. An. p. 336 (1844).

Gilliss, Ast. Exp. to Chili, Birds, Plate XXIII; Voy. Coquille, Ois. Plate L (female).

This beautiful species appears to be one which has a southwardly migration from the northern countries of South America, analogous to the well-known migrations of the species of North America. Specimens in the collection of the Expedition were obtained at Tierra del Fuego.

The difference in the color of the sexes of this Goose is quite remarkable, the male being entirely white, and the female variegated and barred with black. According to Captain F. Bernsee, whose notes are published in the Proceedings of the Philadelphia Academy, VII, p. 288, this bird is partial to fresh waters, and was found by him abundant at the Falkland Islands, where he was wrecked.

4. *BERNICLA MAGELLANICA* (*Gmelin*).—The Magellanic Goose.

Anas magellanica, picta et leucoptera, GM. Syst. Nat. I, pp. 504, 505 (1788).

Gilliss's Ast. Exp. to Chili, Birds, Plate XXIV; Brown's Ill. Plate XL; Buff. Pl. Enl. 1006 (female).

Specimens of this species are from Tierra del Fuego, and very fine specimens are also in Lieut. Gilliss's collection from Chili, made by the United States Astronomical Expedition to the Southern Hemisphere, under his charge. The male of this species is white, with transverse narrow bars of black, but the female is quite different, being of dark chestnut-brown, and somewhat resembling that immediately succeeding. According to Captain Bernsee, as above cited, this bird also was abundant at the Falkland Islands.

5. *BERNICLA INORNATA* (*King*).—The Brown Goose.

Anser inornatus, KING, Proc. Zool. Soc. London, 1830, p. 15.

Gray, Gen. III, Plate CLXV.

Also from Tierra del Fuego. This name *inornata*, deserves to be abolished on account of its singular inappropriateness, applied as it is to one of the handsomest of the South American Geese.

All of the three preceding species are now well-known birds of the Pacific coast of South America, and future investigations may demonstrate a more northern range of locality. It would even be a matter of interest, to transplant them to the northern temperate zone.

This species also was found by Captain Bernsee abundant at the Falkland Islands, and he states explicitly, that the male and female are alike in colors.

6. *BERNICLA SANDWICHENSIS*, Vigors.—The Sandwich Island Goose.

Bernicla sandwichensis, VIG. Proc. Zool. Soc. London, 1834, p. 43.

Anser hawaiiensis, EYD. and SOUL. Voy. Bonite, Oiseaux, p. 104 (1841).

Anser hawaiiensis, PEALE, Zool. U. S. Exp. Birds, p. 249 (1848).

Voy. Bonite, Zool. Atlas, Ois. Plate X; Jard. and Selby, Ill. Orn. n. s. Plate VIII.

This remarkable and little-known Goose was repeatedly noticed by the naturalists of the Expedition, and is apparently peculiar to Hawaii, one of the Sandwich Islands.

It belongs evidently, from the facts recorded of its habits, to a group characterized by the partiality of the species for fresh waters, and for the interior of the countries which they inhabit, and they are more decidedly terrestrial in their habits than any other. They appear to present strong analogies to the Tree Ducks (Genus *Dendrocygna*).

Of the present species, Mr. Peale states:

"We observed it on the volcanic mountains of the Island of Hawaii, generally in pairs, at the season of our visit, in the month of November, but rarely four or five were seen together, feeding on the berries of a very abundant species of *Vaccinium*, growing on the old beds of lava. On these they had become very fat, and were delicious eating; grass, however, appears to be their ordinary food. We never saw this bird near water, which is scarce in those regions, our party being obliged to carry the necessary supply for the journey in calabashes, but it is said to breed near shallow ponds, a few of which occur in the mountains.

"What is most remarkable, is the statement made to us by the natives, and which we have every reason to believe is the fact, that

this Goose is limited to the single Island of Hawaii, rarely visiting any others of the group, though several are in sight. It bears confinement well, is hardy, and soon becomes domesticated. Its voice resembles that of the Snow Goose (*Anser hyperboreus*)."

Dr. Pickering in his journal, now in our possession, mentions having seen this Goose in the mountains, especially numerous at a height which he estimates as having been about seven thousand feet above the level of the sea. He states that it appeared to be much less suspicious than other species with which he was acquainted, and when disturbed, flies off, near the surface of the ground, without rising in the air, like the species of North America. Dr. Pickering mentions having seen this bird feeding on berries.

4. GENUS ANAS, Linn. Syst. Nat. I, p. 104 (1766).

1. ANAS SUPERCILIOSA, Gmelin.

Anas superciliosa, GM. Syst. Nat. I, p. (1788).

Anas leucophrys, FORSTER, Desc. An. p. 93 (1844).

Gould, B. of Aust. VII, Plate IX.

According to Mr. Peale:

"This species was found abundant in the Bay of Islands, New Zealand, wherever there was fresh water. Its habits and voice are much like those of the Mallard (*Anas boschas*), the female of which it closely resembles, but is darker colored, and has a green instead of a blue speculum. In all the specimens obtained by the Expedition, the superciliary line and cheeks are of a pale fawn-color, and not white, as described by Dr. Latham.

"We saw Ducks in most of the Polynesian Islands, the identity of which is doubtful, but they resemble the above species so closely, that for the present they are referred to it. They are uniformly darker colored, and want the white anterior margin to the speculum, which is conspicuous in the New Zealand birds, and also gradually decrease in size at each group of islands as we go north from Australia to the equator; the specimens obtained at Upolu, one of the Navigator Islands, being one-fifth smaller, but alike in plumage with others ob-

tained in Australia. At the intermediate islands, Tongatabu, Feejee, and Tahiti, they were obtained and found to present variations only in size. North of the equator, this species was not seen."

2. *ANAS BOSCHAS*, *Linnaeus*.—The Mallard.

Anas boschas, LINN. Syst. Nat. I, p. 205 (1766).

Wilson, Am. Orn. VIII, Plate LXX, fig. 7; Aud. B. of Am. Plate CCXXI; oct. ed. VI, Plate CCCLXXXV.

Both Dr. Pickering and Mr. Peale notice the occurrence of this species abundantly in the fresh waters of Oregon and California. Specimens in the collection are strictly identical with the bird of Eastern America.

The Mallard is mentioned by Dr. Pickering as having been noticed in a state of domestication at the Philippine Islands in unusual numbers, and it is apparently a great favorite with the inhabitants. In his interesting and valuable notes we find the following:

"This species is raised at the Philippine Islands in immense numbers, and is doubtless of Malay introduction. One of the most curious sights to us along the river bank was the pens, about fifty feet square and extending part way into the river, inclosing Ducks. Frequently, several hundreds were contained in one inclosure, which, though perhaps not more than a foot high, appeared to be quite sufficient. The Ducks seemed to be perfectly contented, and, so far as we observed, never attempted to exceed their limits; generally, however, their wings were clipped, but even that would not have been an effectual preventative had the disposition been otherwise. Sometimes they could be seen swimming rapidly around in circles, perhaps for the sake of exercise.

"In these inclosures, men were occasionally noticed lustily shoveling the water, apparently for the purpose of dissipating its impurities, or of assisting the current in carrying them off. In the course of the twenty-five miles to the 'Laguna del Bay,' we must have passed many thousands of Ducks in inclosures of the description to which we allude."

This well-known species appears to be diffused throughout almost the entire northern hemisphere. Specimens from various localities in

Europe, Asia, and America, now before us, present no appreciable specific differences.

5. GENUS DAFILA, *Stephens*, Gen. Zool. XII, p. 126 (1824).

1. DAFILA ACUTA (*Linn.*).—The Pintail Duck.

Anas acuta, LINN. Syst. Nat. I, p. 202 (1766).

Buff. Pl. Enl. 954; Wilson, Am. Orn. VIII, Plate LXVIII, fig. 3;
Aud. B. of Am. Plate CCXXVII; oct. ed. VI, Plate CCCXC.

Dr. Pickering mentions having noticed this species on the coast of Oregon. It had been previously given as a bird of that country by Dr. Townsend, but is not in the collection of the Expedition.

2. DAFILA BAHAMENSIS (*Linn.*).—The Bahama Pintail Duck.

Anas bahamensis, LINN. Syst. Nat. I, p. 199 (1766).

Anas urophasianus, VIGORS, Zool. Jour. IV, p. 357 (1828).

Catesby's Carolina, Birds, Plate XCIII; Eyton's Monograph of Anatidæ, Plate XX.

A fine specimen of this handsome species is in the collection, but is unfortunately without label, and we have not succeeded in finding it mentioned in the notes or journals of the naturalists of the Expedition.

This species is well figured in Catesby's Carolina, as above cited, and stated to be an inhabitant of the Bahama Islands, but we have never seen a specimen obtained on the Atlantic coast of America. Mr. Vigors, in the paper above referred to, gives it as a bird of North-western America, and it has subsequently been observed on the coast of California.

6. GENUS MARECA, *Stephens*, Gen. Zool. XII, p. 130 (1824).

1. MARECA AMERICANA (*Gmelin*).—The American Widgeon.

Anas americana, Gm. Syst. Nat. I, p. 526 (1788).

Wilson, Am. Orn. VIII, Plate LXIX, fig. 4; Aud. B. of Am. Plate CCCXLV; oct. ed. VI, Plate CCCLXXXIX.

Mr. Peale states:

"Was frequently seen on our route from the Columbia River to the Bay of San Francisco, in California, wherever we found fresh-water ponds."

Strictly the same as the species of the Atlantic coast of the United States.

7. GENUS QUERQUEDULA, *Stephens*, Gen. Zool. XII, p. 142 (1824).

1. QUERQUEDULA CAROLINENSIS (*Gmelin*).—The Green-winged Teal.

Anas carolinensis, Gm. Syst. Nat. I, p. 533 (1788).

Wilson, Am. Orn. VIII, Plate LXX, fig. 4; Aud. B. of Am. Plate CCCXVIII; oct. ed. VI, Plate CCCXCII.

This species is stated by both Dr. Pickering and Mr. Peale to be common in California and Oregon.

The specimens in the collection of the Expedition apparently have a nearer relationship to the *Querquedula crecca*, of the Old World, than to generally to be found in the American bird. This character, however, we have repeatedly noticed in specimens from Western America, of birds like the present having very similar European representatives.

8. GENUS SPATULA, Boie, Isis, 1822, p. 564.

1. SPATULA CLYPEATA (Linn.).—The Shoveller.

Anas clypeata, LINN. Syst. Nat. I, p. 200 (1766).

Buff. Pl. Enl. 971, 972; Wilson, Am. Orn. VIII, Plate LXVII;
Aud. B. of Am. Plate CCCXXVII; oct. ed. VI, Plate CCCXCIV.

Specimens from Oregon are in the collection of the Expedition.

According to Mr. Peale, this species was noticed also at the Islands of Hawaii and Oahu.

9. GENUS FULIGULA, Stephens, Gen. Zool. XII, p. 187 (1824).

1. FULIGULA RUFITORQUES, Bonaparte.—The Ring-necked Duck.

Fuligula rufitorques, BONAP. Comp. List. p. 58 (1838).

"*Anas fuligula*," WILSON, Am. Orn. VIII, p. 60.

Wilson, Am. Orn. VIII, Plate LXVII, fig. 5; Aud. B. of Am. Plate CCXXXIV; oct. ed. VI, Plate CCCXCVIII.

Specimens from Oregon are precisely identical with others obtained on the coast of the Atlantic. Mr. Peale states that this bird did not appear to be common in Oregon.

2. FULIGULA MARILA (Linn.).—The Scaup Duck. The Black-headed Duck.

Anas marila, LINN. Syst. Nat. I, p. 196 (1766).

Buff. Pl. Enl. 1002; Wilson, Am. Orn. VIII, Plate LXIX; Aud. B. of Am. Plate CCXXIX; oct. ed. VI, Plate CCCXCVII.

This species, according to Dr. Pickering, was noticed on the coast

of Oregon, in October. No specimens being in the collection, it may be observed, however, that the smaller species (*Fuligula mariloides*), nearly allied to this bird, has also been found on the western coast of North America, and is given in the Zoology of the Voyage of the Blossom, Ornithology, p. 31.

Dr. Townsend gives *Fuligula marila*, as a bird of Oregon.

10. GENUS OIDEMIA, *Fleming*, Phil. Zool. II, p. 260 (1822).

1. OIDEMIA PERSPICILLATA (*Linn.*).—The Surf Duck.

Anas perspicillata, LINN. Syst. Nat. I, p. 201 (1766).

Wilson, Am. Orn. VIII, Plate LXVII, fig. 1; Aud. B. of Am. Plate CCCXVII; oct. ed. VI, Plate CCCCII.

On minute comparison between specimens from the Pacific, in the present collection, with others from the Atlantic coast, we find no distinctive characters.

Mr. Peale observes of this bird:

"Common on the west coast of North America, with *Oidemia fusca*, and extends its migrations further south. Never found but in the immediate vicinity of the sea, and as its name implies, generally in the surf."

Dr. Pickering also records the occurrence of this species in Oregon.

2. OIDEMIA CARBO (*Pallas*).—The Velvet Duck.

Anas carbo, PALLAS, Zoog. Rosso-Asiatica, II, p. 244 (1831).

Anas Deylandii, BONAP.

Oidemia velvetina, CASSIN, Proc. Acad. Philad. V, p. 126 (1850).

"*Anas fusca*, LINN." Auct. American.

Wilson, Am. Orn. VIII, Plate LXXII, fig. 3; Aud. B. of Am. Plate CCXLVII; oct. ed. VI, Plate CCCCCI.

Identical with the bird of the Atlantic coast, on comparison with specimens from Oregon in the collection of the Expedition.

Mr. Peale states this species to be "common on the west coast of America, as far north as visited by the Expedition; rare on the coast of California." This is the Duck alluded to by Mr. Peale in the preceding article as *Oidemia fusca*. It is different from *O. fusca*, of the sea-coasts of Europe, but appears to be the species described by Pallas, as above, and which inhabits the coast of Northeastern Asia, and also of Northwestern America, as appears from the observations of the naturalists of the Exploring Expedition in the Vincennes and Peacock.

11. GENUS MERGUS, Linn. Syst. Nat. I, p. 207 (1766).

1. MERGUS AMERICANUS, Cassin.—The American Merganser.
The Shelldrake.

Mergus Americanus, CASSIN, Proc. Acad. Philad. VI, p. 187 (1852).
"*Mergus merganser*," Auct. American.

Wilson, Am. Orn. VIII, Plate LXVIII, fig. 1; Aud. B. of Am. Plate CCCXXXI; oct. ed. VI, Plate CCCCXI.

Dr. Pickering mentions the occurrence of this species on the coast of Oregon.

2. MERGUS CUCULLATUS, Linn.—The Hooded Merganser.

Mergus cucullatus, LINN. Syst. Nat. I, p. 207 (1766).
Mergus fuscus, LATH. Ind. Orn. II, p. 832 (1790).

Wilson, Am. Orn. VIII, Plate LXIX, fig. 1; Aud. L. of Am. Plate CCXXXII; oct. ed. VI, Plate CCCCXIII.

Relating to this bird, Mr. Peale states:

"Observed from Puget's Sound on the northwest coast of America to San Francisco, in California. It may be said to be solitary in its habits, not more than a brood usually remaining together. The young is covered with a rather coarse down, of a sepia-brown color above, and white beneath; the cheeks tawny; bill green."

This is another of the rather numerous species which appear to inhabit the entire temperate regions of North America. It is now frequently brought in collections from California, and, from Mr. Peale's observations, is evidently a constant resident in the western countries of this continent.

2. FAMILY COLYMBIDÆ.—The Grebes, Divers, &c.

1. GENUS PODICEPS, *Latham*, Ind. Orn. II, p. 780 (1790).

1. PODICEPS CALIFORNICUS, *Heermann*.—The California Grebe.

Podiceps californicus, HEERMANN, Proc. Acad. Philad. VII, p. 179 (1854).

A specimen in the collection, like that described by Dr. Heermann, as above, is evidently in young plumage. The species, however, appears to be quite distinct from any other of North America, and is, so far as we know, peculiar to the coasts of the Pacific. It has not been figured.

The present specimen is labelled as having been obtained in Oregon, and this species is alluded to by Dr. Pickering as having been observed in the month of August, 1841.

3. FAMILY ALCIDÆ.—The Auks, Guillemots, and Penguins.

1. GENUS URIA, *Möehring*, Gen. Av. p. 67 (1752).

1. URIA COLUMBA (*Pallas*).—The Western Guillemot.

Cephus columba, PALLAS, Zoog. Rosso-Asiatica, I, p. 348 (1811).
" *Uria grylle*," AUCTORUM.

Atlas, Ornithology, Plate XXXVIII, fig. 1. Adult.

Numerous fine specimens of this bird, from the coast of Oregon, are in the collection of the Expedition, and on comparison of them with

others of the *Uria grylle*, from Northeastern America and Northern Europe, we find quite sufficient differences constantly presenting themselves, to induce us to re-establish a species as distinct, under the name given by Pallas, as cited above. Though precisely of the same general colors as the European bird, and, so far as can be determined from skins, very nearly of the same size, the specimens now before us have the bill more slender, and the white patch on the wing is divided by a well-defined dark band from its lower edge, forming a conspicuous character, and to be instantly detected as peculiar to the present bird. The feet appear to be smaller, but in dried skins of swimming birds, we cannot regard this apparent character as reliable, unless very striking.

The name given by the distinguished Russian naturalist, to whom we have alluded, there can be little doubt, applies to the species now before us. He states the locality as "*In Oceano arctico, pariterque circa Camtschatcam et in omni freto inter Siberiam et Americam, abundant, et ubique fistulante voce exaudiuntur.*"

This bird appears to be of common occurrence on the northwestern coast of America. Both Dr. Pickering and Mr. Peale record having observed it at various points, the latter also notices one of the characters to which we have alluded. His observations are as follows:

"Several specimens were obtained at Discovery Harbor, on the northwest coast of America, in May, at which time they were in summer plumage, and agree with Mr. Audubon's description, excepting the greater wing-coverts, which are black at the base and tipped with white, which gives them an appearance of having two bars, one broad, and the other narrow, instead of a single white spot on the wings, as represented in his plate. This difference is constant in all our specimens, and is found to be the same in others obtained on the Columbia River near its mouth."

The figures in Mr. Audubon's plate (Birds of America, Pl. CCXIX), represent specimens from Eastern America, and of Northern Europe. We give the present bird in our Atlas, rather smaller than the natural size.

Numerous specimens in the collection of the Expedition are in good preservation and mature plumage.

2. GENUS BRACHYRAMPHUS, Brandt, Bull. Acad. St. Petersburg, I, p. (1837).

1. BRACHYRAMPHUS ANTIQUUS (*Gmelin*).—The Black-throated Guillemot.*Alca antiqua*, GM. Syst. Nat. I, p. 554 (1788).*Uria senicula*, PALLAS, Zoog. Ros. Asia, I, p. 307 (1811).

Aud. B. of Am. Plate CCCCII, figs. 1, 2; oct. ed. VII, Plate CCCCLXX.

In the collection of the Expedition, from the coast of Oregon.

Dr. Pickering observes of this bird that it is a remarkably expert diver, remaining under the water for a length of time that would almost appear impossible. Excellent specimens are in the collection of the Expedition.

3. GENUS FRATERCULA, Brisson, Orn. VI, p. 81 (1760).

1. FRATERCULA CIRRHATA (*Gmelin*).—The Tufted Auk.*Alca cirrhata*, GM. Syst. Nat. I, p. 553 (1788).

Buff. Pl. Enl. 761; Vieill. Gall. II, Plate CCXCIX; Aud. B. of Am. Plate CCXLIX; oct. ed. VII, Plate CCCCLXII.

Noticed by both Dr. Pickering and Mr. Peale as having been observed on the coast of Oregon, but not very frequently. The latter states: "Specimens of this singular bird were procured at Strawberry Bay, northwest coast of America, on the 29th of July. This is probably the southern limit of this species in summer; further north it is more numerous. The feet and the anterior portion of the upper mandible in the living bird are rich orange-yellow color, the latter at the base olive; lower mandible rich orange-red."

Specimens of this bird, in the collection of the Expedition, appear to be identical with others from the northern shores of the Atlantic

Ocean. It appears to be widely diffused in the northern countries of both continents.

4. GENUS CERATORHYNCHA, Bonaparte.

1. CERATORHYNCHA MONOCERATA (*Pallas*).—The Horn-billed Guillemot.

Alca monocerata, PALL. Zoog. Ross. Asiat. II, p. 362 (1811).

Phaleris cerorhyncha, BONAP. Zool. Jour. III, p. 53 (1827).

Cerorhyncha occidentalis, BONAP. Ann. N. Y. Lyceum, II, p. 428 (1827).

Ceratorhyncha occidentalis, BONAP. Comp. List. p. 66.

Chimerina cornuta, ESCHSCH. Zool. Atlas, Pt. III, p. 2 (1829).

Eschscholtz, Zool. Atlas, Plate XII; Aud. B. of Am. Plate CCCCII, fig. 5; oct. ed. VII, CCCCLXXI.

One specimen only of this bird, in immature plumage, is in the collection, and was obtained on the northwest coast of America. Mr. Peale notes, that the knob on the bill and lower mandible were orange color, "a black line along the culmen; legs orange-colored, the toe membranes and nails black."

Very fine specimens of this curious bird, now in the National Collection, were brought from Japan, by the United States Expedition to that Empire, commanded by Captain M. C. Perry, United States Navy.

5. GENUS APTENODYTES, Forster.

1. APTENODYTES PATACHONICA, Forster.—The Patagonian Penguin.
The Great Penguin.

Aptenodytes patachonica, FORSTER, Comment. Gottingensis, III, p. 137 (1781).

"*Aptenodytes patagonica*, MILLER, Ill. Hist. Nat. tab. XX," Forster, *ut supra*.

Aptenodytes Forsteri, G. R. GRAY, Ann. and Mag. Nat. Hist. 1844, p. 315.

Shaw and Mill. Cim. Phys. Plate XXIII (second edition); Shaw,

Mus. Lev. Plate (not numbered); Penn. Gen. Plate XIV; Forst. Comm. Gott. III, Plate II.

A single specimen in the collection is of the species which appears to be that described by Forster, and to which Gray has given his name. It is in good preservation, and presents nothing unusual in its characters.

Mr. Peale observes of this species :

"Only one specimen of this bird was brought home. It was caught on the ice, in latitude $66^{\circ} 52'$ S., longitude $150^{\circ} 25'$ E. of Greenwich, on the 28d of January, 1840. Its stomach contained a quantity of basaltic pebbles, which were the first indication of Antarctic lands, at that time unknown."

6. GENUS EUDYPTES, Vieillot, Analyse, p. 67 (1816).

1. EUDYPTES PAPUA (Forster).

Aptenodytes papua, FORST. Comment. Gott. III, p. 140 (1781).

Aptenodytes teniata, PEALE, Zool. U. S. Exp. Birds, p. 264 (1848).*

Comm. Gott. III, Plate III; Vieill. Gal. II, Plate CCXCIX; Voy. Erebus and Terror, Birds, Plate XXV.

A specimen in the collection from Macquarie's Island, presents no other characters than have been described, and are represented in the figures cited above. It is in good plumage and preservation.

Mr. Peale remarks in allusion to this bird :

* "Above black, mottled with blue-gray; beneath white; throat dark gray, a white spot above and behind each eye; bill slender, yellow; feet yellowish flesh-color; tail rather long, euneate, composed of sixteen feathers, the four outer ones edged with white.

"General aspect and size, that of the Long-tailed Penguin (*A. longicauda*), but the tail is not so long, the wings longer, and the bill comparatively very long and slender; it has much larger feet and more slender nails.

"Total length, thirty-three and nine-tenths inches; bill, two inches; along the commissure, three and a half inches; gonyx, four-fifths of an inch; wings, ten and two-tenths inches long, two and two-tenths inches wide; tail, three and nine-tenths inches; outer feathers, two and two-tenths inches; foot, five and two-tenths inches; middle nail, eight tenths of an inch."

"Found breeding in great numbers on Macquarie's Island, in the month of January, with the Crested Penguin (*A. chrysocome*), but in separate communities. Lieutenant Eld, who procured the only specimen brought home by the Expedition, says that the nests were so numerous as to cover many acres of ground, though placed close together, and that the old birds were not willing or able to get out of the way, but would pick or bite the persons intruding. He thought it quite sufficient, after selecting specimens, to secure them by tying the legs of each one together, but in this he was disappointed, for in passing through the surf (as the boats could not land), his prisoners, all but one, escaped by swimming at a greater speed than their pursuers could follow them in the boats, though their legs were well secured."

2. EUDYPTES ANTIPODA (*Homb. and Jacq.*).

Catarrhactes antipodes, HOMB. and JACQ. Ann. des Sci. Nat. XVI, p. 320 (1841).

Aptenodytes flavilarvata, PEALE, Zool. U. S. Exp. Birds, p. 260 (1848).*

* "Subcrested; a yellow band crosses from the corner of the mouth to the occiput, which includes the eyes, and incloses the crown and front of the head in the form of a mask; upper parts light blue-gray; beneath white; bill and feet pale flesh-color; tail short, cuneate, and consisting of twenty feathers; bill moderately strong, the commissure nearly straight, but turning rather abruptly downwards at the corners of the mouth; upper mandible compressed towards the extremity and hooked, the edges much bent inwards and sharp; nostrils not perceptible in the dried skin; under mandible compressed, slightly truncate; gonyx slightly rounded; eyes golden yellow; ophthalmic region covered with short orange-colored feathers; crown and front yellow; the shaft of each feather black, and elongated to a bristle-like appendage; sides of the neck pale brown; back blue-gray, the feathers having dark brown shafts; wings the same color as the back, somewhat darker, and margined on both edges by a white line; pure white beneath; breast and belly pure white; tail black, pointed, the shafts very flat and nearly as broad as the webs; legs and bill light pink or flesh-color, the nails red. Males and females alike in plumage, but differing in size, the female being largest.

"Male. Total length, twenty-eight and six-tenths inches; bill, one and nineteen-twentieths inches; along the commissure, three inches; wing, along the front edge, seven and nine-tenths inches; foot, four and seven-tenths inches; the fourth toe rudimentary, the nail three-tenths of an inch; long, slender, and curved; the next toe shorter than the outer one.

"Female. Total length, thirty-three and six-tenths inches; bill, two and three-tenths inches; along the commissure, three and three-tenths inches; wing, along the front edge, nine and two tenths inches; tail, two and four-tenths inches; the outer feathers, one inch."

Voyage Astrolabe and Zelée, Birds, Plate XXXIII, fig. 2.

According to Mr. Peale:

"This species was found in great numbers at the Auckland Islands, in the month of March. On shore, they were easily captured, and Dr. S. Holmes, of the U. S. Brig Porpoise, prepared the skins of a pair which are now deposited with the National Collections in the City of Washington."

This is one of the finest species of this curious group of birds, and had singularly escaped the researches of voyagers and naturalists, until taken to Europe by the naturalists of the Astrolabe and Zelée, as above. It is handsomely and accurately figured in their Atlas, above cited.

3. EUDYPTES ADELÆ (*Homb. and Jacq.*).

Cutarrhactes Adelia, HOMB. and JACQ. Ann. Sci. Nat. XVI, p. 320 (1841).

Aptenodytes longicaudata, PEALE, Zool. U. S. Exp. Exp. Birds, p. 261 (1848).*

* "Throat, and all the upper parts black, beneath white; tail long, cuneate, black, and consisting of fourteen feathers, which have strong, black, and elastic shafts; bill stout, feathered nearly half its length; commissure nearly straight; upper mandible depressed, slightly hooked, and having a double cutting margin; palate strongly armed with corneous pointed papillæ, directed towards the throat; under mandible compressed, slightly truncate; nostrils membranous, valvular, and in the dried specimens scarcely discernible; color reddish-brown; plumage dense, strong, glossy, about one inch and a half long, pointed; the shafts very broad and flat; white on the breast, and black on the back; back-feathers black at the extremities, and margined with blue; a very full coat of down envelopes the base of all the feathers; it is white on all the under parts, and fuliginous above; wings black outside, with a white hinder margin, each feather edged with blue; inside white, with a margin in front of black, scale-like plumage, which has merely a slight marginal web, not distinguishable by the unassisted eye; feet flesh-colored; the nails strong, rounded, rather blunt, and nearly straight, reddish-brown.

"Total length, when killed, thirty-one inches (the stuffed skin measures thirty-three and a half inches); extent across the wings, twenty-three inches; bill, one and five-tenths inches; and from the feathers on the commissure and the under mandible, six-tenths of an inch beyond the feathers of the chin; wings, seven inches long, two and two-tenths inches wide at elbow; foot, four and one-tenth inches; middle toe, including the nail, three inches; nail, eight-tenths of an inch; outer toe, half an inch longer than the inner, the fourth toe little more than a rudiment, half an inch long, including the nail, two-tenths of an inch; tail, six and five-twentieths inches; the outer feathers two inches; the intermediate feathers regularly graduated. Male, obtained by Dr. S. Holmes, of the Brig Porpoise, latitude 64° 40' S., and 103° 4' E. from Greenwich."

Voy. Ast. and Zel. Ois. Plate XXXIII, fig. 1.

This is another of the most handsome birds of this group, and like the preceding, has only comparatively recently become known to naturalists. We much regret that we find so little in relation to these interesting and little-known birds recorded by the naturalists of the Expedition. They did not, however, accompany the Expedition on its cruise towards the South Pole, during which the great discovery was made of the Antarctic Continent, and on this cruise the birds now before us were noticed and specimens obtained.

Mr. Peale observes with reference to this species :

"These birds were not seen, excepting in the vicinity of ice in the Antarctic regions, south of the sixtieth degree of latitude. Their cry is loud, wild, and somewhat human in sound. They frequently followed our vessels, apparently from motives of curiosity, making the most rapid progress beneath the surface, and frequently leaping entirely out of the water, and plunging again like porpoises, which in marks and actions they resemble.

"Penguins generally, when migrating, have all the manners and appearance of small porpoises (*Delphini*). They pursue their course under water, rising to the surface to breathe, and frequently pitch themselves into the air above, falling head foremost into the sea again. They generally migrate in flocks."

Numerous specimens in the collection of the Expedition are in mature plumage and excellent preservation. This bird is very carefully represented in the Ornithological Atlas to the Voyage of the *Astrolabe* and *Zelée*, as above cited.

7. GENUS SPHENISCUS, *Brisson*, Orn. VI, p. 96 (1760).1. SPHENISCUS MAGELLANICUS (*Forst.*).

Aptenodytes magellanicus, *Forst.* Comm. Gott. III, p. 143 (1781).

Spheniscus Humboldtii, *MEYEN*, Nov. Act. XVI, p. 110, Pl. XXI?

Shaw and *Mill.* Cim. Phys. Plate XXXIV; Comm. Gott. III, Plate V.

In numerous specimens that we have examined of this bird, there

is a marked difference in the size of the sexes, the female being the smaller. We regard it as probable that *Spheniscus Humboldtii* is the latter.

Mr. Peale observes of this species :

"Great numbers were seen at Orange Bay, and around Cape Horn.

"They swim so deep in the water, that the black stripe along the sides rarely shows above the water-line. It is very difficult to kill them with shot, and quite impossible to catch them with a boat.

"A female, fresh killed, measured two feet three inches long, and one foot eight and a half inches across the wings; irides reddish-brown. The males are larger, and the young are without the black water-line. The voice of this species is powerful, and can be heard at great distances, like that of the northern Loon (*Colymbus glacialis*)."

2. SPHENISCUS DEMERSUS (Linn.).

Diomedea demersa, LINN. Syst. Nat. I, p. 214 (1766).

Aptenodytes magnirostris, PEALE, Zool. U. S. Exp. Birds, p. 263 (1848).*

Edwards's Birds, Plate XCIV; Buff. Pl. Enl. 382, 1005; D'Orb. Reg. An. Ois. Plate XC, fig. 3.

The only specimen of this species was obtained at Cape Horn, and is that of a young bird very nearly in the plumage represented in Edwards's Plate, cited above (fig. 2). We have, however, no doubt as to the identity of the species.

* "Bill large, fleshy near the base; upper mandible with a short abrupt hook, fitting to a truncation at the extremity of the lower mandible; gonyx short, black, the rest of the lower mandible brown, straight, and almost bare of feathers at base; above brown, beneath white; throat light brown, a brown ring encircling the neck; wings black above, white beneath, and having a black line on the radius; feet cinereous, the nails large, strong, black, and much curved; tail very short, consisting of sixteen feathers, which are hid by the coverts.

"Total length, twenty-five and four-fifths inches; wing, along the front edge, eight and two-tenths inches; bill, along the keel, six and six-tenths inches; commissure, two and seven-tenths inches; middle toe, including the nail, four inches; nail, eight-tenths of an inch "

3. SPHENISCUS MINOR (*Forster*).

Aptenodytes minor, FORSTER, Comm. Gott. III, p. 147 (1781).

Lath. Gen. Syn. III, Plate CIII; Gould, B. of Aust. VII, Plate LXXXIV.

Of this curious and handsome little Penguin, specimens of male and female are in the collection of the Expedition, though presenting no characters other than have been described by naturalists. It is one of the smallest of the birds of this group.

Mr. Peale observes:

"It is quite common in the Bay of Islands, New Zealand; it is always to be found on salt water, and most plenty near the sea. It swims with greater velocity beneath the surface of the water than it does on it, which is not remarkable nor confined to this species, but is common to the genus. They subsist mostly on fishes, which have to be caught in their native element, so that the structure of the bird must be such as to enable it to pursue its prey with ease. Those killed by us were excessively fat."

According to Mr. Peale, this bird is called *Korora* by the natives.

Spheniscus undina, Gould, though resembling the species now before us in general appearance, is smaller and entirely distinct. Specimens are in Mr. Gould's Australian collection, now in the Museum of the Philadelphia Academy.

4. FAMILY PELECANIDÆ.—The Pelicans, Cormorants, &c.

1. GENUS PELECANUS, *Linn. Syst. Nat. I*, p. 215 (1766).1. PELECANUS ERYTHORHYNCHUS, *Gmelin*.—The American White Pelican.

Pelecanus erythrorhynchus, GM. Syst. Nat. I, p. 571 (1788).

Pelecanus trachyrhynchus, LATH. Ind. Orn. II, p. 884 (1790).

Pelecanus americanus, AUD. Orn. Biog. IV, p. 88 (1838).

Museum Leverianum, Plate CCIX; Trans. Berlin Acad. 1838, Plate III; Aud. B. of Am. Plate CCCXI; octavo edition, VII, Plate CCCCXXII.

This bird, though of rare occurrence on the northern coasts of Eastern America, is not uncommon on the Pacific, throughout California and Oregon, at a higher latitude than it is commonly observed on the Atlantic. It was frequently noticed by the naturalists of the Expedition, and the specimens in the collection present no distinctive characters from others obtained in the Southern States on the Atlantic.

Mr. Peale observes :

"Specimens were obtained at Gray's Harbor, on the northwest coast of America, and this bird was again met with in the Bay of San Francisco, in California. Young birds are not purely white like the old ones, which have black primary quills, but they have more or less brown in their plumage, particularly on their wings. The young are destitute of the elevated ridge of the upper mandible, which increases with their age, and is a strong characteristic of the species."

Dr. Pickering especially notices this bird as having been seen at the mouth of the Sacramento River, California, in considerable numbers.

2. PELECANUS FUSCUS, Linn.—The Brown Pelican.

Pelecanus fuscus, LINN. Syst. Nat. I, p. 215 (1766).

Pelecanus carolinensis, GM. Syst. Nat. I, p. 571 (1788).

Edw. Birds, Plate XCIII; Buff. Pl. Enl. 957; Aud. B. of Am. Plate CCLI, CCCCXXI; oct. ed. VII, Plates CCCCXXIII, CCCCXXIV.

This species is also frequently mentioned by the naturalists of the Expedition, and appears to be abundant on the coast of the Pacific.

Mr. Peale states with reference to this bird :

"Common on the northwest coast of America. We saw large flocks of this species in the Bay of San Francisco, in California, and also in the Bay of Callao, in Peru. It may always be distinguished by its peculiar mode of plunging from the air into the water, in pursuit of fishes, an exploit common in this bird, but which we have never seen

performed by the Rough-billed or White Pelican. It migrates in flocks, which fly in diagonal lines."

Dr. Pickering alludes to this species as having been observed in considerable numbers at the mouth of the Columbia River, usually in small flocks, and also in the Sacramento River. In his notes made during a boat-voyage up the latter, we find the following:

"September 9th, 1841. Landed in various places, and once on a small rocky islet, where great numbers of Shags, Gulls, and Pelicans, had been disturbed at our approach. The last were not, however, so numerous as the former. Several Pelicans were seen fishing, which was accomplished with more grace and apparent success than would readily be supposed from the general appearance of this bird. In this instance, the wind was blowing rather freshly, and apparently somewhat interfered with them. After sailing around a little while, the Pelican turns suddenly and darts obliquely into the water, appearing to use its pouch as a scoop. It does not dive deep, but reappears on the surface almost immediately.

"The position of this bird when standing on the rocks sometimes seemed quite ludicrous, the neck being stretched upright as far as possible, and the bill flexed vertically downwards. The neck and legs are not extended during flight, which somewhat reminded me of that of the Canada Goose, and the movement of the wings is in most respects similar, except the sailing at short intervals. All the Pelicans observed after passing a short distance up the Sacramento, appeared to be the Brown species, and I was rather surprised to see it abundant in a latitude so far north.

"A pet Pelican spoken of by one of our party as having been kept on board of an American vessel, was represented as having been exceedingly voracious and little less choice in its food than an Ostrich. It would swallow pieces of iron, stones, and other hard substances, and even though carefully watched, would sometimes steal the pork of a mess, and swallow the entire piece at once."

3. PELECANUS ROSEUS, *Gmelin*.—The East India Pelican.

Pelecanus roseus, GM. Syst. Nat. I, p. 570 (1788).

Pelecanus manilensis et philippensis, GM. Syst. Nat. I, p. 571 (1788).

Pelecanus javanicus, Horsf. Trans. Linn. Soc. London, XIII, p. 197 (1822).

Buff. Pl. Enl. 965.

Both Dr. Pickering and Mr. Peale mention having seen living specimens of this fine species in confinement at Singapore. It appears to be abundant on the coasts of Asia and the Asiatic Islands.

2. GENUS TACHYPETES, Vieill. Analyse, p. 63 (1816).

1. TACHYPETES AQUILA (Linn.).—The Frigate Pelican.
The Man-of-War Bird.

Pelecanus Aquilus, LINN. Syst. Nat. I, p. 216 (1766).

Buff. Pl. Enl. 961; Spix. Av. Bras. II, Plate CV; Vieill. Gal. II, Plate CCLXXIV; Aud. B. of Am. Plate CCLXXI; octavo ed. VII, Plate CCCCXXI.

Though no specimen of this species is in the collection, it is frequently mentioned by the naturalists attached to the Expedition.

This species is that which is found on the shores of the Atlantic Ocean, from the coasts of the Southern United States and of the West Indies, thence throughout the entire extent of South America to Cape Horn. Its further range is yet undetermined; the species which is the subject of our next article, having universally but erroneously been regarded as identical with the present bird by modern ornithologists and voyagers.

The bird now before us is the largest of the species of this genus, and may readily be distinguished from others by this character, though in general form and in colors, there is almost complete similarity. In this bird the primary quills and feathers of the tail are remarkably wide, and the shafts strong.

Dr. Pickering notices the bird now before us, as numerous at Rio de Janeiro. He observes: "This bird is common all over the Bay, presenting the appearance of a gigantic swallow, sailing leisurely around at no great height, occasionally flapping its wings, and sometimes descending not very gracefully, to pick up objects attracting its attention on the surface of the water. It was by no means shy nor difficult to procure, and would frequently come down in the midst of the shipping lying at anchor, but would rise again immediately. It was not seen here outside of the Bay of Rio de Janeiro, on any occasion."

2. TACHYPETES PALMERSTONI (*Gmelin*).—The Frigate Pelican
of the Pacific.

Pelecanus Palmerstoni, *Gm. Syst. Nat. I*, p. 573 (1788).

FORM.—Generally similar to *Tachypetes aquila*, but rather smaller, and with the quills and feathers of the tail comparatively narrow. Gular pouch in males very large, pendant; bill long, hooked abruptly at the end, wide at base, somewhat depressed. Wings long, first primaries longest; tail long, deeply forked; feet and legs short, weak; anterior toes united at base; tarsi very short; front feathers of the tibia long. Feathers of the neck behind and back long, lanceolate.

DIMENSIONS.—Male. Total length (of skin), about thirty-seven inches; wing, twenty-one and a half inches; tail, fifteen and a half inches; bill, from corner of mouth directly to tip of upper mandible, four and a half inches.

COLORS.—Adult male. Entire plumage black, with green, blue, and purple metallic lustre on the upper parts, especially observable on the back. Under parts paler, and without lustre. Quills black, tinged with ashy on their inner webs; feathers of the tail black, slightly tinged above with ashy, paler beneath; shafts of tail-feathers and of quills above and below, white at base. Bill (in dried skin), dark horn-color, tip yellowish-white. Gular pouch "blood-red" (Peale).

Female. With a bare space on the throat, but without the gular pouch. Breast white. Other parts of plumage as in the male. Slightly larger than the male?

Young. Head and neck white, strongly tinged with fulvous, especially on the neck in front above the breast. Abdomen white; breast black. Entire upper plumage of the body, the wings, and tail, black. Shoulders and some of the coverts of the wings paler and edged with ashy white.

This species, which we have no hesitation in concluding to be that indicated by Gmelin and Latham, as above cited, appears to be exclusively an inhabitant of the Pacific Ocean and its islands. In the collection of the Expedition, there are numerous specimens according

with each other exactly in their specific characters, and readily distinguishable from the well-known species of the Atlantic coast.

This bird was first described by Latham, from a specimen in the collection of Sir Joseph Banks, in General Synopsis of Birds, III, p. 592, as the "Palmerston Frigate Pelican," but without a systematic appellation. Subsequently, Gmelin named it *Pelecanus Pulmerstoni*, as above cited. Latham's specimen was evidently a female, and from the description, was quite identical with that sex of our present specimens.

From the preceding species, the bird now before us may be distinguished by its inferior size, though not so small as *Tachypetes Ariel*, Gould. Its quill and tail feathers are much narrower, and its gular pouch much larger. The latter character may not, however, be entirely reliable specifically, as its greater development may be characteristic of the male of this species, and of others of its genus during the breeding season, and of a similar character to the increased size and apparently more excited condition of analogous appendages in various other birds at that period, as for instance, the domestic Turkey, and also the Wild Turkey of North America. Numerous birds have bare spaces and wattles on the head and neck, in all of which we suspect that the size, and in some measure the color of those appendages are dependent on the season. In the Pigeons of the Genus *Carpophaga*, the fleshy protuberances on the bill and its base, we much suspect, assume the sexual and seasonal character to which we allude. In a degree, this development of appendages in the breeding season, is analogous to the growth of horns in the Deers at the same period, and to be lost when it subsides.

Both Dr. Pickering and Mr. Peale frequently allude to the present bird, and though generally under the head of *Tachypetes aquila*, both intimate doubts respecting the identity of the birds of the Atlantic and of the Pacific Oceans. Mr. Peale's observations are especially interesting and valuable, and as they undoubtedly mainly relate to the species now before us, we lay them entire before the reader:

"This remarkable bird seems to occupy the entire intertropical circuit of the globe. We saw it at all the coral islets which we passed or visited in the Pacific and Indian Oceans. It is to be regretted that we have not the means of comparing specimens collected in different localities (ours were all collected in the Pacific Ocean); for, notwith-

standing the great similarity of appearance in those of the two great oceans, we think there is some difference in their habits."

"On the east coast of America, the Frigate Pelican or Man-of-War Hawk, is a common scavenger in almost every harbor. It frequents the landing-places near the markets, and is most numerous near the haunts of man; while in the Pacific and Indian Oceans, we observed it most plentiful on uninhabited islands.

"At Honden or Dog Island, one of the Dangerous Archipelago, the numbers of birds of various kinds found breeding on the 20th of August, were so great, that our readers would doubt the enumeration, were it attempted. The nests were on the trees, bushes, ground, and even amongst the masses of broken coral thrown up by the sea. The birds were so unsuspicious, that in some instances we had to lift them off their nests with our hands, in order to examine the eggs; the confusion of sounds made the place a perfect Babel. The most conspicuous were Frigate Birds, the nests of which, constructed of a few sticks only, covered many of the trees by their numbers. The hoarse croaking and screaming as we disturbed them, were incessant. Both males and females were observed sitting on their single egg, which is of a bluish-white color. The largest egg selected measures two and eight-tenths inches long, by one and eight-tenths inches in diameter; the smallest two and four-tenths inches long, by one and seven-tenths inches in diameter. The males inflated their gular pouches to the size of a child's head, and flew with it inflated and pendent from their necks, presenting a most singular appearance, the pouch being of a blood-red color; the voice is guttural, loud, and hoarse. The old males are of a uniform dark plumage, and can always be distinguished by the long pointed and iridescent plumage of their backs. The females have a white breast. The young have, in addition to the white breast of their mother, a white head, which is usually tinged with ferruginous yellow; those in the nests are covered with a fine snow-white down, sometimes stained yellowish about the bill; the young feathers as they shoot through the down on their backs, being large and dark-colored, present a singular contrast to the white down.

"Both sexes are very noisy when their nest is approached, yet at Honden Island, they suffered us to take them off the branches of the trees with our hands. From the weakness of their small feet and legs, when sitting on a branch, they are obliged to balance their bodies in a horizontal position.

"Frigate Pelicans were seen in the month of January, on Enderby's Island, and as it was destitute of trees, they had constructed their rude nests on the ground. We are led to conclude, from the fact that fresh eggs were obtained in each place, and young birds found in various stages of growth, in the months of January and August, besides others seen at intervening periods, that they have no fixed season devoted to their broods in equatorial regions.

"Mr. Audubon, who visited the breeding-places of the Frigate Pelicans, on the Florida Keys, which are coral islets analogous to those of the Pacific Ocean, did not observe the males in the breeding season to have the habit of *inflating* the gular pouch, a habit which struck all of us who visited their nests on the coral islets of the Pacific Ocean, as very remarkable, from their singular and bloody appearance. And as he remarks, 'they are extremely silent,' we are led to believe that there may be specific differences between the Frigate Birds of the two great oceans, which have not yet been detected. They are the most noisy, excepting the Terns (*Sterna*), of all the birds we saw breeding on the coral islets of the Pacific Ocean. Their incubating a single egg in regions near the equator, and two or three, 'more frequently the latter number,' as Mr. Audubon remarks, in Florida, may be in consequence of the variation of climate, which limits them to one breeding season; but the bloody-looking pouch, and the scolding croak, would always, we should suppose, betray the identity to persons visiting their nests.

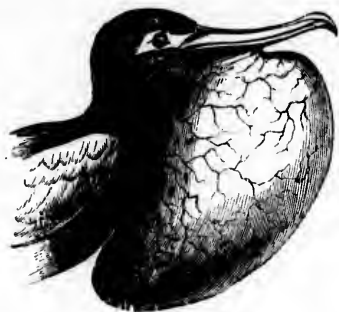
"The subjoined wood-cut is from a sketch of a male *Tachypetes* obtained at Honden Island, in the Pacific Ocean, and represents the appearance of the gular pouch when inflated. The manner of inflation is like that of the Cropper Pigeon."

Dr. Pickering notices this bird at various localities in the Pacific Ocean, and especially as occurring in large numbers at Wilkes's Island, and at Sydney Island, in addition to the localities given by Mr. Peale. He mentions having repeatedly observed it soaring at an immense height in the air.

It is probable that besides the two species now given, the naturalists of the Expedition may have seen another, the *Tachypetes Ariel*, Gould, though we are not able to determine that point from the notes and journals in our possession. Dr. Pickering does, however, in several instances, remark, that specimens seen by him were unusually small; and such may have been the species to which we now allude,

the much smaller size than either of the preceding being its essential distinguishing character. Under date of July 19th, lat. $13^{\circ} 38' S.$, long. $89^{\circ} 24' W.$, we find the following in Dr. Pickering's Journal: "At $10\frac{1}{2}$ A.M. two Frigate Birds were seen, which appeared desirous of alighting, but after hovering around the Vincennes and the Porpoise for some time, disappeared. We saw nothing of this bird at Callao, nor at Valparaiso, and were at a loss to conjecture where they could have come from, as we had only heretofore noticed it in the vicinity of land. The species seemed to be different from the Brazilian, and smaller. The head and under parts of the body white in both specimens. Nearest land 660 miles."

The small species alluded to above as *Tachypetes Ariel*, Gould, is very probably the same as *Pelecanus minor*, Gmelin.



HEAD OF TACHYPETES PALMERSTONI.

3. GENUS SULA, *Brisson*, Orn. VI, p. 495 (1760).

1. SULA FIBER (*Linn.*).—The Brown Gannet. The Booby.

Pelecanus Fiber, LINN. Syst. Nat. I, p. 218 (1766).

Pelecanus Sula, LINN. Syst. Nat. I, p. 218 (1766).

Pelecanus parvus, GM. Syst. Nat. I, p. 579 (1788)?

Sula fusca, VIEILL. Gal. II, p. 194 (1825).

Sula brasiliensis, SPIX. Av. Bras. II, p. 83 (1825).

Sula australis, STEPHENS, Gen. Zool. XIII, p. 104 (1826).

Catesby's Carolina, Plate LXXXVII; Vieill. Gal. II, Plate

CCLXXVII; Aud. B. of Am. Plate CCVII; oct. ed. VII, Plate CCCCXXVI; Gould, B. of Aust. VII, Plate LXXVIII.

One of the most extensively diffused of aquatic birds, being found abundantly on both the Atlantic and Pacific coasts of the southern portion of the continent of America, and throughout the Pacific Ocean to the coasts of Asia. It frequents the islands near the coast of Florida, and others in the Gulf of Mexico in large numbers, and at those localities rears its young, and also quite as numerous and for the same purpose, many islands in the Pacific Ocean.

After close examination of a large number of specimens from localities widely remote from each other, we find no specific differences.

This bird is thus mentioned by Mr. Peale :

"Brown Boobies were found breeding on nearly all the coral islands visited by the Expedition, while in the Pacific Ocean. Their nests were constructed of sticks and weeds, on bushes and low trees, and were generally found to contain but one egg, of a bluish-white color. They take their food, which consists entirely of fishes, by plunging after it like the Terns (*Sterna*), and very frequently they are seen coursing the ocean at great distances from land, which renders the following incident the more remarkable.

"While exploring Enderby's Island, which is of coral formation, we found a full-plumaged bird of this species, that is, one having a white breast, which indicated that it was several years old, at least a quarter of a mile from the shore, and on picking it up, we were surprised to find that it had but one wing, the other having been, by some accident, taken off close to the body. The wound was perfectly healed ; the bird in excellent health and very fat ! It was fed by its comrades, which were younger birds, as indicated by the brown plumage of their breasts, and they continued, while we were near, to display all the careful anxiety of parents."

Dr. Pickering first mentions this species as having been noticed in the Bay of Rio de Janeiro. He says it was "common near the mouth of the Bay, and apparently by no means deserving the name of 'Booby,' which has been bestowed on it. Its flight is very easy, and it frequently dives directly into the water, disappearing entirely for some moments." He again notices it at various localities, and as particularly abundant at Aurora Island, in the month of September.

On the Atlantic coast of North America, this species is found as far

north as the coast of Georgia. Specimens from various localities are in the collection of the Expedition.

The Prince Bonaparte, in his Monograph of the Pelecanidae, in *Conspectus Avium*, Vol. II, p. 164, regards this species as generically distinct from that immediately succeeding, and adopts for it the name *Dysporus*, Illiger. He regards also the name *Pelecanus parvus*, Gmelin, as applicable to the American Bird, the only difference between which and that of other countries, is stated to be the smaller size of the former. We have not succeeded in detecting any reliable distinctive characters in the specimens in our possession.

2. *SULA CAPENSIS*, Lichtenstein.

"*Sula capensis*, LICHT." Bonap. *Conspectus Avium*, II, p. 165 (1855).

"*Sula melanura*, TEMM." Bonap. *ut supra*.

Reich. Vollst. Naturg. Birds, Plate LIV, figs. 2292, 2293.

Dr. Pickering notices the occurrence of this species at the Cape of Good Hope. We do not find it in the collection of the Expedition, but specimens in various stages of plumage are in the Museum of the Philadelphia Academy, from Southern and Western Africa, all of which constantly present the specific characters relied on by naturalists as distinguishing it from *Sula bassana*.

The most obvious character is the color of the tail, which is black in the present species, and white in that just mentioned. In size and general appearance the two species much resemble each other.

3. *SULA PISCATOR* (Linn.).—The Fishing Gannet. The Red-legged Gannet.

Pelecanus piscator, LINN. *Syst. Nat.* I, p. 217 (1766).

Sula candida, BRISS. *Orn.* VI, p. 501; STEPH. *Gen. Zool.* XIII, p. 103 (1826).

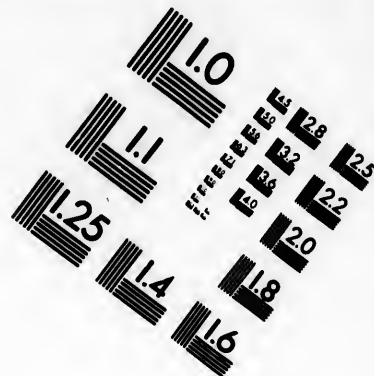
Sula erythrorhyncha, LESS. *Traite*, I, p. 601 (1831).

Sula rubripes, GOULD, *Proc. Zool. Soc. London*, 1837, p. 156.

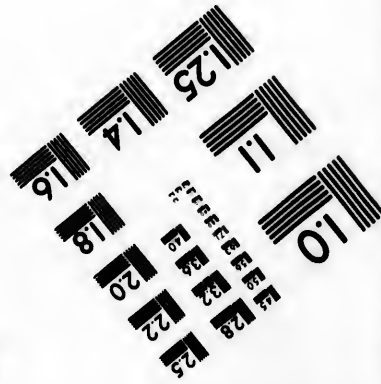
Sula rubripeda, PEALE; *Zool. U. S. Exp. Birds*, p. 274 (1st ed. 1848).*

* "Plumage of both sexes pure white, excepting the primaries, secondaries, and first row of greater wing-coverts, which are dark brown, with a hoary surface; tail cuneiform,





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Gould, B. of Aust. VII, Plate LXXIX; Reich. Vollst. Naturg. Birds, Plate LIII, fig. 853, Plate LV, fig. 2294.

Specimens of this handsome Gannet, are in the collection of the Expedition, from several localities. They are in various stages of plumage, but are strictly the same specifically as Mr. Gould's specimens, now in the collection of the Philadelphia Academy. The latter are from Raine's Island, from Northern Australia, and other localities in the Pacific Ocean, and from China. Other specimens in the collection of the Academy are from the Indian Ocean, and were presented by its eminent member, Joseph Carson, M.D., Professor of Materia Medica in the University of Pennsylvania, who, during a voyage to China, made a valuable collection.

This species has, therefore, evidently a very extensive range of locality, and is perhaps, the most widely diffused species of this genus, except the Brown Gannet (*Sula fusca*). It is represented as very abundant in and about the islands north and east of Australia, and we have ample evidence of its abundance also at numerous other localities, as we shall show in the statements of the naturalists of the Exploring Expedition in the course of the present article.

Both Dr. Pickering and Mr. Peale frequently note the occurrence of this bird, the latter of whom, who rather unaccountably regards it as an undescribed species, thus alludes to it:

"This is the most showy as well as the most common species of Booby, that occurs in the Pacific Ocean. It appears to be confined to the intertropical regions, but ranges from the shores of America to those of Asia.

white (which distinguishes it from *S. piscator* at first sight, its tail being black); bill deeply serrated, of a pale blue color, margined at the base by a bright red and wrinkled skin; cheeks blue; eyelids green; irides brown; gular pouch intense black; feet bright vermilion-red; middle toe-nail much flattened, curved laterally, and deeply pectinated on the inner edge.

"Total length, twenty-eight and a half inches; extent of wings, fifty-nine inches; bill, three and two-tenths inches; commissure, four and one-tenth inches; tarsi, one and four-tenths inches; middle toe, including the nail, three inches; nail, seven-tenths of an inch; tail, eight and a half inches; outer feathers, four and three-tenths inches.

"The young when first hatched are covered with a very white down; their first plumage is entirely brown, clouded with hoary, but the color soon becomes lighter about the head, neck, breast, and tail. The neck and tail next become white, and finally the whole plumage, excepting the greater feathers of the wings. These changes require several years."

"At Honden Island, we found them, on the 21st day of August, constructing their nests, in great numbers, on bushes from four to six feet above the ground, the materials used were weeds, and the structure was rude. They had not then begun to lay their eggs, but were so unsuspicious that we took as many as were wanted, in different stages of plumage, from the bushes with our hands. Sometimes they fought, rather than leave their nests, uttering a hoarse grunting cry, and biting severely, and aiming their blows at our eyes when not carefully guarded.

"Amongst many hundred pairs, at the island above named, all preparing to raise broods, we saw but about a dozen with the pure white plumage, which is the dress of the mature birds."

"At Enderby's Island, we found them with nests on the bushes in the same manner as at Honden Island, but constructed of different materials, dry sticks being used in the place of weeds. It was in the month of January. Some of the nests contained a newly laid egg, others contained young birds in various stages of growth. It was very rarely that we found two young birds or two eggs in the same nest, but almost always a single one of either.

"The young when first hatched are covered with a very white down; their first plumage is entirely brown, clouded with hoary, but the color soon becomes lighter about the head, neck, breast, and tail. The neck and tail next become white, and finally the whole plumage, except the greater feathers of the wings; these changes requiring several years."

Dr. Pickering alludes to this bird as abundant at Gardner's Island, and as stated by Mr. Peale, always building its nest in trees or bushes. "The egg," he observes, "is single and smaller than that of the larger white species (*Sula personata*), and more elongated. It is white, with a bluish tint." He mentions it as abundant also at McKean's Island, at Sydney Island, and at Wake's Island, and as having been seen also at the Philippines.

Numerous specimens, in adult and young plumage, and from various localities, are in the collection of the Expedition. This bird is very handsomely and accurately represented in Mr. Gould's plate in his splendid work on the Birds of Australia, cited above.

4. *SULA PERSONATA*, Gould.—The Masked Gannet.

Sula personata, GOULD, Proc. Zool. Soc. London, 1846, p. 21.

"*Sula piscator*, LATH." Peale, Zool. U. S. Exp. Exp. Birds, p. 273 (ed. 1848).

"*Sula cyanops*, SUNDEVAL," Bonap. Conspect. Av. II, p. 166.

Gould, B. of Aust. VII, Plate LXXVII; Reich. Vollst. Naturg. Birds, Plate LIV, figs. 2289, 2290, 2291.

This handsome species of Gannet, first brought to the notice of naturalists by the eminent English ornithologist, Mr. Gould, is mentioned as having been observed in large numbers by the naturalists of the Expedition. Though noticed at various localities, it was found most abundant at Horden Island and Enderby's Island, in both of which it was engaged in the duties of incubation.

Apparently, or so far as is known, this species inhabits an extent of the Pacific Ocean and its islands, of which Northern Australia is the southwestern limit, and is more abundant in the northern and eastern portion of its range, at least during the season devoted to rearing its young. It is possible, however, that it may occur as numerously on the eastern coast of Australia, the zoology of which has been but partially investigated.

Specimens, in the collection of the Expedition, of this bird in various stages of plumage, precisely correspond with the originals from which were drawn Mr. Gould's description and figures, as above cited, and which are now in the collection of the Academy of Natural Sciences of Philadelphia. Mr. Gould's specimens are marked as having been collected at Raine's Island,* in Torres' Straits, and are so alluded to in his splendid and elaborate work, "The Birds of Australia."

Mr. Peale states with reference to this species:

"This bird was first seen by the Expedition on the 20th of July, in latitude 13° 30' 28" S., and longitude 89° 25' W. One month afterwards, it was found in great numbers at Horden Island, one of the most eastern of the Paumotu Group. They were sitting on a single egg each, one bird only having two eggs; they had no nest whatever, not even a cavity scratched in the sand. Flat, dry, sandy beaches

* "A vegetated sandbank in the line of the Great Barrier Reef." Mr. McGillivray, in Gould's Birds of Australia.

were selected on the shores of the lagoons which are commonly found in coral islands, where, under some low bush, the female lays her egg on the bare ground, and is assisted by the male in the office of incubation. They remain very gravely at their stations, disregarding the enormous land crabs, the Frigate Birds, or even man, who is the terror of most animals. We pushed many of these birds off their nests with the muzzles of our guns, to see whether they had more than one egg to each pair of birds; they fought and scuffled with the offensive weapon, but returned the moment it was withdrawn. One or two were sufficiently cunning, after a first attempt, to bite our hands in place of the gun-barrel. They hissed like the domestic Goose, and have besides, a very coarse croaking voice.

"The egg is two and six-tenths inches long, and one and eight-tenths inches in diameter, equally rounded at both ends in some, while others are somewhat pointed at one end; the color is bluish-green *inside*, and covered *outside* with a dry, rough, white coating, showing the color of the interior through it. This outside coating is probably soft at first, because most of the eggs are coated more or less with coral sand, incorporated with the surface of the shell.

"The young of this species are covered with a fine white down, and when first hatched, resemble a powder-puff with a black handle, the latter being represented by their black bills. The feathers afterwards come out of an ash-color, and are not spotted with white, like the Gannets of the north (*Sula bassanus*).

"The seasons for incubation do not seem to be very regular. We found them sitting and hatching, at Enderby's Island, in the month of January, and the same was observed at other places at intermediate seasons.

"We never saw this bird construct a nest in trees like the following species, nor is it so numerous, but is generally seen in the same parts of the Pacific Ocean lying between the Paumotu Islands, and the coast of Asia."

This bird is frequently mentioned in Dr. Pickering's journal, and is particularly noticed by him as abundant at Gardner's Island, at McKean's Island, and at Wake's Island. At Gardner's Island he observes that it was found in large numbers, and engaged in the duties of incubation. "The eggs were always laid on the ground with little or no semblance of a nest, and in one instance only, two eggs were observed together, and belonging to one female. In all other cases

one egg or young bird only was observed, and the parent birds generally would not leave their progeny unless compelled by force."

Dr. Pickering also records having noticed this species at sea, after the Expedition left the Sandwich Islands, in longitude 167° 30' west. This fact we are the more particular in stating, as this species may yet be found to be an inhabitant of the Pacific coast of the United States, the locality last mentioned being the nearest to the coast of North America, of any given by the naturalists of the Expedition.

The Prince Bonaparte, in *Conspectus Avium*, II, p. 166, adopts for this species the name *Sula cyanops*, Sundevall, in preference of *Sula personata*, Gould, intimating the priority of the former, but citing no description. We have not succeeded in finding any name for this bird previous to that proposed by Mr. Gould, as given at the head of the present article.

4. GENUS CARBO, *Lacepede*.

1. CARBO MAGELLANICUS (*Gmelin*).—The Cape Horn Cormorant.

Pelecanus magellanicus, GM. Syst. Nat. I, p. 576 (1788).

Phalacrocorax erythrops, KING, Proc. Zool. Soc. London, 1831, p. 30.

"*Phalacrocorax leucotis*, CUVIER," Bonap. Consp. Av. II, p. 177.

In the collection of the Expedition are several specimens, which appear to be clearly this species, though presenting some striking variations in plumage. This is the case, however, with so many species of Cormorants with which we are acquainted, that we regard the conclusion as inevitable, that changes in the plumage of different ages of the same species, and sexual and seasonal changes also, take place to an unusual extent in this group. In the present bird, we can readily distinguish three well-marked stages of plumage:

First. Throat, with a white longitudinal band; spot on the ears white. Head, neck, entire upper parts, sides (under the wings), large spot on the flanks, and tibiae, black, with a greenish and purple gloss, most observable on the head and back; sides and flanks with white lines. Under parts from the neck white; under tail-coverts black. Lores, space around the eyes, and at the base of the under mandible, naked. Total length of prepared specimen, about twenty-eight inches; wing, ten and a half inches; tail, six inches.

This appears to be the most mature plumage, and is that described by Gmelin and Latham (Gen. Synopsis, III, p. 604), King, as above, and Forster (Desc. An. p. 356).

Second. Like the preceding in all respects, but without the white spots on the ears. Plumage not so glossy and tinged with brownish on the upper parts. Longitudinal band on the throat more restricted but well defined.

Third. Entirely black; abdomen with a few white feathers; longitudinal band of white on the throat well defined; no white spots on the ears. Plumage glossy, as described above. Bare space at the base of the mandibles more limited.

The last appears to be precisely identical specifically with both of the preceding, showing no other different character than that the under parts are black instead of white. In size and measurements of all the parts, these specimens correspond with each other. The black plumage of the under parts here alluded to, we have not seen previously described as applicable to this species, *Phalacrocorax niger*, King, Zool. Jour. IV, p. 101, being clearly not this bird, but a much larger species. The present species inhabits the shores of Western and Southern South America, and, according to Dr. Pickering, was abundant at Orange Harbor, Tierra del Fuego.

Perhaps no birds of the group of swimming birds, have been assigned to a greater number of genera, nor more variously and promiscuously named than the Cormorants. The present species has been regarded as belonging to the genera *Pelecanus*, *Phalacrocorax*, *Hypoleucus*, *Carbo*, and *Graculus*, of authors, and ultimately is rated, by the Prince Bonaparte, as a recruit in his new genus *Urile*, *Conspectus Avium*, II, p. 175 (1855). This is the tenor of the latest advices on the subject.

2. CARBO ATRICEPS (King).

Phalacrocorax atriceps, KING, Zool. Jour. IV, p. 102 (1828).

Carbo Bougainvillii, LESSON, Voy. Thetis and l'Esperance, II, p. 331 (1837)?

Reich. Vollst. Naturg. Birds, pl. LX, figs. 2309, 2310?

Several specimens from Tierra del Fuego, in the collection, are of the species described by the authors whom we have cited. We can-

not determine, however, that this species is identical with *C. carunculatus* (Gmelin), though such a conclusion has been adopted to some extent by ornithologists.

This species is larger than the preceding, with a similar longitudinal stripe on the throat, but of greater extent. Under parts white, which color extends upwards on the neck, leaving between its termination and that of the white stripe on the throat, a narrow, transverse band of glossy black, with a blue lustre, which is the color of the head and neck behind. Back, wing-coverts, and shorter quills brown, with a greenish and bronzed lustre; middle of the back and rump, greenish-blue. Sides (under the wings), and large space on the flanks and tibiae, deep black, with a bluish lustre; under tail-coverts black. Feet light colored. Total length of prepared specimen, about thirty-one inches; wing, eleven and a half inches; tail, four and a half inches. This is apparently a more mature plumage than the succeeding.

Younger? Under parts from the base of the lower mandible white. Upper parts like the preceding, but tinged with brown on the head and neck, and much less glossy.

We find no notes, relating to either this bird or the preceding, placed on record by either of the naturalists of the Expedition, and like the preceding species, the present has not been figured in the plumages which we regard as most mature, and we have doubts whether the figures of Reichenbach, cited above, are really of this species. The description, however, of *Carbo Bougainvillii*, as above, seems to be applicable to our present bird, and the name synonymous with *Phalacrocorax atriceps*, as given at the head of this article.

This species is arranged by the Prince Bonaparte, as belonging to his Genus *Urile*, in his Monograph of the *Phalacrocoracidae*, in *Conspectus Avium*, II, p. 176. Specimens in good preservation are in the collection of the Expedition.

3. CARBO HYPOLEUCUS, Brandt.

Carbo hypoleucus, BRANDT, Bull. Acad. St. Petersburg, I, p. 55 (1837).

Pelecanus pica, FORSTER, Desc. An. p. 105 (1844).

Carbo fuscus, PEALE, Zool. Exp. Exp. Birds, p. 268 (first edition, 1848).*

* "Head, back of neck, and thighs, dark olive-green; cheeks, throat, and all the under parts of the neck and body, white; wings and scapulars gray, each feather edged

Gould, B. of Aust. VII, Plate LXVIII.

Several specimens of this handsome species, from the Bay of Islands, New Zealand, are in the collection. They are precisely as described by Mr. Gould, as above, and figured in his magnificent work on the Birds of Australia.

We cannot coincide in the reference of this bird to *Pelecanus varius*, Gmelin, which has been done by excellent authorities in Ornithology; but to us, Gmelin and Latham's descriptions seem applicable, with a greater degree of propriety, to the succeeding. It is, however, referred to that species by both Bonaparte, in *Conspectus Avium*, and Reichenbach, in *Vollst. Naturg.*, and by other authors. It appears to be a common bird of the coasts of New Zealand and Australia.

This bird is the type of the Genus *Hypoleucus*, Reichenbach, adopted by the Prince Bonaparte, in *Conspectus Avium*, II, p. 173. It is possible that it is not specifically different from that immediately succeeding, in which case, Gmelin's name is probably to be adopted.

4. CARBO LEUCOGASTER (Gould).

Phalacrocorax leucogaster, GOULD, Proc. Zool. Soc. London, 1837, p. 156.

Pelecanus varius, GM. Syst. Nat. I, p. 576 (1788)?

Gould, B. of Aust. VII, Plate LXIX.

Very considerably resembling the preceding, but larger. The specimen in the collection of the Expedition, as well as those in Mr. Gould's collection, now in the Museum of the Philadelphia Academy, have the appearance to us of being in immature plumage, from which fact we do not feel assured in attempting to point out distinguishing

with dark olive-green; tail dark gray, nearly black; shafts black; bill black, with a brown tip; feet black; irides green; lores blue, with a yellow spot at the base of the bill; corners of the mouth, base of the lower mandible, and pouch, red.

"Total length, two feet five and a half inches; extent of wings, three feet seven and one-fourth inches; wing, from the carpal joint, ten and eight-tenths inches; tail, five and four-tenths inches; tarsus, one and nine-tenths inches; outer toe, three and a half inches; bill, two and four-tenths inches; to the angle of the mouth, three and six-tenths inches." Peale, as above.

characters, or even in concluding that this bird is certainly different from the last. The specimens are, however, apparently constantly larger.

To this bird, in immature plumage, Gmelin's name, cited above, appears to be applicable. The present specimens are from New Zealand.

Like the preceding, the present bird is included by the Prince Bonaparte in his recent Monograph, in the Genus *Hypoleucus*, Reichenbach. He regards this species, and not the preceding, as *Carbo hypoleucus*, Brandt. We have the misfortune of not coinciding in manner and form as the case stands, but we are not without a suspicion that both are correct, the difference being in names, or perhaps nominal species only.

5. CARBO SULCIROSTRIS, Brandt.

Carbo sulcirostris, BRANDT, Bull. Acad. St. Petersburg, I, p. 56 (1837).

Carbo purpuragula, PEALE, Zool. Exp. Exp. Birds, p. 269 (first edition, 1848).*

Microcarbo stictocephalus, BONAP. Consp. Av. II, p. 178 (1855).

Gould, B. of Aust. VII, Plate LXVII.

Specimens in the collection of the Expedition are stated to have been killed "at Manua Bay, New Zealand, in the month of March, where they frequent the fresh-water or brackish creeks." This note, by Mr. Peale, is the only reference to this interesting little species, that we find in the journals of the naturalists of the Expedition.

This bird is regarded by the Prince Bonaparte, in his recent Monograph (Consp. Av. II, p. 178), as not the true *Carbo sulcirostris*, Brandt, and he accordingly proposes a new name for it, as above. We continue it, however, as given by Mr. Gould, in Birds of Australia,

* "Head, neck, and body, black, with an olive-green metallic gloss; wings and tail black; shafts black; scapulars and wing-coverts purplish-gray, each feather edged with black; secondaries having their webs waved, somewhat like the Darters (*Plotus*); bill bluish horn-color; the upper mandible brownish; eyelids and gular pouch purple; irides green.

"Total length, twenty-four inches; wing, from the carpal joint, ten and three-tenths inches; tail, five and three-tenths inches; the outer feathers, three and eight-tenths inches; bill, one and eight-tenths inches; to the corners of the mouth, two and six-tenths inches; tarsi, one and seven-tenths inches; outer toe, three inches; nail, three-tenths of an inch; hind toe, one and two-tenths inches; nail, three-tenths of an inch."

above referred to, but if this bird is erroneously designated *sulcirostris*, the name having priority is that of Mr. Peale, above given.

This species belongs to the group, probably subgeneric in value only, denominated *Haliaeetus* or *Microcarbo*, by Bonaparte (" *Haliaeetus*, Bp. ex Ill. *Microcarbo* si videbitur"), *Conspectus Avium*, II, p. 177. It is one of the smallest species of the Cormorants.

6. CARBO BREVIROSTRIS (Gould).

Phalacrocorax brevirostris, GOULD, Proc. Zool. Soc. London, 1837, p. 26.

Carbo flavagula, PEALE, Zool. Exp. Exp. Birds, p. 270 (first ed. 1848).*

Reich. Vollst. Naturg. Birds, Plate LX, fig. 2308.

A very handsome small species, much resembling that immediately preceding, and from which we do not feel fully assured that it is distinct. The present specimen is, however, clearly the species described by Mr. Gould, as above.

According to Mr. Peale:

"The specimens were procured at the Bay of Islands, New Zealand, where we found them more common than the Purple-throated Cormorant, which was also observed there."

This bird differs from the last mainly in the rather shorter bill, and the lighter colors of its plumage, but in size and other characters, it is quite similar. Specimens in the present collection, and in the Museum of the Philadelphia Academy, have not, to us, the appearance of mature birds. Both this and the preceding species are mentioned by Dr. Pickering as having been observed at the Bay of Islands, and as frequenting the same description of locality, if not associating together.

* "Head, neck, and body, dark sepia-brown; wings dark gray, the primaries very much curved inwards, black, with a greenish gloss; secondaries and coverts with the usual dark edges; tail long, slender, rounded, the feathers attenuated at the tip, and pointed, black; shafts black; bill horn-color; lores and pouch bright yellow; irides brown; feet black.

"Total length, twenty-two and six-tenths inches; wing, from the carpal joint, nine and four-tenths inches; tail, six and four-tenths inches; outer feathers, four and two-tenths inches; bill, one and two-tenths inches; to the corners of the mouth, three and three-tenths inches; tarsi, one and three-tenths inches; outer toe, including the nail, two and seven-tenths inches; nail, three-tenths of an inch; inner toe, including the nail, one and three-tenths inches; nail, four-tenths of an inch."

7. CARBO GAIMARDII (*Garnot*).

Pelecanus Gaimardii, GARNOT, Voy. Coquille, Zool. I, p. 601 (1826).

Phalacrocorax cirriger, KING, Zool. Jour. IV, p. 108 (1828).

Voy. Coquille, Birds, Plate XLVIII; Reich. Vollst. Naturg. Birds, Plate LXI, fig. 370.

Excellent specimens of this bird are in the collection of the Expedition. It is remarkable for the light and delicate ash-color of its plumage, and is now well known as a common species of Western South America, though it appears to have escaped the attention of the earlier naturalists.

According to Dr. Pickering, this handsome Cormorant is of quite frequent occurrence on the coast of Chili and Peru, and breeds on the Island of San Lorenzo. With reference to the latter fact, we make the following extract from his journal:

"We were surprised at the variety and great numbers of the sea-birds constantly to be seen in the harbor of Callao, attracted apparently by the abundance of fishes. On the south side of the Island of San Lorenzo, we found the breeding-places of several of these birds, on cliffs almost inaccessible. Each species seemed to have a village or district appropriated for itself. That of the *Sterna inca* was the most extensive, and it was most numerous. Next came the White-headed Booby, and further on to the westward, was the district of the *Carbo Gaimardii*. Of this bird, some of the nests contained eggs, while in others were to be seen young birds in various stages, some half grown, and others just ready to fly; always in pairs, so far as came under our observation."

This is another of the species of Cormorants which have troubled ornithologists to provide for in generic arrangement. It has been variously assigned to the genera *Pelecanus*, *Phalacrocorax*, *Carbo*, *Graculus*, and *Hypoleucus*, and is the type of the new Genus *Sticticarbo*, Bonaparte, Conspectus Avium, II, p. 174. In form and other general characters, it is very similar to several other and dark-colored species, and is probably only entitled to a subgeneric distinction. It is one of the most handsome birds of this family, and is accurately represented in the plate of the Zoology of the Voyage of the Coquille, above mentioned.

5. FAMILY LARIDÆ.—The Gulls, Terns, Albatrosses, &c.

1. GENUS LARUS, *Linn. Syst. Nat. I, p. 224 (1766).*1. LARUS DOMINICANUS, *Lichtenstein.**Larus dominicanus*, *LICHT. Verz. p. 82 (1823).*" *Dominicanus Azaræ*, *LESS.*" *BONAP. Consp. Av. II, p. 214 (1856).*Gray, *Gen. III, Plate CLXXX.*

A large species, nearly related to *Larus fuscus*, but constantly presenting distinct characters. It is, apparently, peculiar to the coasts of South America, especially on the Pacific Ocean, but probably inhabiting a more northern latitude than has yet been attributed as its locality, on which account it is of especial interest to the ornithologists of the United States. It appears to be a common bird of the coast of Western South America.

Several specimens of this bird are in the collection. It is stated, by Mr. Peale, to have been numerous on the coast of Chili, particularly about the Bay of Valparaiso, in the month of May, and is also mentioned by Dr. Pickering, at Tierra del Fuego, and at Callao.

We regard this bird as the true *Larus dominicanus*, of Lichtenstein, and that figured in Mr. Gray's valuable work, above cited. This name is, however, assigned to an African species by Bonaparte, in *Consp. Avium*, II, p. 214, and the present species is named as above. It is arranged by him in the genus *Dominicanus*, Bruch.

2. LARUS OCCIDENTALIS, *Audubon.**Larus occidentalis*, *AUD. Orn. Biog. V, p. 320 (1839).**Larus niveus*, *PALLAS, Zoog. Ross. As. II, p. 320 (1811)?*Pallas, *Zoog. Ross. As. Plate LXXXVI?*

Specimens, from the coast of Oregon, are in the collection, but we have, unfortunately, no memoranda nor notes relating to it. Very fine specimens have been brought home in the collections of naturalists who have visited California, especially in those made by Mr. J. G. Bell, of New York, and by Dr. Heermann, of Philadelphia, and it appears to be a common bird of the western coast of North America.

Though much resembling *Larus argentatus*, this species constantly differs, sufficiently to be entitled to a separate designation. It is not impossible, however, that this bird is the *Larus niveus*, Pallas, as above cited, and, in fact, the description of the latter applies very nearly in all respects, except the color of the bill and of the feet, both of which are liable to variation, especially in preserved specimens. This fine species is not given in Audubon's Plates, nor are we acquainted with any figure of it, unless it is that of Pallas, above mentioned. It is regarded by late ornithologists as belonging to the genus *Laroides*, Brehm.

3. LARUS FULIGINOSUS, Gould.

Larus fuliginosus, GOULD, Voy. Beagle, Birds, p. 141 (1841).
Adelarus Neptunus, BONAP. Consp. Av. II, p. 232 (1856).

Several specimens of this species, from the coast of Peru, vary considerably in the colors of their plumage, and are apparently immature. They are, however, all characterized by the fuliginous color of their plumage, which appears to be that of the young bird.

Mr. Peale notices this bird as follows:

"Was seen occasionally from Cape Horn to Callao, on the coast of Peru. Many specimens were obtained, which vary much in plumage. The males are about one-fourth larger than the females, and sometimes have the abdomen entirely white. The young birds are wholly fuliginous-brown, with yellowish edges to the dorsal feathers, wing-coverts, &c. Tail, in all stages of plumage, margined with white, which forms a conspicuous character."

This Gull appears to be another of the common birds of this family, inhabiting the coasts of Western South America. It is found from Chili to Cape Horn, and probably extends its range more northwardly

than has yet been determined. It is arranged by the Prince Bonaparte, in his genus *Leucophaeus*, *Conspectus Avium*, II, p. 231.

4. *LARUS ALBIPENNIS*, Peale.

Larus albipennis, PEALE, Zool. U. S. Exp. Exp. Birds, p. 288 (1848).

"*Larus albipennis*, LIGHT." GRAY, Gen. III, p. 654?

Larus cirrocephalus, VIEILL. Nouv. Dict. XXI, p. 502 (1818)?

Capite, collo et corpore subtus albis, corpore supra cinereo, pennis primariis quinque prioribus albis, intus nigro marginatis, cauda alba. Long. tot. 14 pollices.

FORM.—Rather slender and graceful. Bill moderate or rather long; wing long, extending, when closed, beyond the end of the tail, which is rather short. Tarsi moderate, rather slender.

DIMENSIONS.—Total length (of skin), fourteen inches; wing, eleven inches; tail, four and three-fourths inches.

COLORS.—Head, neck, and entire under parts, white. Back, wing-coverts, tertiaries, secondaries, and shorter primaries, light cinereous. First five primaries white, bordered with black on their inner edges, nearly throughout their length; first primary edged with black at its base, on its outer web. Tail white. "Bill and feet scarlet; irides brown."

HAB.—Coast of Chili. Specimen in Nat. Mus. Washington.

This is apparently the young bird of a species distinct from any other known to us, though probably the same as referred to by Lichtenstein, under the same name, as above given. We have, however, not succeeded in finding a description under this name in any of the works of Lichtenstein to which we have access. It is cited as "*L. albipennis*, Licht. MSS.," by Mr. Gray, in "List of the Specimens of Birds in the Collection of the British Museum," Part III (London, 1844), and is not to be found at all in Prof. Lichtenstein's "Nomen-

clator Avium Musei Zoologici Berolinensis" (Berlin, 1854), circumstances which induce us to suspect that there is no description extant.

Having only young birds of the species now before us, we much regret our inability to determine its relationship to *Larus cirrocephalus*, Vieill., of which there are adult specimens in the collection of the Philadelphia Academy, but our opinion is, at present, that it is not identical. The description, by Vieillot, and the specimens, in the Academy's collection, above alluded to, are, however, those of a bird nearly related to the present, and more like it than the species immediately succeeding.

Two specimens of this bird are in the collection of the Expedition. They are very nearly similar in colors and other characters, but are considerably smaller in dimensions than as stated by Mr. Peale. We therefore give his measurements, with his observations on this species:

"The specimens were obtained in the month of May, on the coast of Chili, at which season the heads of all were white, slightly clouded, in some, with pale lead color, which leads to the inference, that, at other seasons, their heads would be black or dark lead color. Great numbers were around the shipping, in the harbor of Valparaiso, and were very tame.

"This species is closely allied to *Xema cirrocephalum*, but is rather less in size, and may at once be distinguished by the first four quills, which are white. In *X. cirrocephalum*, they are black, with white tips.

"Total length sixteen and one-eighth inches; wing, from the carpal joint, fourteen and one-tenth inches; tail four and eight-tenths inches; bill one and four-tenths inches; to the angle of the mouth two and three-tenths inches; tarsi one and seventeen-twentieths inches; naked part of the leg, above the heel, one and one-tenth inches; middle toe one and eight-tenths inches; nail seven-twentieths of an inch. Male."

These measurements agree with the specimens labelled by Mr. Peale, and now before us, in all points, except total length of the bird and the length of the wing, which are as we have given above. The species alluded to by him as *Xema cirrocephalum*, is that now succeeding.

5. *LARUS GLAUCOTES*, *Meyen.*

Larus glaucotes, MEYEN, Nov. Act. 1834, p. 115.

Larus maculipennis, LIGHT. VERZ. p. 83 (1823)?

"*Xema cirrocephalum*, G. R. GRAY," PEALE, Zool. U. S. Exp. Birds, p. 289 (1848).

Nov. Act. Acad. Caes. Leop. 1844, Plate XXIV.

Very probably Lichtenstein's species, as above cited, and a common bird in collections from the coast of Chili. Our specimens measure, in total length, about eighteen inches, being uniformly larger than those of the preceding species. This species is stated by Mr. Peale to have been obtained on the west coast of South America, as far north as Peru.

2. GENUS *STERNA*, *Linn. Syst. Nat. 1*, p. 227 (1766).1. *STERNA FRONTALIS*, *G. R. Gray.*

Sterna frontalis, GRAY, Zool. Voy. Erebus and Terror, Birds, p. 19 (1845).

Sterna albifrons, PEALE, Zool. U. S. Exp. Birds, p. 279 (1st edition, 1848).*

Sterna striata, GM. Syst. Nat. I, p. 609 (1788)?

Lath. Gen. Syn. III, Plate XCVIII? Zool. Voy. Erebus and Terror, Birds, Plate XX.

This species, so far as we can gather from the notes of the naturalists of the Expedition, was observed only at New Zealand. In the collection, we find adult specimens, presenting no peculiarities or characters not mentioned in the description first above cited.

* "Back and wings pearl-gray; front, throat, neck, all the body, and tail, white; crown and occiput black; bill black; legs red; claws black; wings and tail equal; first primary longest, its outer web black; tail forked; all, excepting the two centre feathers, pointed; shafts white; irides brown.

"Total length fourteen and one-half inches; wings, from the carpal joint, eleven inches; tail six inches; centre feathers two and six-tenths inches; bill one and nine-tenths inches; to the angle of the mouth two and one-tenth inches; tarsi thirteen-tenths of an inch; middle toe, including the nail, one inch; nail three-tenths of an inch."

Mr. Peale thus alludes to the present bird :

" Our specimen was killed at the Bay of Islands, New Zealand, in the month of March. The species was then congregated in large flocks, and, on one occasion, six specimens were killed at one discharge of a fowling-piece.

" Total length fourteen and a half inches ; wing, from carpal joint, eleven inches ; tail six inches ; centre feathers (of the tail), two and six-tenths of an inch."

This handsome species is very accurately figured in the Zoology of the Voyage of the Erebus and Terror, above cited. Specimens in the collection of the Expedition are in good plumage and preservation. This, and other species of *Sterna*, are mentioned by Dr. Pickering as of common occurrence at the locality above given.

Latham's plate, above cited, evidently represents a young bird ; and, as the locality in the description accompanying it (Gen. Syn. III, p. 358), is given as New Zealand, and as both, moreover, might readily apply to the young of the present species, it is not improbable that Gmelin's name should be adopted. We leave it, however, as a problem to be solved by the examination of the young bird, and comparison with the figure and description to which we allude. Gmelin named this species on the faith of Latham's description, very probably never having seen a specimen.

Mr. Peale's measurements, above given, appear to have been made from the recently killed bird. The preserved skin measures, in total length, about thirteen inches.

2. STERNA LUNATA, Peale.

Sterna lunata, PEALE, Zool. Exp. Exp. Birds, p. 277 (1848).

S. panayam refert sed major et pallidior. Corpore supra pallide cinereo, subtus albo, fronte albo, capite supra et linea ante oculos nigra. Long. tot. 15 pollices.

FORM.—General form of, but rather larger than, *Sterna panaya*, Gm. (Gould, B. of Aust. VII, Pl. XXXIII). Bill straight, rather wide at base, and thick ; wings long, first quill longest ; tail deeply forked, with the feathers pointed ; outer feathers about two inches longest ;

feet and legs slender; webs of the toes deeply incised in front; claws rather strong.

DIMENSIONS.—Male. Total length (of skin), fifteen inches; wing, eleven inches; tail, eight and a half inches.

COLORS.—Generally resembling those of *Sterna panaya*, Gm., but much lighter. Front white, which color extends over the eyes; head above, neck behind, and stripe before the eye, black. Entire upper parts light cinereous; darker on the coverts of the wings. Quills cinereous, with a frosted or hoary aspect; and on their inner webs, with a wide longitudinal stripe of white. Outer web of first primary, black. Tail light cinereous; outer feathers white, tinged with cinereous on their inner webs. Under wing-coverts, and entire other under parts, white. Bill and feet, black.

HAB.—Vincennes Island, Paumotu Group. Specimen in Nat. Mus. Washington.

We had hoped that the necessity of describing forms as new, though intimately allied to long-known and well-established species, was at an end, but in the case of the bird now before us, after careful comparison, we give it the benefit of the doubt, and accordingly let it stand as described.

The only difference to be regarded as important, between the bird now before us and *Sterna panaya*, is the lighter color of the former; in addition to which, the longitudinal band or stripe on the inner webs of the quills is more distinctly defined, and there are some other minor characters, which appear to be constant. It is, however, very similar to the well-known species just mentioned.

There are in the collection of the Expedition, two specimens of this bird, both of which are from the Paumotu Islands, and are very similar in plumage. In the Museum of the Philadelphia Academy, amongst numerous specimens of *Sterna panaya*, from various localities, including Mr. Gould's from Australia, we find one specimen only of this species, which is labelled "des Mers de l'Océanie," and was purchased in Paris. Although at present disposed to regard it as a distinct species, perhaps more local in its habitat than its near relative to which we have alluded, we shall not be surprised, if the present bird is de-

monstrated, by future explorers, to be the same in a seasonal plumage not heretofore determined.

Mr. Peale remarks of this species :

"Our specimens were obtained, on the 2d September, at Vincennes Island, one of the Paumotu Group. In flight and general appearance this species much resembles the Sooty Tern (*Sterna fuliginosa*), but besides the difference of color, is less in size and has a proportionately longer tail."

We find this bird also mentioned by Dr. Pickering, as seen in large numbers at the locality just given. Specimens in the collection of the Expedition are apparently in fully mature plumage, and are in good preservation.

3. STERNA POLIOCERCA, Gould.

Sterna poliocerca, GOULD, Proc. Zool. Soc. London, 1837, p. 26.

Sterna rectirostris, PEALE, Zool. U. S. Exp. Exp. Birds, p. 281 (1848).*

Gould, B. of Aust. VII, Pl. 24.

This species, of which the young bird is described by Mr. Peale as above, was observed by the naturalists of the Expedition, at the Feejee Islands, especially at Sandalwood Bay, in large numbers.

We find a single specimen only, in the collection of the Expedition, which is in quite immature plumage, but is apparently Mr. Gould's species as above given, and is quite identical with his specimens now

* "Neck, breast, and belly, white; crown, occiput, and back, mottled with brown; wings and tail, very dark brownish-gray; bill and legs, obscure bluish-green; the latter being mottled with brown; wings white; beneath, shafts white; inner webs of the primaries black next the shafts, the rest white; outer webs dark gray; secondaries black, margined with white; outer margin narrowest; lesser coverts white, slightly tipped with brown; those along the anterior margins of the wings plumbeous; scapulars margined with brown; tail forked, the shafts white; tips and outer webs, grayish-brown; inner webs white; irides brown.

"Total length, thirteen and one-half inches; wing from the carpal joint, twelve and seven-tenths inches; tail, four and eight-tenths inches; middle feathers, two and nine-tenths inches; bill, one and six-tenths inches; to the angle of the mouth, two and one-half inches; tarsi, nineteen-twentieths of an inch; middle toe, one and two-tenths inches; nail, three-tenths of an inch. Specimen, a young female."

in the Museum of the Philadelphia Academy. It is apparently a species peculiar to the sea-coasts of the Southern Pacific Ocean.

4. STERNA MERIDIONALIS, *Nobis*.

Sterna antarctica, PEALE, Zool. U. S. Exp. Exp. Birds, p. 280 (1848, not of Lesson, *Traité*, p. 621, 1831, nor of Foster, *Desc.* p. 107, 1844).

Sterna hirundo, PRINCE MAXIMILIAN OF WIED, *Beitrage*, IV, p. 805?

Sterna hirundo, FOST. *Desc. An.* p. 313?

Aud. B. of Am. Pl. CCL; oct. ed. Pl. CCCCXXXVI?

FORM.—Very similar to that of *Sterna arctica* and *Sterna hirundo*, but is larger than either, and has the bill disproportionately longer and more robust; tarsi and tail longer. Bill long, rather stout; wings long, first primary longest; tail deeply forked, and with the feathers gradually tapering, and pointed at the ends; legs moderate; feet rather small; toes fully webbed; shafts of primary strong, flattened.

DIMENSIONS.—Total length (of skin), fifteen inches; wing, twelve inches; tail, seven and a quarter inches.

COLORS.—Head above, and occiput black; back and wings very light cinereous; neck behind, rump, and entire under parts, white. Quills darker cinereous; first primary, with its outer web black; all the primaries bordered with white on the inner webs; shafts of primaries, white. Tail white, external feathers with their outer webs, pale cinereous. Bill scarlet; feet orange; middle claws black. Colors generally lighter than those of *S. arctica*, or *S. hirundo*.

HAB.—Southern coasts of South America. Orange Bay. Specimen in collection, Exp. Exp. and Acad. Philadelphia.

We much suspect that this is the bird figured by Mr. Audubon, and described by him as identical with *Sterna arctica*, Temm. Of the bird of the coast of North America we have never seen a specimen, but the figure alluded to does not represent the species given by European naturalists under that name, and of which numerous specimens are in

the collection of the Philadelphia Academy. The difference will be readily observed on comparison of Mr. Audubon's Plate CCL, with that of Mr. Gould, in Birds of Europe, V, Pl. CCCCXIX.

The present species resembles *Sterna arctica*, but is larger in all its measurements, and may readily be distinguished by its larger and stronger bill, and in the same manner differs also from *Sterna hirundo*, of the coast of the United States.

Mr. Peale alludes to this bird as follows :

"This species is not uncommon along the southern coasts of South America. Our specimens are from Orange Bay, Cape Horn. Its voice, size, and general habits, are so like its northern prototypes, *Sterna arctica* and *hirundo*, that it requires comparison to be convinced of the specific difference. But the intensely scarlet bill, which has not a black point, like that of the northern bird, the lighter-colored mantle, and the length of the tarsus, destroy their identity.

"Young birds have the crown and occiput mottled black and white."

This bird is also mentioned by Dr. Pickering as frequently observed at various localities on the coast of South America, but especially at Orange Bay, as above intimated. Specimens, in mature plumage, are in the collection of the Expedition. We find no name for this species, and accordingly propose the designation above given, fully aware, however, of the difficulties attending such description of proceeding in this complex group.

5. STERNA FULIGINOSA, *Gmelin*.—The Sooty Tern.

Sterna fuliginosa, GM. Syst. Nat. I, p. 605 (1788).

Sterna serrata, FORST. Desc. An. p. 276 (1844).

Sterna oahuensis, BLOXHAM, Voy. Blonde, p. 251 (1826).

Wilson, Am. Orn. VIII, Plate LXXII, fig. 7; Aud. B. of Am. Plate CCXXXV; oct. ed. VII, Plate CCCCXXXII; Gould, B. of Aust. VII, Plate XXXII.

Specimens from the Pacific are apparently identical specifically with the bird found on the coast of the United States.

Mr. Peale mentions it as follows :

"Observed throughout all the islands of the Dangerous Archipelago or Paumotu Group, and on most of the coral islands of the Pacific Ocean, breeding on those that are not inhabited by man. At Honden Island, this bird was found in great numbers, on the 21st of August, when the young were just able to fly. The nests were mere concavities in the coral sand, under low bushes. The number and proximity were such, that it required great care in walking, to avoid crushing both young and old birds under our feet.

"The young is entirely brown; the dorsal feathers tipped with yellowish-white; the outer tail-feathers not attenuated, as in the adult. Egg two and one-tenth inches long, by one and nine-tenths inches in diameter, yellowish-white, with umber spots, some of which are very pale, and appear as if seen through the shell."

We have great pleasure in transferring to our pages the following sketch of this species, and of one of the localities at which it was found in abundance, for which we are again indebted to the kindness of Dr. Pickering:

"October 7th, 1839. Land was discovered this forenoon, appearing like a single rock in the midst of the ocean, but on nearer approach, this was found to be a clump of trees. Indeed, this appearance is so deceptive at times, that Captain Vanderford, who appears to have first seen this island (near twenty years ago), passing it during a strong breeze, while the surf was beating heavily, did not suspect its true character.

"Rosa Island is in fact an annular coral reef, precisely similar in its structure to others, but is inundated at high water, with the exception of two banks, one of which is covered by a grove of trees. The remainder is in general only distinguishable by a line of breakers and masses of dead coral projecting above the shelf. It appeared to be scarcely more than two miles in diameter in any direction. Mr. Couthouy found here some boulders of vesicular lava, the first that we have seen in any of the Coral Islands; and some were also seen by myself, smooth and rounded, and weighing perhaps twenty pounds. They evidently could not have been brought here by human agency. Remained on shore until 5 P. M.

"Great numbers of birds were seen flying over and about the grove above-mentioned, and perching on the trees, but we were not aware of the immense multitude until we reached the spot, when various species raised into the air literally in clouds. The Terns, and especially

Sterna fuliginosa, came out from under the low branches in such vast numbers, that, in a sort of defile, I ran in amongst them, and merely striking them down as they rose, soon obtained as many as I could carry. There were three species of *Sterna*, one of *Tachypetes*, and perhaps three of *Sula*, observed in this island, nearly all of which were engaged in rearing their young; and it seems somewhat remarkable, that of any species, we very rarely noticed more than a single egg or young bird in a nest, however different the genera might be, as though it was a conventional arrangement amongst themselves.

"The Sooty Tern (*S. fuliginosa*) was more numerous than all the others combined. Its breeding-place occupied the weather side of the grove, or that most exposed to the sea, and extended backwards perhaps seventy feet. The trees on this side gradually diminished in size, presenting outwards a dense thicket of branches almost to the ground, beneath which the birds were obliged to crowd out before taking flight. The extremities of the branches over this breeding-place were observed to be bare of leaves and thickened and projecting. In some instances there were evident signs of the leaves having been cropped, though whether universally so, or for what purpose, I am at a loss to conjecture, but it evidently has had the effect of gradually rendering the thicket more impervious.

"The eggs of this species were placed on the ground, under the thicket, without any nest, but with some regularity, at about the distance of two and a half feet apart. In two instances only, out of at least a thousand observed, there were two eggs together. Their color was dirty-whitish, splashed and mottled with reddish-brown. The birds, after having once risen, mostly kept flying around the grove, and their cries might have been heard at a considerable distance. It was remarked that, on the discharge of a gun, or a loud shout, there was universal stillness for a few moments, but the noise soon recommenced."

This bird is again repeatedly mentioned in Dr. Pickering's Journal, in fact at nearly all points visited by the Expedition in the Pacific Ocean. It is one of the most extensively diffused of aquatic birds, being found in temperate and tropical regions almost throughout the world. Numerous specimens from various and widely separate localities are in the collection of the Expedition.

3. GENUS GYGIS, *Wagler, Isis*, 1832, p. 1223.1. GYGIS ALBA (*Sparrman*).—The White Tern.

Sterna alba, SPARRM. Mus. Carls. No. XI (not paged, 1786).

Sterna candida, GM. Syst. Nat. I, p. 607 (1788).

Sterna candida, FORST. Deso. An. p. 179 (1844).

SPARRM. Mus. Carls. I, Plate XI; Gould, B. of Aust. VII, Plate XXX.

Numerous specimens of this species are in the collection, and it is frequently alluded to as having been noticed at various localities by the naturalists.

Mr. Peale states :

"This singularly beautiful Tern was observed on all the Coral Islands, in the tropical regions of the Pacific Ocean; more rarely on the high islands. It alights on trees, in deep shady forests, and follows pertinaciously all human intruders on these solitudes, uttering a rather melodious note (for a Tern). Its snowy-white plumage contrasts beautifully with the dark green foliage, a large, dark-brown eye adding much to its beauty.

"The base of the bill is of a beautiful smalt-blue color, changing to violet; the tip is black; feet pale blue, having a deeply indented yellow membrane; the whole leg is unusually small and delicate. A few of our specimens have a pale rose tint.

"From the singular mode of incubation, it was some time before we could discover the eggs, but having once made the discovery, we had frequent opportunities of verifying the observation. This bird lays one egg on the branch of a tree, a knot, or slight cavity, barely sufficient to keep it from rolling off, being its only protection. Both parents display great affection for their young, bringing small fishes, which they take at sea by plunging, like their congeners, to feed them. We sometimes suspected them, from their actions, of catching spiders and other insects, but have not been able, by dissection, to detect the remains of such in their stomachs.

"The egg is large for the bird, being one and six-tenths inches long, and one and two-tenths inches in diameter; the ends nearly alike in form; color brownish-white, sprinkled with threadlike spots and patches of burnt umber, some very pale, as though seen through

the shell. Where there are no trees, the points of the coral rocks furnish a common substitute for the branch of a tree, selected in more favorable situations."

The remarkable fact of the deposit of the egg of this species on the branches of trees and in other exposed situations, is confirmed by Mr. Gould, in his *Birds of Australia*, and by other authors.

In the *Journal of Dr. Pickering*, we find frequent allusions to this bird, which is apparently one of the most abundant of the species found inhabiting the islands of the Pacific. He mentions it especially as common at Sydney Island, under date of August 26th, 1839, and alludes to a specimen having been obtained living. "It is," he says, "more of a perching bird than the true Terns, though its feet appear to be more fully webbed than I remember to have seen in them. The voice of this specimen was a faint low growl, not often uttered, and when annoyed, would snap a little with its bill, distinctly raising the upper mandible, but was, on the whole, very gentle. It is a beautiful bird, and reminds me rather of a snow-white Dove than a sea-bird." Previously, under date of August 19th, at Gardner's Island, he states: "The White Tern is abundant here, and its egg has been found for the first time. It was placed in the fork of two branches of a tree, without any semblance of a nest, and is the smallest egg of a sea-bird that we have yet found; it is of a dull white color, thickly mottled with dark brown, and obtuse at each end."

This beautiful little species appears to be peculiar to the Southern Hemisphere, and is known, for the greater part, as a bird of the South Pacific Ocean. Excellent specimens are in the collection of the Expedition.



EGG OF GYGIS ALBA.

4. GENUS INCA, *Jardine*, Cont. to Orn. 1850, p. 32.1. INCA MYSTICALIS, *Jardine*.*Inca mysticalis*, JARDINE, Cont. to Orn. 1850, p. 32.*Sterna inca*, LESSON, Voy. Coquille, Zool. I, p. 731 (1826).

Voy. Coquille, Zool. Atlas, Birds, Plate XLVII.

Dr. Pickering observes of this bird :

"This may, perhaps, belong to the Noddies, but it has little of the habits and mode of flight of any of the Terns of the Atlantic coast of the United States with which I am acquainted. There is little sailing in its flight, but a rapid flexion of the wings, which are apparently broader and shorter than in the Terns. This bird sometimes hovers near the surface, and dives entirely under the water. Exceedingly abundant in the harbor of Callao, and breeds abundantly on the Island of San Lorenzo."

5. GENUS ANOUS, *Stephens*, Gen. Zool. XIII, p. 140 (1825).1. ANOUS STOLIDUS (*Linn.*).—The Noddy. The Noddy Tern.*Sterna stolidus*, LINN. Syst. Nat. I, p. 277 (1766).*Anous niger*, STEPH. Gen. Zool. XIII, p. 140 (1825).

Catesby, Carolina, Pl. LXXXVIII; Aud. B. of Am. Pl. CCLXXV;
oct. ed. VII, Pl. CCCXXL. Gould, B. of Aust. VII, Pl. XXXIV.

Numerous specimens, from the shores and islands of the Pacific Ocean, present, with some degree of uniformity, small and apparently unimportant differences from others from the Atlantic coast of the continent of America. The bill appears to be larger in the latter, and a slight dissimilarity is observable in the colors. On careful comparison, however, we are not inclined to regard the bird of the Pacific as possessing characters sufficient to justify a distinct specific designation, but venture to suggest that further examination of specimens,

from localities in the two great oceans, and especially of the various immature plumages, is yet desirable.

Regarded as one species, this bird has a most extensive range of locality, and is mentioned by the naturalists of the Expedition in the Vincennes and Peacock, as having been observed very frequently, and at widely distant points, especially in the Pacific Ocean.

Mr. Peale states, with reference to this bird :

"A specimen was obtained on the equator, in longitude $17^{\circ} 44' 30''$ in the Atlantic Ocean. It was attracted by the light at night, while persons were ascertaining the temperature of the water. The skin cannot be distinguished from many others obtained at the Dangerous Archipelago, New Zealand, and other parts of the Pacific Ocean, except that all our specimens taken in the Pacific Ocean are rather larger.

"Unlike the Sooty Tern (*Sterna fuliginosa*), the presence of this species does not indicate the vicinity of land. On the islands of the Pacific Ocean, it builds its nest of sticks, on trees; the eggs are brownish-white, spotted with reddish-brown, two and two-tenths inches long, and one and one-half inches in diameter."

At Gardner's Island, under date of August 19th, this species is alluded to by Dr. Pickering, as of common occurrence, "Its nest," he observes, "is built in the forks of a tree, with much more care than is usual in this family. The egg or young is single in all the instances noticed; the former rather large for the size of the bird, white, with a few reddish-brown blotches." Subsequently, at sea, under date of September 4th, he states: "A common Noddy alighted to-day on the taffrail, and was taken by hand. It appeared to have but very limited power of perching, although it nests in trees, and evidently preferred walking. It seemed awkward and confused enough at first, but in an hour or two appeared to become accustomed to confinement, and adjusted its feathers very carefully, using its bill, and spreading its wings and tail quite gracefully. It was set at liberty in the afternoon, but would not leave the ship for some time afterwards."

This bird is mentioned by Dr. Pickering, at nearly all points visited by the Expedition in the Southern Pacific Ocean. Numerous specimens are in the collection, in good plumage and preservation.

2. *ANOUS LEUCOCAPILLUS*, Gould.

Anous leucocapillus, GOULD, Proc. Zool. Soc. London, 1845, p. 103.

"*Sterna tenuirostris*, TEMM." Peale, Zool. Exp. Exp. Birds, p. 284.

Gould, B. of Aust. VII, Plate XXXVI.

Specimens from the Paumotu Islands are precisely similar to the Australian specimens in Mr. Gould's collection.

Relating to this species, the following is given by Mr. Peale:

"Obtained at Raraka, one of the Paumotu Islands, in the Pacific Ocean. Its flight and general habits are like those of the Noddy, but it does not appear to wander so far from land, and it is perhaps more restricted to the intertropical regions of the Pacific Ocean."

"We found this bird breeding on Enderby's Island, on the 9th of January, in great numbers. The females lay but one egg each, on the ground, without a nest, and generally under the edge of a rock or bunch of grass. The egg is irregularly spotted with brown, rarely it is entirely white."

This handsome species is apparently another of the peculiar sea-birds of the South Pacific Ocean, and appears to be rather more restricted in its range of locality than is usual in this group. Specimens in the collection are in mature plumage, and present no characters other than as described and figured by Mr. Gould in his Birds of Australia, above cited.

3. *ANOUS PARVULUS*, Gould.

Anous parvulus, GOULD, Proc. Zool. Soc. London, 1845, p. 104.

Megalopterus plumbeus, PEALE, Zool. Exp. Exp. Birds, p. 285 (1848).*

* "General form, light and graceful; lead-colored, palest near the bill; quills darkest; the external web of the first quill black; secondaries tipped with white; tail forked, but having the exterior feathers shorter than the next, which are longest; brow black; the posterior half of the eyelids white; irides brown; bill slender, black; inside of the mouth salmon-yellow; legs rather large, black; the toe-membranes full, yellowish-white; hind toe rudimentary, and having a straight nail."

Of this little-known species several specimens are in the collection of the Expedition, and we find it noticed as occurring at various points. The specimens alluded to are very nearly uniform in their characters, and coincide with Mr. Gould's specimens now in the collection of the Philadelphia Academy, and with the description by him, above cited, though measurements given by Mr. Peale are greater than those of Mr. Gould in his description. Those of Mr. Peale are, however, probably derived from the recently killed bird, and are stated as follows:

"Total length, ten and one-half inches; extent of wings, twenty-one and one-fourth inches; wing, from the carpal joint, seven and six-tenths inches; outer tail-feathers, three and five-tenths inches; second, four and one-tenth inches; middle, two and seven-tenths inches; bill, one inch; to the corners of the mouth, one and four-tenths inches; middle toe, one and two-tenths inches; tarsi, nineteen-twentieths of an inch; hind toe, including the nail, one-tenth of an inch. Male. Sexes alike in size and color."

The account of this bird given by Mr. Peale is:

"This plain but pretty bird was seen first at Honden Island, one of the Paumotu Group, on the 21st of August. Its eggs were then found in slight concavities of the coral rocks, near the beach, without any nest or lining materials. Three eggs were found in one concavity, the whole number is probably four. The egg is one and one-half inches long by one and one-tenth inches in diameter, larger at one end, and with both ends rounded; the color is that of pale cream, with irregular and scattered spots of sepia-brown, some of them very pale."

"We saw this species, now and then, though rarely, as we passed the equatorial regions of the Pacific Ocean, on or near coral islets. When away from their eggs or broods, it is rare to hear them utter any cry; but when anxious about either, they are noisy, though the voice is much less harsh than that of most Terns. Their flight is easy and bat-like, from the great width of their wings and tail."



6. GENUS PHAETON, *Linn. Syst. Nat. I, p. 219 (1766).*

1. PHAETON ÆTHEREUS, *Linn.*—The White-tailed Tropic Bird.

Phaeton aethereus, LINN. *Syst. Nat. I, p. 219 (1766).*

Phaeton Catesbaei, BRANDT.

Buff. Pl. Enl. 998; Catesby's Carolina, Plate XIV; Aud. B. of Am. Plate CCLXII; oct. ed. VII, Plate CCCXXVII.

Frequently mentioned as occurring at various localities visited during the voyage of the Expedition, and is a widely extended species. It occasionally is found on the southern sea-coasts of the United States.

Mr. Peale states:

"Soon after the Expedition had left the Chesapeake Bay and was on the Atlantic Ocean, in latitude $38^{\circ} 13' N.$, longitude $60^{\circ} 35' W.$ of Greenwich, we saw this species, which is the northern limit, probably, of its range. A few breed, possibly, on this part of our coast, as we have known young birds, just fledged, to have been killed on the Potomac, in the month of October.

"In the Pacific Ocean, we saw this bird frequently, but not so far north. It was always seen in greatest abundance near 'high islands.' It breeds in holes made in the face of a rocky precipice; and, where such places occurred within the tropics, we were sure to find them. In the mountainous regions of the Island of Tahiti, it is quite numerous; and, formerly, collecting its long tail-feathers was a profession belonging to a particular class of the natives."

Specimens, from the Paumotu Islands, are in the collection of the Expedition. This bird is frequently mentioned by Dr. Pickering as having been noticed in abundance, and especially in the Island of Tahiti, as above stated.

2. PHAETON RUBRICAUDA, *Boddart*.—The Red-tailed Tropic Bird.

Phaeton rubricauda, Bodd. Tab. Pl. Enl. p. 57 (1783).

Phaeton phoenicurus, Gm. Syst. Nat. I, p. 583 (1788).

Buff. Pl. Enl. 979; Vieill. Gal. II, Plate CCLXXIX; Gould, B. of Aust. VII, Plate LXXIII.

Also a widely diffused species, and frequently mentioned by the naturalists of the Expedition. Specimens are in the collection from the Samoan Islands.

This species is mentioned by Dr. Pickering as having been found

breeding at Honden Island, and also at Gardner's Island. "The Red-tailed Tropic Bird," he states, "was found breeding on the ground, under bushes. Egg single, rather larger than that of a hen, with a rough surface of a dingy white, with chocolate-colored markings. The young have many feathers banded with black, and are without the long red tail-feathers." At Sydney Island, under date of August 26th, he mentions: "*Phaeton phoenicurus* seemed more abundant than usual, and suffered itself to be taken on its nest by the hand. Its single egg, as before stated, was invariably on the ground, under the bushes. At Tahiti, the natives brought us several living specimens, which they had secured from biting in a quite effectual but very barbarous manner, by passing the upper mandible through the lower at its bifurcation. This bird was occasionally seen to plunge into the water, reappearing again immediately; it was also seen sometimes resting on the surface. Its flight is often low, and constantly coursing around each other, and skimming over the surface of the water with considerable velocity.

"The young bird of this species, apparently just hatched, was found at Honden Island, and was brought on board by Dr. Fox. It is covered with long soft hairs, giving it a very singular appearance, and it might almost have been mistaken for a young quadruped as it sat with its legs concealed under its body. The parent birds suffered themselves to be taken from their nests by the hand, only making some resistance with the bill."

The following are Mr. Peale's remarks on this bird:

"This species abounds in the vicinity of the Coral Islands of the Pacific Ocean, though met with less frequently near the high islands. It does not construct a nest, but lays its eggs on the ground in shallow holes, under coral ledges or tussocks of grass. The female generally produces but one egg, which is white, finely speckled, and clouded with chocolate-color, and occasionally almost pure white. It measures two and six-tenths inches in length, and one and eight-tenths inches in diameter; pointed at one end.

"The bill, in adult birds, is scarlet, inclining to an orange-color; irides brown; feet pale blue, with the toes black. Some specimens have the plumage silvery-white; others of a pale rose-color. The young birds have black or pale blue-black bills; all the dorsal plumage barred with black; beneath white; the long middle feathers of the tail are at first white, but assume their bright red color after the first moult."

"An old male, of a beautiful rose tint, suffered himself to be taken, by hand, off an egg. Many others were taken in the same manner, but they were generally females. This was at Honden Island, on the 21st of August, at which time, we found freshly-laid eggs and young birds just ready to fly, showing that the seasons of incubation of this species are not regular.

"Both this and the preceding species (*P. æthereus*), take their food, which is generally living fishes, by diving after them, from the wing, in the same manner as the Terns."

Mr. Peale's observations in reference to the color of the tail in the young of this bird is of much importance, and will account for the confusion that exists in ornithological works in relation to this and the preceding species. The two are, however, quite distinct, so much so in fact, that they have been assigned to separate genera by the Prince Bonaparte, in his Monograph of this group, in *Conspectus Avium*, II, p. 183. The preceding species, he regards as the type of the genus *Phaeton*, Linnaeus, and the latter as that of his new genus, *Phoenicurus*.

Specimens, in excellent preservation and in various stages of plumage, are in the collection of the Expedition.

7. GENUS DIOMEDEA, *Linnaeus*, *Syst. Nat.* I, p. 214 (1766).

1. DIOMEDEA EXULANS, *Linn.*—The Wandering Albatross.

Diomedea exulans, *LINN.* *Syst. Nat.* I, p. 214 (1766).

Diomedea spadicea, *GM.* *Syst. Nat.* I, p. 568 (1788).

Buff. Pl. Enl. 237; Gould, B. of Aust. VII, Plate XXXVIII; Vieill. Gal. II, Plate CCXCV.

Of this well-known species, the largest of the sea-birds, we find numerous specimens in the collection of the Expedition, from both the Atlantic and Pacific Oceans. Its occurrence we find quite frequently recorded, with great care, by Dr. Pickering, and it is evidently one of the most abundant and widely diffused species of its family.

We introduce, from the Journal of Dr. Pickering, the following notices of this remarkable species:

"*Diomedea exulans* was first seen in the Atlantic, on the 22d day of January, 1839, in latitude 40° S., on the passage from Rio de Janeiro to the Rio Negro, and occasionally afterwards to Cape Horn, and as far south as the cruise extended. A smaller species of Albatross had previously been seen frequently.

"This bird seemed much more common in the Pacific, especially on the passage to Callao; and, on the 4th of April, in about latitude 42° south, in thick drizzling weather, numbers were taken with hooks and lines. Similar instances were spoken of by persons on board as having occurred in their experience, and our being on whaling-ground was the attributed cause of the abundance of this species."

Under date of 1st of April, 1839, Dr. Pickering mentions:

"A female specimen of the large Albatross, shot to-day, measured nine feet seven inches in extent of wings, and weighed eighteen pounds. Tongue short and fleshy, with *laciniæ* pointed backwards; stomach membranous only." On the 4th of April, he says: "Albatrosses numerous, and several taken, the largest of which measured ten feet in extent of wings. All of them appeared to be entirely unable to walk or even to stand on the deck of the vessel. On different specimens were two species of *Pediculus*, one of which was large and very curious, having the fore feet very short; length seven-twentieths of an inch. On one specimen were numerous specimens of the young of *Anatifa*, apparently just having attached themselves as the bird had been captured."

Though admitted by Mr. Nuttall as a species of North America (Manual of the Ornithology of the U. S. and Canada, II, p. 340), no instance of this gigantic bird having been observed on the coast of the United States has ever come to our notice. It is possible, however, that it may yet be detected on the shores of California.

2. DIOMEDEA BRACHYURA, *Temminck*.—The Short-tailed Albatross.

Diomedea brachyura, TEMM. Pl. Col. V, p. (liv. 75, about 1828).

Diomedea nigripes, AUD. Orn. Biog. V, p. 327 (1839).

Temm. Pl. Col. V, Plate DLIV; Temm. & Schleg. Faun. Japon. Plate LXXXVII; Cassin, Birds of California and Texas, Plate XXXV, L; Gould, Birds of Aust. VII, Plate XXXIX.

This Albatross probably inhabits the entire extent of the Pacific Ocean, from the northern coasts of America and Asia to Australia, venturing, perhaps, farther northward than any other species of its genus. It was ascertained, by the naturalists of the Expedition, to be of frequent occurrence on the coasts of Oregon and California, and, for the first time, demonstrated to be entitled to a place in the Fauna of North America. It is given, by Mr. Gould, as a bird of Australia.

Though much resembling the Wandering Albatross, and occasionally mistaken for that species, the present bird is constantly much smaller, and readily distinguished. It is, however, larger than any other of the species of this group.

Diomedea nigripes, Aud., is, undoubtedly, the young bird of this species; and the change from the uniform dark-brown plumage of that age to the almost pure white of the adult probably requires several years, as stated by Mr. Peale, below. In the brown stage of plumage, this bird is represented in the plate in Temm. and Schleg., Fauna Japonica, above cited, and in our Birds of California and Texas, Pl. XXXV.

We introduce, with much pleasure, the following account of this bird by Mr. Peale:

"Numbers of the Short-tailed Albatross were observed by the Expedition on the Northwest Coast of America, and it is probably an inhabitant of all of the Pacific Ocean, north of the Tropic of Cancer. It varies as much in the colors of its plumage as the Wandering Albatross, or perhaps more, and requires many years to attain its perfect dress. The changes are regularly progressive. Until the second year, the plumage remains of a dark sooty-brown color; the bird has black feet, and a dirty flesh-colored bill (which becomes black when the skin is dried). In this state they pair and raise young.

"After this stage, cloudy-white spots appear about the base of the bill, and over and under the eyes; their rumps begin to show a conspicuous spot of white; the bill turns yellow, with a tinge of carmine, the tip bluish; the legs are then flesh-color; and finally, the back, wings, and tail become cinereous-brown; rump, head, and all the under parts, pure white; a white margin shows along the back edge of the wing as the bird flies, and a cloudy-black spot generally remains in front of the eye. Thus, in some years, the plumage of the body is changed from nearly black to a pure snow-like white.

"Usually, birds of this species are silent, but sometimes they quarrel

over the offal thrown from the ship, then they 'bray' in much the same tone as the ass. They are easily caught with a hook and line, but, owing to their thick plumage and tenacity of life, it is difficult to kill them with shot.

"On the 20th of December, we found this bird breeding at Wake's Island. The single egg of each pair was laid on the ground, in a slight concavity, without any lining material; both sexes take turns in the labors of incubation, and neither the male nor the female abandoned the nest on our approach, but walked around us in a very dignified manner, and made but a few demonstrations of defence with their bills when taken up in our arms.

"The egg is white, of an oblong figure, with the ends nearly alike, and measures four and two-tenths inches long, and two and six-tenths inches in diameter.

"The two sexes are alike in plumage, and do not vary much in size, the males being rather the larger, as will be seen from the following table of dimensions, made when the specimens were recently killed; the sex was determined by dissection, after measurement :

| | LENGTH. | EXTENT OF WING. |
|--------------------------|--------------------|-------------------|
| Adult, male, | 2 feet, 10 inches. | 7 feet, 3 inches. |
| Young, male, | 2 " 8½ " | 7 " 3 " |
| Adult, female, | 2 " 7½ " | 6 " 8 " |
| Young, female, | 2 " 8½ " | 6 " 10 " |
| Young, female, | 2 " 6½ " | 6 " 10 " |

"It was not our fortune to observe more than this one species of Albatross in the North Pacific. It is subject to great variations of plumage, but is very distinct from those of the Southern Hemisphere. The Wandering Albatross (*Diomedea exulans*), and the 'Yellow Nose' (*D. chlororhynchus*), both of which, it has been asserted, have been sometimes found in the northern oceans, we believe, on the contrary, to be entirely restricted to the Southern Hemisphere. We saw both of the last-named species and also the Sooty Albatross as far south as 57° 41', which appeared to be nearly their southern limit. Their northern limits of migration, on the Atlantic shores of South America, are somewhere about the River La Plata, and, on the Pacific coasts, about the southern parts of Peru."

Dr. Pickering also mentions this species as occurring on the coast of Oregon, and as particularly abundant at sea, north of the Sandwich Islands. Under date of 10th of April, 1841, on the passage from Oahu to the Northwest Coast of America, he states :

"A small species of *Diomedea* is about us to-day and yesterday, skimming over the surface of the water, and bending its long wings, but not at so great an angle as is usual amongst birds. The rate at which this bird flies is surprising, though, at the same time, its wings may be without perceptible motion. It alights in the water, rather awkwardly, apparently, and seemed to take particular care to adjust, or, as the sailors termed it, to 'stow away' its long wings without wetting them. It swims with considerable rapidity. All the specimens yet seen are entirely blackish or of a dark dove-color, with a white frontlet, or a circle around the base of the bill. When first seen, these birds were mistaken for Boobies by experienced persons on board, but, on nearer approach or with good glasses, they were readily ascertained to be Albatrosses. I mention this fact, to show that reports of Boobies having been seen in the North Pacific should be received with caution."

Under date of 13th of April, he says :

"Calm during the whole day, but the Albatrosses are still flying around, notwithstanding that I have seen stated their inability to rise from the water during calms. They are, perhaps, under the necessity of flapping their wings more frequently than usual." On the 16th of April, latitude 30° 15' N., he says : "Albatrosses, the same species, still about us, alighting in the wake of the vessel, and picking up any substances, suitable for food, thrown overboard, in one case of competition for which, an individual uttered a faint cry. This is the only instance that I now remember of ever having heard an Albatross utter a note or any cry whatever. It reminded me of neither the 'bleating of a sheep' nor the 'honk of a goose,' but perhaps may resemble something intermediate. The whole Petrel tribe seem to be remarkably silent." Dr. Pickering again mentions this bird on the coast of Oregon.

Numerous specimens are in the collection of the Expedition, and exhibit the various stages and changes of plumage above mentioned.

8. GENUS *THALASSIDROMA*, Vigors, Zool. Journ. II, p. 405 (1825).

1. *THALASSIDROMA WILSONII* (Bonaparte).—Wilson's Stormy Petrel,
Mother Carey's Chicken.

Procellaria Wilsonii, BONAP. Jour. Acad. Philada. III, p. 231 (1824).

"*Procellaria pelagica*," WILSON, Am. Orn. VII, p. 90.

Wilson, Am. Orn. VII, Plate LX, fig. 6; Aud. B. of Am. Plate CCLXX; oct. ed. VII, Plate CCCCLX.

This little bird and other species very similar in general appearance are of extensive diffusion, and are known to seamen as Stormy Petrels and Mother Carey's Chickens. The present species is abundant throughout almost the whole coast of the continent of America on the Atlantic, and is known also on the coasts of Europe, thus ranging over nearly the entire extent of the Atlantic Ocean. It has been observed also in the Pacific, and is given by Mr. Gould as a bird of the coast of Australia.

This species is frequently mentioned by the naturalists of the Expedition as occurring at various points, and we find in the collection numerous specimens. Through the kindness of Dr. Pickering, we are enabled to introduce the following note on this bird from his Journal, for which as well as many other favors we beg leave to express our deep sense of obligation. It occurs under date of October 24th, 1838, and, from the latitude and longitude given, the nearest land was the coast of Africa:

"A Stormy Petrel taken, which proved to be *Thalassidroma Wilsonii*; and, although this species and others of its genus have been constantly seen during the voyage of the Expedition, this is the first specimen that has been captured without having been injured, thus affording whatever facilities can be obtained on shipboard for observing its manners.

"I was rather surprised to observe that this bird was not only entirely incapable of perching, but even of standing upright like birds in general, and as I have seen birds of this genus represented, unless by the aid of its wings. In standing or rather sitting, the whole of the *tarsus* (commonly mistaken for the leg), rests on the ground, and

it walks in the same awkward position, frequently being obliged to balance itself with its wings. With a more powerful exertion of its wings, however, it was enabled to run along on its toes, in the same manner that it does over the surface of the water. The absence of a hind toe, the nails being but slightly bent and flat, and, perhaps I may add, its evidently being unaccustomed to this description of locomotion, seemed to be the causes of its helplessness on its feet.

"These birds have been numerous about us for some days past, and their coursing over the water with flitting wings reminds me of the actions of butterflies about a pool. One of them was seen swimming, or at least resting, on the surface. We have seen this species very frequently, indeed almost daily, since leaving America, and scarcely any other sea-birds, except in the immediate vicinity of the islands. It would seem that it scarcely ever visits the land, except for the purposes of incubation, and there can hardly be a better comment on its untiring power of wing than the popular fable amongst seamen, that it carries its egg and hatches its young while sitting in the water. It does not sail in the continued manner of the gulls and some other sea-birds, but moves by rapidly flexing its wings something like a bat, and was continually coursing around and in the wakes of the vessels, generally in considerable numbers, during much the greater part of the time that the Expedition was in the Atlantic Ocean."

Subsequently, we find in Dr. Pickering's Journal :

"*Thalassidroma Wilsonii* was taken in the Atlantic, in latitude 35° south, and was seen occasionally as far as Cape Horn. In the Pacific, it occurred at times until within a day's sail of Callao."

Specimens, in good plumage and preservation, are in the collection, and are from various and widely remote localities.

2. THALASSIDROMA LINEATA, Peale.

Thalassidroma lineata, PEALE, Zool. U. S. Exp. Exp. Birds, p. 293 (1st ed. 1848).

Plate XXXIX. Adult.

T. melanogastram refert. *Saturate fuliginosa, tectricibus caudae superioribus abdomineque albis, hoc lineolis fuliginosis notato. Long. tot. 7½ pollices.*

FORM.—About the size of and resembling *T. melanogastra*, Gould. Bill moderate or rather short; wing long; second quill longest; tail moderate, wide; legs long, rather slender; toes thick, flattened, fully webbed.

DIMENSIONS.—Total length (of skin), male, seven and one-fourth inches; wing six and a half inches; tail three inches. "Extent of wings fifteen and a half inches." (Peale.)

COLORS.—Male. Head, neck, breast, and entire upper parts, except the upper tail-coverts, dark fuliginous, nearly black on the head above and back, lighter on the breast. Upper tail-coverts white. Abdomen and under tail-coverts, white, every feather having a longitudinal and terminal line of dark fuliginous. Feathers of the throat white at base. Greater inferior wing-coverts light ashy or nearly white. Tail-feathers white on their inner webs for about half their length; outer webs and terminal half of both webs, dark fuliginous. "Bill and legs, including the toe-membranes, blue-black, without spots; irides dark brown." (Peale.)

HAB.—Pacific Ocean. Island of Upolu.

This species, of which but a single specimen is in the collection of the Expedition, considerably resembles *Thalassidroma melanogastra*, Gould, B. of Australia, VII, Pl. LXII, the only material difference being, that the present bird has each of the white feathers of the abdomen and under tail-coverts marked with a dark fuliginous line, instead of having a longitudinal band on the abdomen, as in the species mentioned. It is also apparently a shade darker in color; the tibiae and tarsi are more robust, and the toes strong and flattened.

The specimen now before us has not the appearance of a young bird; and the species, so far as we can judge from a single individual, is quite distinct, and, as such, we accordingly give it, but without meaning to imply that we have fully investigated either the validity of the species of this genus or the extraordinary complexity and apparent confusion which evidently prevail in their synonymy. This bird is, however, very probably, a species restricted to the Southern Pacific Ocean, and hitherto unknown to naturalists.

Of this bird, unfortunately, we find little recorded by either of the naturalists of the Expedition. Mr. Peale only observes:

"This bird was frequently seen within the torrid zone, in the Pacific Ocean. A single specimen was obtained at the Island of Upolu, from a native, who represented to us that during the breeding season this species lives in holes, very high up in the mountains."

The plate of our Atlas, cited above, represents this bird of the size of life. According to the Prince Bonaparte, this species belongs to the genus *Oceanites*, Keyserling and Blasius, which includes also *Thalassidroma Wilsoni*. In his Monograph of this group, in *Conspicuum Avium*, II, p. 199, it is stated that specimens of the present species are in the Imperial Museum at Paris, having been brought from the South Pacific Ocean by the Expedition in the *Astrolabe*. One specimen only is in the present collection.

3. *THALASSIDROMA FURCATA* (Gm.).—The Fork-tailed Petrel.

Procellaria furcata, Gm. Syst. Nat. I, p. 561 (1788).

Procellaria orientalis, PALL. Zoog. Ross. As. II, p. 315 (1811).

"*Thalassidroma plumbea*, PEALE, MS." PEALE, Zool. Exp. Birds, p. 292 (1848).

Gray, Gen. III, Plate CLXXVIII; Cassin, B. of Cal. & Tex. I, Plate XLVI; Voy. Sulphur, Birds, Plate XXXIII.

This handsome little Petrel, though accurately described by Pennant, in *Arctic Zoology*, II, p. 255, and on the faith of whose description Gmelin gave the scientific name as above, had been almost lost sight of by later ornithologists, until noticed by the naturalists of H. B. M. Ship Sulphur, and by those of the present Expedition in the Vincennes and Peacock.

In the *Zoology of the Voyage of the Sulphur* (Birds, p. 50, London, 1844), this bird is stated to have been obtained at Sitka, in Russian America, though nothing is given relating to its history. The specimens in the collection of the Expedition are from the coast of Oregon, where this species was observed not uncommonly, and therefore demonstrated to be entitled to admission into the Ornithological Fauna of the United States.

To Dr. Pickering we have again to acknowledge our obligations for a notice of this bird. First recording its occurrence on the 26th of

April, 1840, at sea, the distance from the coast of Oregon being about two hundred miles, he mentions it more fully subsequently, under date of the 29th of the same month, as follows:

"In sight of the coast of Oregon. Great numbers of the Gray *Thalassidroma* are to-day flitting around and in the track of the vessel, very actively engaged in searching for particles of food thrown overboard. Generally, this bird reminds me of *T. Wilsonii*, but the wings seem longer and its movements appear to be more rapid, and in fact more like that of the larger Petrels (*Procellaria*). It occasionally sails in its flight, but, for the greater part, moves by very rapidly flexing its wings, in the same manner as the species mentioned.

"These birds proved not difficult to capture, and several specimens were taken with a hook and line. They would dive a foot or two after the bait, making use of their wings in and under the water, from which they apparently had not that difficulty in rising observable in the Albatrosses. Though their power of swimming seemed rather feeble, they alighted in the water without hesitation. The dead body of one of their companions being thrown overboard, they clustered around it with as much avidity as around any other food.

"The specimens obtained agree generally in color of plumage, being nearly a uniform pale gray, with the abdomen paler and sometimes nearly white, and with generally a lighter bar across the wing, shown when expanded. Uttered a faint note when taken on board."

The Prince Bonaparte regards this bird as generically distinct from the preceding. In his Monograph, in *Conspectus Avium*, II, p. 194, it is arranged in the genus *Oceanodroma*, Reichenbach, with *Thalassidroma Hornbyi*, Gray. It is exceedingly like the dark-colored species, well known as belonging to this group in form and other general characters, but differs materially in color.

Mr. Peale inserts the following under the head of this species:

"We observed this species in numbers on the Northwest Coast of America, as far north as visited by the Expedition, but not farther south than the thirty-eighth degree of latitude. Our specimens were obtained on the coast of Oregon.

"On reference to notes on this genus, made while in the Southern Hemisphere, we find that in the month of March, in latitude 62° S., longitude 77° W. of Greenwich, the following entry was made: A very pretty species of Petrel has been following us for some days; its voice, size and habits are the same as Wilson's (*Thalassidroma Wil-*

sonii), but it is white beneath, from the breast down; the under parts of the wings are white, with a dark bar in the middle, about the bill (the bill itself?), red; breast black. Another species, about the same size, is of a pale lead-color above, with a dark-colored bar on the wings, all white beneath. Its actions are more sprightly and swallow-like; it flies around the ship, but does not so constantly follow the wake as the others.

"We were not so fortunate as to obtain specimens of either of the last-noticed species, both of which are probably undescribed analogues of the northern *Thalassidromæ*. The first differs from *T. oceanica* in having a red bill, and the latter from *T. furcata* in being white, instead of lead-color beneath. *T. oceanica*, or a species bearing a strong resemblance to it, was seen in various parts of the temperate regions of the Pacific and Indian Oceans, but we did not succeed in obtaining specimens."

The observations made by the naturalists of the Expedition on this handsome little sea-bird, are of especial interest, being amongst the first notices that have ever been published of a species now undoubtedly to be regarded as belonging to the Ornithological Fauna of the United States. Specimens in the collection of the Expedition are in good plumage and preservation.

9. GENUS PROCELLARIA, *Linn. Syst. Nat. I, p. 212 (1766).*

1. PROCELLARIA GIGANTEA, *Gmelin.*—The Giant Petrel.

Procellaria gigantea, *Gm. Syst. Nat. I, p. 563 (1788).*

Lath. Syn. Plate C; Gould, B. of Aust. VII, Plate XLV.

This large species was frequently observed during the voyage of the Expedition, and is entitled to be regarded as a bird of North America, specimens in the collection having been obtained on the coast of Oregon. Much larger than its immediate relatives in this group, it more resembles the Albatrosses in size and great powers of flight, though apparently presenting little variation from the manners and habits of the smaller congeneric species.

This bird is frequently mentioned by Dr. Pickering, from whose Journal we transcribe the following :

"February 13th, 1839. A specimen of the large Petrel taken this morning. This bird we have seen occasionally since the 15th of January, when we were in latitude 39°, in the Atlantic Ocean, and at first it was mistaken for an Albatross. Size as large as a Goose; total length two feet, five inches; expanse of wings six feet; tail rounded, and consisting of sixteen feathers; iris lake-brown.

"This bird could run or stand for a few moments without expanding its wings, but was apparently very soon fatigued with such exertion, and almost immediately assumed a sitting position like *Thalassidroma*. Its wings were long and rather narrow, as in the Albatrosses, and in flight kept almost in a straight line, at right angles from the body. Its flight is chiefly sailing, and with great rapidity and apparent ease, though long continued. This bird was called a 'Molly Mock,' by the seamen, some of whom recognized it as an old acquaintance. It is frequently seen alighting and resting on the water."

Excellent specimens of this interesting species are in the collection of the Expedition. This bird forms the genus *Ossifraga*, Hombron & Jacquemont, which is adopted by the Prince Bonaparte, in his Monograph of this group, in *Conspectus Avium*, II, p. 186.

2. *PROCELLARIA PACIFICA*, Audubon.

Procellaria pacifica, AUD. ORN. BIOG. V, p. 331 (1839).

Specimens from the coast of Oregon, though, in general appearance, resembling *Procellaria glacialis*, are certainly distinct, as described by Mr. Audubon.

Young birds of this species, in the collection of the Expedition and in the Museum of the Philadelphia Academy, are uniformly of a darker cinereous than in the young plumage of *P. glacialis*, and there is no vestige of the dark or nearly black spot before the eye, which is a character of the latter. The bill, as stated by Mr. Audubon, is much smaller and more compressed.

Under date of 29th of April, 1841, on the coast of Oregon we find this bird mentioned in the Journal of Dr. Pickering:

"Several specimens of a *Procellaria*, resembling *P. glacialis*, were to-day taken with a hook and line. The plumage is ashy, somewhat mottled, and they are perhaps all young birds. One set at liberty on

deck was quite unable to rise from it, and was destitute of the power of standing, though it could run with the aid of its wings.

"In alighting in the water, these birds take the same care in folding and adjusting their wings, without wetting them, as the Albatrosses. One was observed to seize a *Thalassidroma* violently, and to hold it under the water, as if for the purpose of drowning it, but whether the attempt succeeded or not was not noticed. On the other hand, the small Petrels do not appear to be afraid of this species."

Specimens, in various stages of plumage, are in the collection of the Expedition.

3. PROCELLARIA TENUIROSTRIS, Audubon.

Procellaria tenuirostris, AUD. Orn. Biog. V, p. 333 (1839).

Procellaria glacialoides, A. SMITH, Ill. S. Af. Zool. Aves (not paged, 1849).

Smith, Zool. S. Af. Aves, Plate LI.

This species, like the preceding, is related to and resembles, in general characters and appearance, the *Procellaria glacialis*. It may, however, be readily distinguished from either that species or *P. pacifica* by its lengthened and more slender bill, and all the specimens that we have seen are lighter in color.

The name applied to this species by Mr. Audubon, as above cited, is entitled to be adopted as prior to that given by Dr. Smith, though the exact date of the latter we cannot, at present, ascertain. The title-page of the volume on Birds of Dr. Smith's Illustrations of the Zoology of South Africa, gives 1849 as the date of publication, but it is within the knowledge of all naturalists, that this very valuable work was published in parts, with the date on the cover only. In the copy to which we have access, which is bound and the covers destroyed, there is no means of ascertaining the precise date of publication of any particular plate or description. It is, however, not probable that Plate LI, which is of the bird now before us, or the text accompanying it, was published as early as 1839, which is the date of Mr. Audubon's description of *P. tenuirostris*.

This species is one which has a most extensive range of locality, being known to frequent the coasts of the southern points of both of

the great divisions of the globe, and those of Australia, and many other localities in the Pacific Ocean. To American naturalists it is especially interesting, from the fact that it was observed by Dr. Townsend, on the coast of Oregon, whose specimens were described by Mr. Audubon, as above.

The only specimen in the collection of the Expedition is labelled as having been obtained on the coast of Oregon.

4. PROCELLARIA MOLLIS, Gould.

Procellaria mollis, GOULD, Ann. & Mag. Nat. Hist. XIII, p. 363 (1844).

Procellaria gularis, PEALE, Zool. Exp. Exp. Birds, p. 299 (first ed. 1848).*

Gould, B. of Austr. II, Plate L.

We find in the collection a single specimen in immature plumage, and which is quite identical with the young of *P. mollis*, of which numerous specimens, including those of Mr. Gould, are in the Museum of the Philadelphia Academy. The present specimen appears to have been obtained further south than this species had been previously noticed.

Mr. Peale mentions it as follows :

"This bird was found amidst icebergs, buffeting the storms and fogs of the Antarctic regions. We saw but few of them, and obtained but a single specimen, on the 21st of March, while the Ship Peacock was enveloped in a fog, latitude 68° S., longitude 95° W. of Greenwich. Their flight was easy and not very rapid. They were silent, and alighted on the water to examine some slips of paper and chips purposely thrown from the boat."

* "Color above cinereous-brown; tail and breast plumbeous; throat, under wing-coverts, and under tail-coverts, white; primaries and spurious wings nearly black, with brown shafts; tail light beneath; the two outer feathers mottled with white; all the shafts brown above, and white beneath; the whole plumage white at the roots; bill blue-black, much curved, very sharp-pointed, and much compressed near the tip; first quill longest.

"Total length thirteen inches; extent of wings thirty-four inches; wing, from the carpal joint, ten and a half inches; bill one inch; nasal tubes three-fifths of an inch; tarsi one and one-fifth inches; outer toe one and six-tenths inches; tail three and four-tenths inches; outer feathers two and seven-tenths inches. Male." Peale, as above.

5. PROCELLARIA PARVIROSTRIS, Peale.

Procellaria parvirostris, PEALE, Zool. U. S. Exp. Exp. Birds, p. 298 (1848).

Plate XL.

Capite, collo, corporeque supra, fuliginosis, abdomine crissoque albis.
Statura P. mollis. Long. tot. 12 pollices.

FORM.—About the size of *Procellaria mollis*, Gould, and resembling that species in form, but not in color. Bill rather slender; wing long, reaching beyond the end of the tail; first quill longest; tail moderate, cuneate; legs rather slender; toes long, fully webbed.

DIMENSIONS.—Total length, male (of skin), about twelve inches; wing eleven inches; tail four and a half inches. "Total length fourteen and a half inches; extent of wings thirty-six inches." (Peale.)

COLORS.—Head, neck, and entire upper parts, dark fuliginous, lighter on the neck before. Abdomen and under coverts of the tail white; sides and flanks with some dashes of fuliginous; quills and tail dark fuliginous; the former nearly black. Feathers on the throat and neck in front white at base. Bill black; "irides dark brown; feet bluish flesh-color; the toes all black from the first joint." (Peale.)

HAB.—Pacific Ocean. Honden Island. Specimen in Nat. Mus. Washington.

This species, which we have not been able to identify with any other that we have found described, very considerably resembles *Procellaria mollis*, Gould, in size, and all other characters derived from form and organization, but is totally different in color from any specimen of that species that we have seen. The colors of the legs and feet are, however, in prepared specimens, precisely similar. For the reasons here indicated, it is not without doubt that we give this bird as a species.

Mr. Peale states that this species "breeds on the Coral Islands. Our specimen was killed near Honden Island, of the Dangerous Archi-

pelago, on the 20th of August. Its flight was rapid, and its general appearance and actions, when flying, is like a *Lestris*."

One specimen only is in the collection.

6. PROCELLARIA ROSTRATA, Peale.

Procellaria rostrata, PEALE, Zool. U. S. Exp. Exp. Birds, 296 (1st ed. 1848).

Plate XLI.

Capite, collo, corporeque supra, fuliginosis, abdomine crissoque albis, rostro magno, valido. Statura P. Lessonii. Long. tot. 14 pollices.

FORM.—About the size of, and of general form of *Procellaria Lessonii*, Garnot, but not of the same color. Bill large, strong; wings long, reaching, when closed, beyond the end of the tail; first quill longest. Tail moderate, graduated, or cuneate; tarsi moderate; toes long, fully webbed.

DIMENSIONS.—Total length, male (of skin), about fourteen inches; wing eleven inches; tail four and a half inches. "Extent of wings thirty-nine and a half inches." (Peale.)

COLORS.—Head, neck, and entire upper parts, fuliginous, light on the throat and neck before, dark on the back and head above. Abdomen and under tail-coverts white. Wings and tail dark fuliginous; the former nearly black; bill black; tarsi, and base of inner toes, and membrane, pale yellow (in preserved specimen); terminal two-thirds of toes and membrane black.

HAB.—Tahiti. Specimen in Nat. Mus. Washington.

As with the preceding species, we are mystified somewhat with the present. It is exceedingly like *Procellaria Lessonii* in all respects, except color of plumage—that character (color) being the same though in the legs and feet.

Our examination of the two species of *Procellaria*, now given under the names first applied to them by Mr. Peale, has led us to suspect

that these and other species of this genus undergo very material changes in the colors of their plumage, according, in all probability, to season. We cannot, however, at present, give a precise or satisfactory account of this supposed change in any one species, and we have not, therefore, ventured to give the two birds now before us otherwise than as distinct species. The birds of this genus, in our opinion, require careful observation in their native localities, or investigation in such extended series of specimens as can be attained only in time and with special attention.

Under the head of the present species, Mr. Peale has the following observations :

"At the Island of Tahiti, on mountains elevated about six thousand feet above the sea, this bird was found breeding in holes, in the month of October. It is decidedly nocturnal in its habits, a few only being now and then seen abroad in daylight. They sally forth from their subterranean abodes about sunset to collect food for their young far away at sea, being rarely found on the coast.

"The specimen from which our drawing and description were taken was procured by Mr. Dana, while on a most perilous excursion to the summits of the volcanic peaks of the island. The natives who carried it, finding its bite too severe, submitted it to a most cruel remedy, often practised by the island bird-catchers, which is, to thrust the sharp point of the upper mandible through the lower, thus yoking it with its own jaw. In this state, it was kept until the party reached the coast.

"On the tops of the same mountains, we saw a small species of Petrel, resembling *Thalassidroma oceanica*, Bonaparte, Zool. Journal, Vol. III, p. 89, but rather larger, with all the under parts white. It appeared to have its nest there, though we did not succeed in finding any, nor in obtaining specimens of the birds which were flying around us, and when shot fell into the dense forests, thousands of feet below us.

"The background in the drawing, is from a sketch taken at the only native settlement that we found in the interior, and represents the peaks in which are the breeding-places of this and other oceanic birds, high up on the River Popino."

A single specimen only of this species is in the collection of the Expedition. It is, apparently, in mature plumage, and is in good condition. It is represented in our plate rather smaller than the natural size.

7. PROCELLARIA COOKII, Gray.

Procellaria Cookii, G. R. GRAY, Dieff. Trav. II, p. 199 (1843).

Procellaria leucoptera, GOULD, Ann. & Mag. Nat. Hist. XIII, p. 364 (1844).

Procellaria brevipes, PEALE, Zool. Exp. Exp. Birds, p. 294 (first ed. 1848).*

Voy. Erebus & Terror, Birds, Plate XXXV; Gould, B. of Aust. VII, Plate LI.

"Irides brown; bill black; feet pale flesh-color; the toes black at their ends. Extent of wings twenty-four and one-fourth inches." (Peale.)

The specimens of this bird, in the collection of the Expedition, are from a much more eastern locality than heretofore noticed, as will appear from the following note by Mr. Peale:

"Two specimens were shot on the 21st of March, in latitude 68° S., longitude 95° W. Their flight was very swift, wild, and irregular, and they evinced no partiality for the vicinity of the ship, although she was lying-to in a dense fog, a time when Petrels generally collected around us to glean the offal thrown overboard."

The locality here given is much nearer the continent of America than this bird has ever before been noticed by voyagers. We find the two specimens, above alluded to, in the collection of the Expedition, and, on comparison with others from Mr. Gould's collection, now in the Museum of the Philadelphia Academy, can distinguish them by no character whatever.

* "Head and wings sooty-black; back and tail gray; throat, breast, and belly, white, tinged with salmon-color when living, but changing to white after death; an interrupted plumbeous band crosses the breast; two outer tail-feathers light gray, white beneath, shafts white; all the others brown; under wing-coverts white; the lesser ones nearly black; bill black; feet pale flesh-color; the toes black at their ends; irides brown.

"Total length ten and seven-tenths inches; extent of wings twenty-four and one-fourth inches; bill, to the angle of the mouth, one and four-tenths inches; over the culmen nineteen-twentieths of an inch; middle toe, including the nail, one and three-tenths inches."

8. PROCELLARIA NIVEA, *Gmelin*.—The Snowy Petrel.

Procellaria nivea, GM. Syst. Nat. I, p. 562 (1788)?

"*Procellaria candida*, PEALE, MSS." PEALE, Zool. Exp. Exp. Birds, p. 295 (1848).

Voy. Erebus and Terror, Birds, Plate XXXIV.

Atlas, Ornithology, Plate XLII. Adult.

"Irides brown; feet bluish flesh-color. Total length fourteen and one-tenth inches; extent of wings thirty inches." (Peale.)

The Snowy Petrel appears to be one of the most abundant species frequenting the highest southern latitudes yet visited by voyagers. In those regions, in which the present Expedition, in the Vincennes and Peacock, made the extraordinary and most important discovery of a Polar Continent, this bird is one which presents the snowy whiteness of plumage known to prevail in animals whose peculiar habitat is the polar regions of the North.

Of the Zoology of the Antarctic continent very little is known; but, there is no reason why it should not be inhabited by a peculiar Fauna, analogous to, but probably very different from, that of its antipodes of the North. No Bear, nor Walrus—no Snowy Owl, nor Arctic Fox, has yet been discovered, but, in the absence of investigation, an analogous Fauna may perhaps be safely supposed to exist. Of this especially Polar Fauna, the bird now before us possesses the high interest of being, as yet, the only known species of the Antarctic regions.

Mr. Peale's observations on the present bird are as follows:

"It inhabits the Antarctic regions. The specimens were obtained in latitude 64° S., and about 104° W. of Greenwich. We saw them only in the vicinity of ice, and whatever was thrown overboard from the ship they flew around to pick up, like the Cape Pigeons (*Procellaria capensis*), but they were not so easily caught with a hook and line. A number of specimens were preserved, and all are of the same unspotted white, without any indication of black shafts to the feathers, which, having been given by Dr. Latham as a characteristic of the Snowy Petrel obtained by Captain Cook, we were induced, from this and some minor differences, to consider the present as a distinct species, until the excellent plate representing it was published in the Zoological Atlas of the Voyage of H. M. Ships Erebus and Terror."

Not entirely satisfied that this is the species meant by Gmelin and Latham, we give it provisionally only as *Procellaria nivea*, but should another white species, with the shafts of any of its feathers black, as described by those distinguished authors, become known, this name must give place to that of Mr. Peale, above cited.

Our plate represents this bird rather smaller than the size of life.

9. PROCELLARIA CAPENSIS, *Linnaeus*.

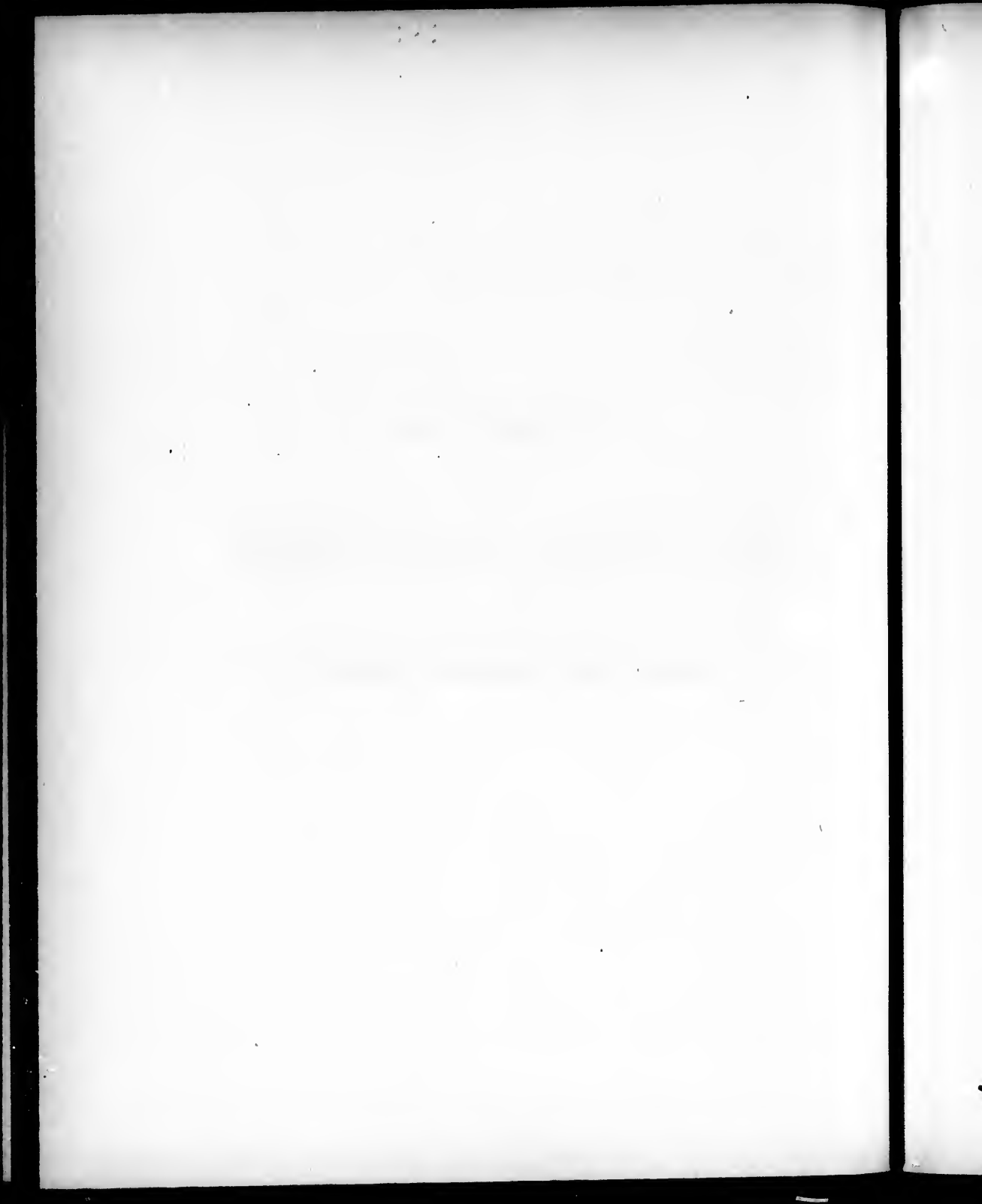
Procellaria capensis, LINN. Syst. Nat. I, p. 218 (1766).

Buffon, Pl. Enl. 964 ; Gould, B. of Aust. VII, Plate LIII.

Of this well-known bird we find numerous specimens in the collection of the Expedition, and it is frequently mentioned in the Journal of Dr. Pickering. These specimens present no characters other than have long been known to naturalists.

The first notice of this species, by Dr. Pickering, is on the 19th day of January, 1839, in latitude 39° S., in the Atlantic Ocean. Subsequently, it is mentioned by him at various points, and, for the last time, on the 14th day of July, in the same year, on the western coast of South America, the day after sailing from the harbor of Callao, in about 12° S. latitude.

CATALOGUES
OF
MAMMALS AND BIRDS
COLLECTED BY THE
UNITED STATES EXPLORING EXPEDITION.

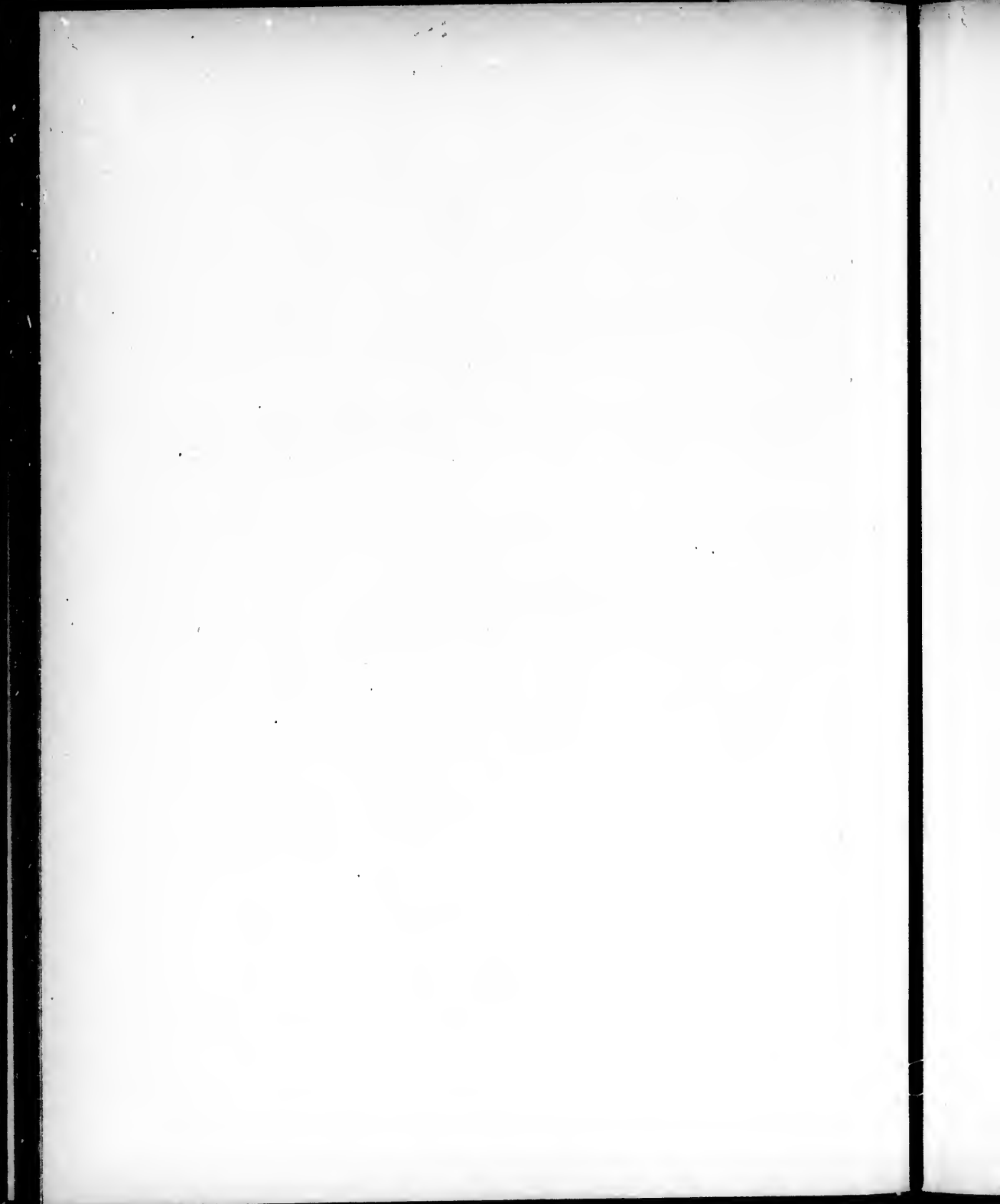


PRELIMINARY NOTE.

THE succeeding Catalogues include all the species of which specimens are in the Collection, with the localities given, as determined by the naturalists of the Expedition, and generally stated by them in labels attached during the voyage. In some instances, however, it is quite impossible to give the exact locality, specimens having been obtained from naturalists, or from dealers or other persons, at places evidently not the *habitat* of the species. In such cases I have inclosed the locality in parentheses.

J. C.

I.
M A M M A L S.



CATALOGUE OF MAMMALS

IN THE

COLLECTION OF THE UNITED STATES EXPLORING EXPEDITION.

I. CLASS MAMMALIA.

I. ORDER QUADRUMANA,

1. *Mycetes ursinus*. (Humboldt.) Brazil.
2. *Galeopithecus volans*. (Linnaeus.) (Obtained at Singapore.)
3. *Pteropus chrysoproctus*. Temminck. (Obtained at Malacca.)
4. *Pteropus Macklotii*. Temminck. Sooloo Islands.
Pteropus voeliferus. Peale.
5. *Pteropus samoensis*. Peale. Samoan Islands.
6. *Pteropus tonganus*. Quoy and Gaimard. Tongatabu.
7. *Pteropus Kerandrenius*. Quoy and Gaimard. Feejee Islands.
8. *Molossus aurispinosus*. (Peale.) Brazil.
Molossus rugosus. D'Orbigny?
9. *Vespertilio californicus*. Audubon and Bachman. California.
10. *Vespertilio semicaudatus*. Peale. Samoan Islands.

II. ORDER FERAEE.

11. *Lupus gigas*. Townsend. Oregon.
12. *Lupus ochropus*. (Eschscholtz.) Oregon.
13. *Vulpes virginianus*. (Schreber.) Oregon.
14. *Vulpes magellanicus*. (Gray.) Tierra del Fuego.
15. *Vulpes Azarae*. (De Weid.) Chili.
16. *Martes flavigula*. (Boddaert.) (Obtained at Singapore.)
17. *Paguma leucomystax*. (Gray)? (Obtained at Singapore.)
18. *Putorius Cycognanii*. Bonaparte. Oregon.
19. *Putorius pusillus*. (Aud. and Bach.) Oregon.

20. *Mephitis occidentalis*. Baird. Oregon.
21. *Ursus horribilis*. Ord. California.
22. *Procyon Hernandezii*. Wagler. California.
23. *Thylamys elegans*. (Waterhouse.) Chili.
24. *Dasyurus maculatus*. (Shaw.) Australia.
25. *Dasyurus viverrinus*. (Shaw.) Australia.
26. *Phascogale penicillata*. (Shaw.) Australia.
27. *Gymnura Rafflesii*. Lesson. (Obtained at Singapore.)
28. *Scalops Townsendii*. Bachman. Oregon.
29. *Scalops aeneus*. Cassin. Oregon.
30. *Chrysochloris villosa*. A. Smith. South Africa.
31. *Lebodon carcinophaga*. (Homb. and Jacq.) Deception Island.
Halichoerus antarcticus. Peale.
32. *Stenorhynchus leptonyx*. (F. Cuvier.) Antarctic Ice.

III. ORDER CETACEA.

33. *Delphinus albimanus*. Peale. Coast of Chili.
34. *Delphinus pectoralis*. (Peale.) Coast of Hawaii.

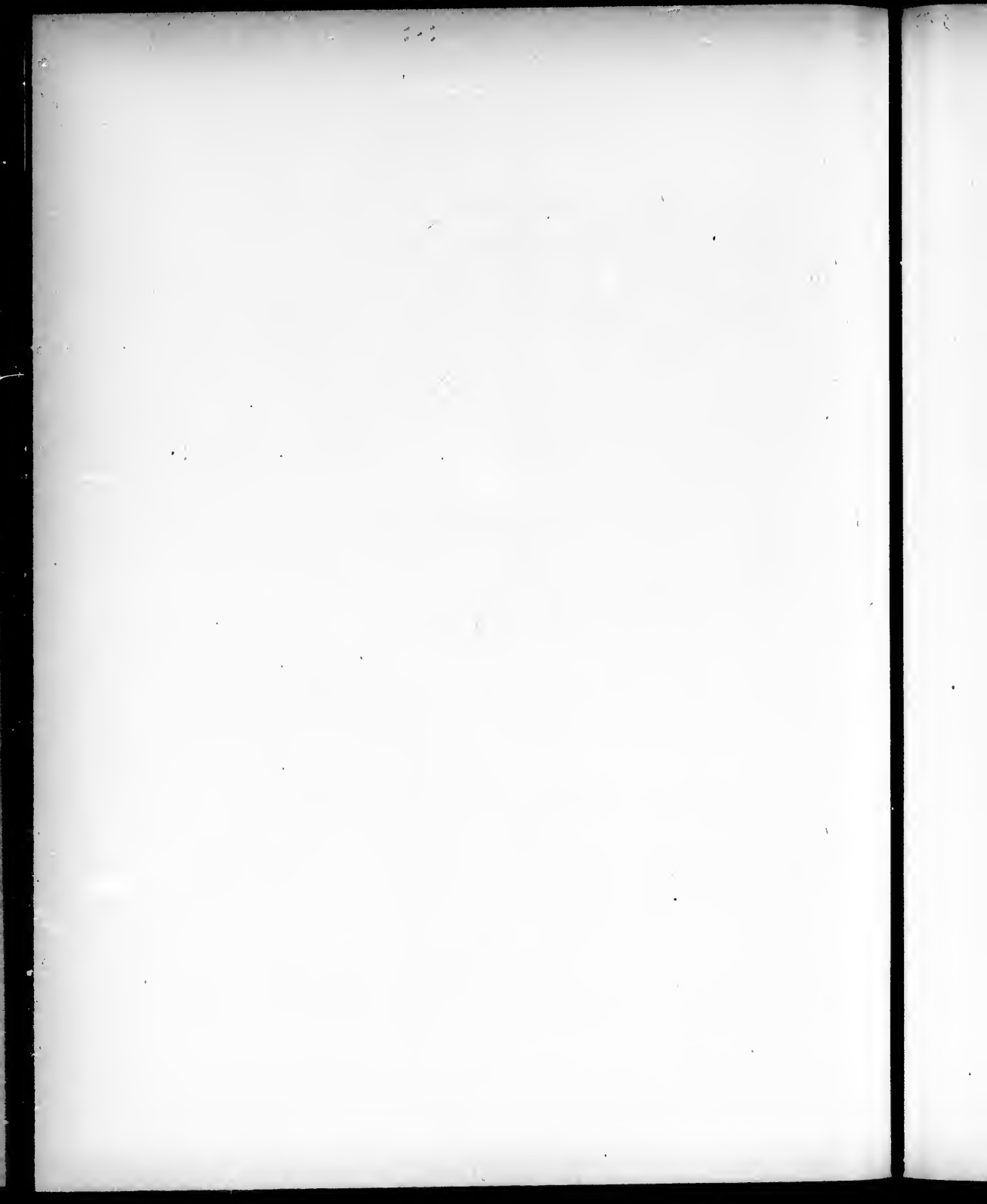
IV. ORDER UNGULATA.

35. *Dicotyles labiatus*. Cuvier. Brazil.
36. *Dasyus minutus*. Desmarest. Patagonia.
37. *Orycteropus capensis*. (Linnaeus.) Cape of Good Hope.
38. *Tamandua tetradactyla*. Lesson. Brazil.
39. *Echidna Hystrix*. Cuvier. Australia.
40. *Ornithorhynchus anatinus*. (Shaw.) Australia.
41. *Bos taurus*. Linnaeus. Cape of Good Hope.
42. *Cervus americanus*. (Jefferson.) Oregon.
43. *Cervus Lewisii*. Peale. Oregon.
44. *Cervus campestris*. F. Cuvier. Patagonia.
45. *Cephalophorus coerules*. H. Smith. Cape of Good Hope.
46. *Tragelaphus sylvaticus*. Sparrman. Cape of Good Hope.
47. *Antilocapra americana*. Ord. Oregon.
48. *Tragulus javanicus*. Pallas. (Obtained at Malacca.)
49. *Auchenia glama*. (Linnaeus.) Peru.

V. ORDER GLIRES.

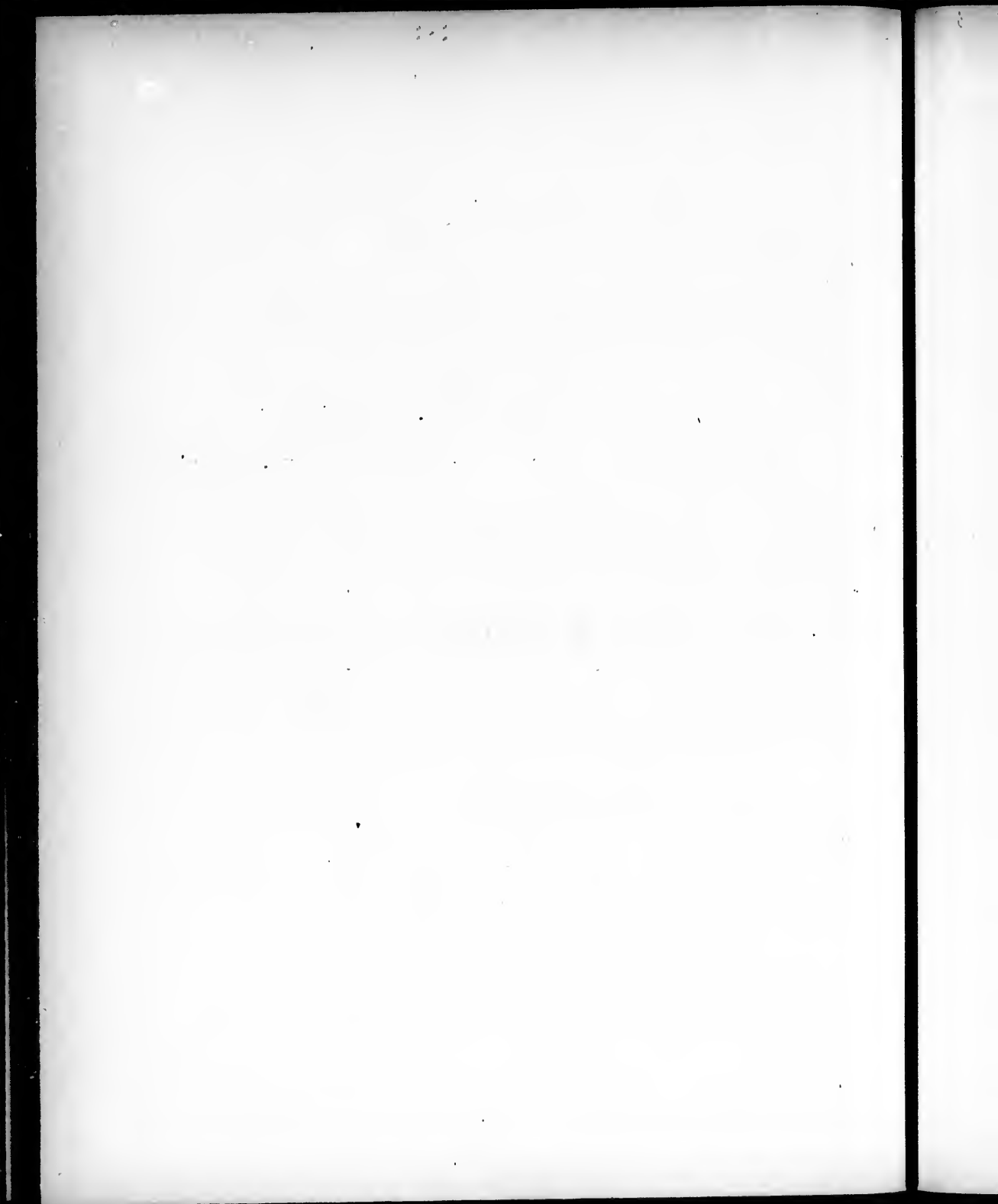
50. *Sciurus fessor*. Peale. Oregon.
51. *Sciurus vittatus*. Raffles. (Obtained at Singapore.)
52. *Sciurus affinis*. Raffles? (Obtained at Singapore.)

53. *Sciurus Douglassii*. Bachman. Oregon.
54. *Tamias quadrivittatus*. Richardson. Oregon.
55. *Tamias Townsendii*. Bachman. Oregon.
56. *Aplodontia leporina*. Richardson. Oregon.
57. *Hesperomys Gambelii*. Baird? California.
58. *Perognathus parvus*. (Peale.) Oregon.
59. *Mus exulans*. Peale. Society Islands.
60. *Mus vitiensis*. Peale. Feejee Islands.
61. *Dryomys parvulus*. Tschud. Peru.
 Mus peruvianus. Peale.
62. *Neotoma occidentalis*. Cooper. Oregon.
63. *Octodon Cumingii*. Bennet. Chili.
64. *Arvicola occidentalis*. Peale. Oregon.
65. *Arvicola californicus*. Peale. California.
66. *Arvicola oregonus*. Bachman. Oregon.
67. *Lepus campestris*. Bachman. Oregon.
68. *Lepus Washingtonii*. Baird. Oregon.
69. *Lepus artemisia*. Bachman. Oregon.
70. *Dolichotis patagonicus*. Desmarest. Patagonia.
71. *Petrogale penicillata*. (Gray.) Australia.
72. *Phalangista vulpina*. (Shaw.) Australia.
73. *Petaurus Sciureus*. (Shaw.) Australia.
74. *Petaurus australis*. (Shaw.) Australia.
75. *Petaurista taguanoides*. (Desmarest.) Australia.



II.

BIRDS.



CATALOGUE OF BIRDS

IN THE

COLLECTION OF THE UNITED STATES EXPLORING EXPEDITION.

II. CLASS AVES.

I. ORDER RAPTORES.

1. *Cathartes aura*. (Linnaeus.) Oregon.
2. *Cathartes jota*. (Molina.) Tierra del Fuego.
3. *Polyborus tharus*. (Molina.) Patagonia.
4. *Polyborus australis*. (Gmelin.) Patagonia.
5. *Milvago chimango*. (Vieillot.) Patagonia.
6. *Milvago chimachina*. (Vieillot.) Brazil.
7. *Buteo varius*. Gould. Patagonia.
8. *Buteo ventralis*. Gould. Patagonia.
9. *Buteo montanus*. Nuttall. Oregon.
10. *Asturina insectivora*. (Spix.) Brazil.
11. *Asturina leucorroha*. (Quoy and Gaimard.) Brazil?
12. *Haliastur inda*. (Boddaert.) (Obtained at Malacca.)
13. *Haliaetus leucocephalus*. (Linnaeus.) Oregon.
14. *Pandion carolineus*. (Gmelin.) Oregon.
15. *Pandion solitarius*. (Peale.) Sandwich Islands.
Buteo solitarius. Peale.
16. *Elanus axillaris*. (Latham.) Australia.
17. *Milvus sphenurus*. Vieillot. Australia.
18. *Circus hudsonius*. (Linnaeus.) Oregon.
19. *Circus assimilis*. Jardine and Selby. Feejee Islands.
Circus approximans. Peale.
20. *Circus Jardinei*. Gould. Australia.
21. *Astur cruentus*. Gould. Australia.
Astur ferox. Peale.*

* This name is given by Mr. Peale, in his Catalogue, p. 308, without a description, and specimens in the collection are so labelled by him.

22. *Astur approximans*. (Vigors and Horsfield.) Australia.
23. *Astur novae-hollandiae*. (Gmelin.) Australia.
24. *Accipiter ruitorques*. (Peale.) Samoan Islands.
25. *Accipiter badius*. (Gmelin.) (Obtained at Singapore.)
Astur bifasciatus. Peale.*
26. *Falco polyagrus*. Cassin. Oregon.
27. *Falco frontatus*. Gould. Australia.
"Falco peregrinoides?" Peale.
28. *Falco novae-zealandiae*. Gmelin. New Zealand.
Falco ferox. Peale.
29. *Jerax coerulescens*. (Linnaeus.) (Obtained at Malacca.)
30. *Tinnunculus sparverius*. (Linnaeus.) Oregon.
31. *Tinnunculus cenchroides*. (Vig. and Horsf.) Australia.
32. *Strix pratineola*. Bonaparte. Oregon.
33. *Strix perlata*. Lichtenstein. Brazil.
34. *Strix delicatula*. Gould. Samoan Islands.
Strix lulu. Peale.
35. *Brachyotus galapagoensis*. Gould. Sandwich Islands.
36. *Ketupa javanensis*. Lesson. (Obtained at Malacca.)
37. *Scoops sunia*. (Hodgson.) (Obtained at Malacca.)
38. *Ciccaba melanonota*. (Tschudy.) Brazil?
39. *Syrnium indraneae*. (Sykes.) (Obtained at Malacca.)
40. *Spiloglaux boobook*. (Latham.) Australia.
41. *Spiloglaux connivens*. (Latham.) Australia.
42. *Athene novae-zealandiae*. (Gmelin.) New Zealand.
Noctua venatica. Peale.
43. *Athene cunicularia*. (Molina.) Oregon. Peru.
Athene patagonica. Peale.
44. *Athene grallaria*. (Temminck.) Peru.
45. *Athene ferruginea*. (De Wied.) Brazil.
46. *Bubo virginianus*. (Gmelin.) Oregon.
47. *Bubo orientalis*. (Horsfield.) (Obtained at Malacca.)

* "Back sepia-brown; head darker, with a white, obscure nuchal spot and superciliary line. Wings sepia-brown, banded with umber; shafts brown; beneath yellowish-white, with conspicuous brown bands; tail lighter than the wings, and having four conspicuous brown bands, the two outer feathers with double the number (whence our name); shafts, between the bars, white; throat and breast white, the feathers having a brown line along the centre of each; belly, flanks, and thighs white, banded with brown, and tinged with ferruginous; under tail-coverts white; bill and claws dark brown; cere and legs dusky yellow.

"Total length twelve and seven-tenths inches; wings, from the carpal joint, seven and seven-tenths inches; tail, five and one-half inches; tarsi, one and eight-tenths inches; middle toe, including the nail, one and six-tenths inches; nail, four-tenths of an inch; hind toe, including the nail, one and one-twentieth inches; nail one-half of an inch." Peale, Zool. Exp. Exp. Birds, p. 70.

II. ORDER INSESSORES.

48. *Corvus carnivorus*. Bartram. Oregon.
49. *Corvus americanus*. Audubon. Oregon.
50. *Corvus coroneoides*. Vig. and Horsf. Australia.
51. *Corvus ruficollis*. Lesson. Madeira.
 Corvus leptonyx. Peale.
52. *Cyanocorax Stelleri*. (Pallas.) Oregon.
53. *Cyanocorax cyanopogon*. (Do Wied.) Brazil.
54. *Cyanocitta californica*. (Vigors.) Oregon.
55. *Pyroderus scutatus*. (Shaw.) Brazil.
56. *Barita louconota*. (Gould.) Australia.
57. *Strepera graculina*. (Shaw.) Australia.
58. *Strepera anaphonensis*. Temminck. Australia.
 Baryta cinerea. Peale.*
59. *Gracula religiosa*. Linnaeus. (Obtained at Singapore.)
60. *Calornis corvina*. (Kittlitz.) Samoan Islands.
 Lamprotornis atrifusca. Peale.
61. *Aplonis marginata*. Gould. Samoan Islands.
 Lamprotornis? fusca. Peale.
62. *Aplonis brevirostris*. (Peale.) Samoan Islands.
63. *Ptilonorhynchus holosericeus*. Kuhl. Australia.
64. *Lamproolus chrysotis*. (Swainson.) (Obtained at the Cape of Good Hope.)
65. *Scolecophagus niger*. (Gmelin.) Oregon.
 Gracula ferruginea. Wilson.
66. *Scolecophagus mexicanus*. Swainson. California.
 Quiscalus Breweri. Audubon.
67. *Agelaius tricolor*. Audubon. California.
68. *Agelaius gubernator*. Wagler. California.
69. *Agelaius superciliaris*. Bonaparte. Brazil.
70. *Molothrus bonariensis*. (Gmelin.) Brazil.
71. *Molothrus sericeus*. (Lichtenstein.) Brazil.
72. *Psarocolius curacus*. (Molina.) Chili.
73. *Amblyramphus ruber*. (Gmelin.) Brazil.
74. *Chrysomus flavus*. (Gmelin.) Brazil.
75. *Cassicus haemorrhous*. (Linnaeus.) Brazil.
76. *Cassicus uropygialis*. Lafresnaye. Brazil.
77. *Cassicus cristatus*. (Gmelin.) Brazil.
78. *Sturnella neglecta*. Audubon. Oregon.
79. *Sturnella militaris*. (Linnaeus.) Chili.
80. *Sturnella loyca*. (Molina.) Peru.
81. *Sturnella Defillippii*. Bonaparte. Brazil.
82. *Oriolus viridis*. (Latham.) Australia.

* This name is given, without a description, in Mr. Peale's Catalogue, p. 315.

83. *Sericulus mellinus*. (Latham.) Australia.
84. *Cyanoloxia cyanes*. (Linnaeus.) Brazil.
85. *Sporophila torrida*. (Gmelin.) Brazil.
86. *Carpodacus familiaris*. McCall. Oregon.
87. *Steganopleura ruficauda*. (Gould.) Australia.
88. *Sporothlastes castanotis*. (Gould.) Australia.
89. *Spermophila telasco*. (Lesson.) Peru.
Casmarhynchus leucopterus. Peale.
90. *Erythrura cyaneovirens*. Peale. Samoan Islands.
Erythrura Pucherani. Bonaparte?
91. *Erythrura Pealei*. Hartlaub. Feejee Islands.
Geospiza prasina. Peale.
92. *Psittirostra psittacea*. (Latham.) Sandwich Islands.
93. *Loxia americana*. Wilson. Oregon.
94. *Phytotoma rara*. Molina. Chili.
95. *Ploceus philippinus*. (Linnaeus.) (Obtained at Malacca.)
96. *Passer jagoensis*. Gould. Cape de Verde Islands.
97. *Zonotrichia matutina*. (Lichtenstein.) Chili.
Fringilla Mortoni. Audubon.
98. *Spizella Breweri*. Cassin. Oregon.
99. *Passerculus alaudinus*. Bonaparte. Oregon.
100. *Volatinia jacarina*. (Linnaeus.) Peru.
Geospiza peruviana. Peale.
101. *Estrela astrilda*. (Linnaeus.) (Obtained at the Island of St. Helena.)
102. *Estrela temporalis*. (Latham.) Australia.
103. *Phrygilus alaudina*. (Kittlitz.) Chili.
Fringilla laciniata. Peale.
104. *Euspiza diuca*. (Molina.) Chili.
Pipilo cinerea. Peale.
105. *Chrysomitris magellanicus*. (Vieillot.) Brazil.
106. *Sycalis brasiliensis*. (Gmelin.) Brazil.
107. *Serinus canicollis*. (Swainson.) Cape of Good Hope.
108. *Fringillaria capensis*. (Linnaeus.) Cape of Good Hope.
109. *Tanagra striata*. Gmelin. Brazil.
Tanagra Darwini. Bonaparte.
110. *Tanagra ornata*. Sparrman. Brazil.
Tanagra archiepiscopus. Desmarest.
111. *Tanagra cyanopectus*. (Vieillot.) Brazil.
Tanagra inornata. Swainson.
Tanagra argentata. G. R. Gray.
112. *Pyrrhuloxia ludovicianae*. (Wilson.) Oregon.
113. *Orthogonys viridis*. (Spix.) Brazil.
114. *Ramphocelus brasilius*. (Linnaeus.) Brazil.
115. *Phoenicotheraps rubica*. (Vieillot.) Brazil.
Tanagra flammeiceps. Temmick.
116. *Tachyphonus cristatus*. (Gmelin.) Brazil.

117. *Tachyphonus coronatus*. (Vieillot.) Brazil.
Tanagra coryphaeus. Lichtenstein.
Tanagra Vigorsii. Swainson.
118. *Tricothraupis quadricolor*. (Vieillot.) Brazil.
119. *Cissopus Leverianus*. (Gmelin.) Brazil.
Lanius picatus. Latham.
120. *Calliste tricolor*. (Gmelin.) Brazil.
121. *Calliste festiva*. (Shaw.) Brazil.
122. *Calliste cyanoventris*. (Vieillot.) Brazil.
Tanagra citrinella. Temminck.
123. *Calliste thoracica*. (Temminck.) Brazil.
124. *Calliste flaviventris*. (Vieillot.) Brazil.
125. *Pipridea melanonota*. (Vieillot.) Brazil.
Tanagra vittata. Temminck.
126. *Stephanophorus coerulesus*. (Vieillot.) Brazil.
127. *Chlorophonia viridis*. (Vieillot.) Brazil.
128. *Euphonia violacea*. (Linnaeus.) Brazil.
129. *Euphonia rufiventris*. (Vieillot.) Brazil.
130. *Euphonia chalybea*. (Mikan.) Brazil.
131. *Euphonia nigricollis*. (Vieillot.) Brazil.
132. *Tanagrella cyanomelas*. (De Wied.) Brazil.
133. *Nemosia ruficapilla*. Vieillot. Brazil.
134. *Pyrrhocoma ruficeps*. (Strickland.) Brazil.
135. *Arremon silens*. (Boddaert.) Brazil.
Arremon torquatus. Vieillot.
136. *Pipilo oregona*. Bell. Oregon.
137. *Pipilo thoracica*. (Illiger.) Brazil.
Pipilo ruftorques. Swainson.
138. *Colius striatus*. Gmelin. Cape of Good Hope.
139. *Turacus albocriatus*. Strickland. Cape of Good Hope.
140. *Buceros rhinoceros*. Linnaeus. (Obtained at Singapore.)
141. *Buceros galeatus*. Gmelin. (Obtained at Singapore.)
142. *Buceros pica*. Scopoli. (Obtained at Singapore.)
143. *Buceros hydrocorax*. Linnaeus. Philippine Islands.
Buceros obscurus. Peale.*

* "Head, neck, and all the lower portion of the body and thighs, pale, tawny yellow; a few pale chestnut-colored feathers on the breast and sides of the head; back and rump pale chocolate-brown; scapulars and wing-coverts pale chocolate, with tawny tips; wings rounded; quills dark brown, edged with tawny; fifth primary longest; the sixth and seventh nearly equal to the fifth, pointed, and the shafts dark-brown; tail consisting of ten feathers, slightly rounded, tawny, with white shafts, the two middle feathers clouded with pale chocolate on the half nearest the body; bill black, inflated to a rounded termination on the crown beyond the eyes; the front edge compressed to a narrow keel; irides crimson, feet the same, paler. Female."

"Total length thirty-four and six-tenths inches; wing, from the carpal joint, fourteen and seven-tenths inches; tail, twelve and eight-tenths inches; tarsi, two and two-tenths inches; middle toe, including the claw, two and seven-tenths inches; claw, nine-tenths of an inch; hind toe, one and thirteen-twentieths inches; claw, eight-tenths of an inch; bill, measuring from the crown of the head over the

144. *Tockus nasutus*. (Linnaeus.) Cape of Good Hope.
 145. *Lanius collaris*. Linnaeus. Cape of Good Hope.
 146. *Lanius lathora*. Sykes? (Obtained at Malacca.)
 147. *Enneoctonus superciliosus*. (Latham.) Obtained at Malacca
 148. *Thamnophilus undulatus*. (Mikan.) Brazil.
 Thamnophilus Vigorsii. Such.
 149. *Thamnophilus severus*. (Lichtenstein.) Brazil.
 Thamnophilus niger. Such.
 150. *Falcunculus frontatus*. (Latham.) Australia.
 151. *Cyclorhis guianensis*. (Gmelin.) Brazil.
 152. *Telophonus bacbakari*. (Vieillot.) Cape of Good Hope.
 153. *Lalage terat*. (Boddaert.) Feejee and Samoan Islands.
 Colluricincla maculosa. Peale.
 154. *Lalage humeralis*. Gould. Australia.
 155. *Campophaga caesia*. (Lichtenstein.) Cape of Good Hope.
 Ceblepyris cana. Cuvier.
 156. *Graucalus melanops*. (Latham.) Australia.
 157. *Graucalus Swainsonii*. Gould. Australia.
 158. *Graucalus mentalis*. Vigors and Horsfield. Australia.
 159. *Artamus mentalis*. Jardine. Feejee Islands.
 Ocypterus mentalis. Peale.
 160. *Artamus leucorhynchus*. (Gmelin.) Sooloo Islands.
 161. *Artamus sordidus*. (Latham.) Australia.
 162. *Artamus superciliosus*. Gould. Australia.
 Ocypterus superciliosus. Peale.
 163. *Dicrurus bracteatus*. Gould. Australia.
 164. *Dicrurus viridescens*. Gould. (Obtained at Malacca.)
 165. *Irena cyanogaster*. Vigors. Philippine Islands.
 166. *Colluricincla harmonica*. (Latham.) Australia.
 Turdus pallidus. Peale. ("Near Valparaiso," Peale.)
 167. *Cracticus torquatus*. (Latham.) Australia.
 168. *Tyrannus borealis*. Swainson. Oregon.
 Tyrannus Cooperi. Nuttall.
 169. *Tyrannus audax*. (Gmelin.) Brazil.
 170. *Tyrannula cinerea*. (Spix.) Brazil.
 171. *Tyrannula cayennensis*. (Linnaeus.) Brazil.
 172. *Tyrannula albiceps*. (Lafres. and D'Orb.) Tierra del Fuego.
 173. *Tyrannula chrysoceps*. (Spix.) Brazil.

culmen, seven and nine-tenths inches; along the gonyx, five and three-tenths inches; along the commissure, five and four-tenths inches; width, one and eight-tenths inches; depth, two and eight-tenths inches."

"Near Sambuangu, on the island of Mindoro, we saw large flocks of Hornbills, which frequented deep, shady forests; some were of a brick-red color, and were probably the males of the one now described."

"Although several were shot, such was the nature of the jungle, that we succeeded in obtaining but a single specimen. All of its plumage is fully developed, though scanty, a wise provision in so hot a climate, and is much worn, showing that our bird was fully grown. The voice is not unlike that of a man hawking from loud calling, and was heard in the close forest a distance of half a mile or more." Peale, Zool. U. S. Exp. Exp. Birds, p. 125 (1st ed., 1848).

174. *Milvulus tyrannus*. (Linnaeus.) Brazil.
 175. *Pyrocephalus rubineus*. (Boddaert.) Brazil.
 176. *Pyrocephalus obscurus*. Gould. Peru.
 177. *Muscivora rupestris*. (De Wied.) Brazil.
 178. *Muscipeta rufa*. (G. R. Gray.) Philippine Islands.
 Tehitrea rufa. G. R. Gray.
 179. *Muscipeta cyaniceps*. Cassin. Philippine Islands.
 180. *Psophodes crepitans*. (Latham.) Australia.
 181. *Myiobius sinuatus*. (Spix.) Brazil.
 182. *Myiagra plumbea*. Vig. and Horsf. Australia.
 183. *Myiagra latirostris*. Gould. Samoan Islands.
 Platyhynchus albiventris. Peale.
 184. *Myiagra vanikorensis*. Quoy and Gaimard. Feejee Islands.
 185. *Megalophus regius*. (Gmelin.) Brazil.
 186. *Rhipidura albiscapa*. Gould. New Zealand.
 187. *Rhipidura nebulosa*. Peale. Samoan Islands.
 188. *Rhipidura rufifrons*. Vig. and Horsf. Australia.
 189. *Rhipidura motacilloides*. Vig. and Horsf. Australia.
 190. *Fluvicola cyanirostris*. (Vieillot.) Tierra del Fuego.
 191. *Monarcha nigra*. (Sparmann.) Society Islands.
 192. *Monarcha carinata*. Swainson. Australia.
 193. *Leucocerca Lessoni*. (Gray.) Feejee Islands.
 Monarcha cinerea. Peale.
 194. *Conopophaga vulgaris*. Monetrie. Brazil.
 195. *Todirostrum flavifrons*. (Lafresnaye.) Brazil.
 196. *Muscigralla brevicauda*. D'Orb. and Lafr. Peru.
 Lepturus brevicaudus. Peale.*
 197. *Ptyonura mentalis*. (Lafresnaye.) Peru.
 Saxicola fumifrons. Peale.†

* "Head and back cinereous olive-color; feathers of the crown bright-yellow at their bases; rump ferruginous; thorax and superciliary line white; abdomen and under tail-coverts pale buff; wings brown; the tertials and greater coverts tipped with white, forming two bars; under coverts white; tail very short, brownish-black, the feathers ferruginous at the roots and tips; legs long, slender, pale-brown, and bare of feathers some distance above the heels, bill slender, black; irides brown."

"Total length, four and six-tenths inches; wing, from the carpal joint, two and eight-tenths inches; tail, one and four-tenths inches; tarsi, one inch; bare space on the tibia, seven-twentieths of an inch; middle toe, including the claw, eight tenths of an inch; claw, one-fourth of an inch; hind toe, one-half of an inch; nail, three-tenths of an inch; bill, four-tenths of an inch; to the angle of the mouth, seven-tenths of an inch." Peale, Zool. U. S. Exp. Exp. Birds, p. 103 (1st ed., 1848).

† "Neck and back olive ash-color; breast, abdomen, vent, and under tail-coverts pale ash-color, nearly white; head and throat ferruginous, the throat inclining to ferruginous; wings dark-brown, the quills and coverts edged with olive; under parts light ash-color; tail even, nearly black; the two outer feathers edged with white; bill dark-brown; legs slender, black."

"Total length, six and nine-tenths inches; wing, from the carpal joint, four and three-tenths inches; tail, two and seven-tenths inches; tarsi, one and one-tenth inches; middle toe, including the claw, eight-tenths of an inch; claw, one-fourth of an inch; hind toe, six-tenths of an inch; claw, very slender, seven-twentieths of an inch; bill, four-tenths of an inch; to the angle of the mouth, eight-tenths of an inch. Female.

"Found on arid grounds, near Callao, Peru, in the month of July." Peale, Zool. U. S. Exp. Exp. Birds, p. 90 (1st ed., 1848).

198. *Seisura inquieta*. (Latham.) Australia.
 199. *Eurylaimus javanicus*. Horsf. (Obtained at Malacca.)
 200. *Cymbirhynchus macrorhynchus*. (Gmelin.) (Obtained at Malacca.)
 201. *Tityra cayana*. (Linnaeus.) Brazil.
 202. *Pachyrhamphus Cuvieri*. (Swainson.) Brazil.
 203. *Agriornis striatus*. Gould. Tierra del Fuego.
 204. *Pericrocotus roseus*. (Vieillot.) (Obtained at Malacca.)
 205. *Cotinga atropurpurea*. (De Wied.) Brazil.
 206. *Procnias ventralis*. Illiger. Brazil.
 207. *Calyptomina viridis*. Raffles. (Obtained at Malacca.)
 208. *Pachycephala pectoralis*. (Latham.) Australia.
 209. *Pachycephala melanura*. Gould. Australia.
 210. *Pachycephala rufiventris*. (Latham.) Australia.
 211. *Eopsaltria australis*. (Latham.) Australia.
 212. *Eopsaltria flavifrons*. Peale. Samoan Islands.
 213. *Eopsaltria albifrons*. Peale. Samoan Islands.
 214. *Eopsaltria icteroides*. Peale. Samoan Islands.
 215. *Hyloterpe philomela*. (Müller.) (Obtained at Malacca.)
 216. *Phibalura flavirostris*. Vieillot. Brazil.
 217. *Pipra caudata*. Shaw. Brazil.
 218. *Pipra militaris*. Shaw. Brazil.
 219. *Manacus gutturosus*. (Desmarest.) Brazil.
 220. *Calyptra cristata*. (Vieillot.) Brazil.
 221. *Iodopleura pipra*. Lesson. Brazil.
 222. *Pardalotus punctatus*. (Latham.) Australia.
 223. *Pardalotus striatus*. (Latham.) Australia.
 224. *Copus siliicauda*. (Spix.) Brazil.
 225. *Merula migratoria*. (Linnaeus.) Oregon.
 226. *Merula falklandica*. Quoy and Gaimard. Tierra del Fuego.
 227. *Merula vanikorensis*. Quoy and Gaimard. Samoan Islands.
 228. *Merula carbonaria*. (Illiger.) Brazil.
 229. *Merula obscura*. (Gmelin.) (Obtained at Malacca.)
 230. *Mimus melanotis*. (Gould.) Peru.
- Mimus peruvianus*. Peale.*

* "Head, back, scapulars, and rump, pale umber-brown, the feathers darker in the middle; throat white; breast, abdomen, and flanks, very pale umber, the feathers each with a dark umber line in the middle, and white edges; wings umber, a white spot at the base of the primaries; tail umber, tipped with rufous white. Female.

"Total length, ten and eight-tenths inches; wing, from the carpal joint, five inches; tail, five and one-half inches; tarsi, one and eleven-twentieths inches; middle toe, including the claw, one and two-tenths inches; claw, three-tenths of an inch; hind toe, nine-tenths of an inch; claw, four-tenths of an inch; bill, eight-tenths of an inch; to the angle of the mouth, one and two-tenths inches.

"This bird was found near Callao, Peru, during the month of July. It has the manners and vivacity of the North American Mocking Bird, but not its full powers of song. The conspicuous white spots on the wings give it more the appearance of ours, than the Chilean species (*M. thenca* of G. R. Gray), which has no wing-spot; but the white tip to the tail keeps up its southern alliance." Peale, Zool. U. S. Exp. Birds, p. 87 (1st ed., 1848).

231. *Mimus calandria*. (D'Orb. and Lafr.) Chili.
 232. *Copsychus saularis*. (Linnaeus.) (Obtained at Malacca.)
 233. *Copsychus macrourus*. (Gmelin.) (Obtained at Malacca.)
 234. *Donacobius atricapillus*. (Linnaeus.) Brazil.
 235. *Dryophila trifasciata*. Swainson. Brazil.
 236. *Taenioptera pyrope*. (Kittlitz.) Chili.
 237. *Taenioptera obscura*. (Gmelin.) Sandwich Islands.
 Muscicapa obscura. Gmelin.
 238. *Pienonotus ochrocephalus*. (Gmelin.) (Obtained at Malacca.)
 239. *Microscelis tristis*. Blyth. (Obtained at Malacca.)
 240. *Pienonotus goiavier*. (Scopoli.) (Obtained at Malacca.)
 241. *Brachypus melanoccephalus*. (Gmelin.) (Obtained at Malacca.)
 242. *Brachypus tympanistrigus*. Müller. (Obtained at Malacca.)
 243. *Tricophorus gularis*. (Horsfield.) (Obtained at Malacca.)
 244. *Ixos brunneus*. (Blyth.) (Obtained at Malacca.)
 245. *Iole olivaceus*. Blyth. (Obtained at Malacca.)
 246. *Bessonornis phaeoicurus*. (Gmelin.) Cape of Good Hope.
 247. *Phyllornis malabarica*. (Latham.) (Obtained at Malacca.)
 248. *Phyllornis cyanopogon*. Temminck. (Obtained at Malacca.)
 249. *Phyllornis sonneratii*. (Jard. and Selby.) (Obtained at Malacca.)
 250. *Timalia maculosa*. Temminck. (Obtained at Malacca.)
 251. *Timalia nigricollis*. Temminck. (Obtained at Malacca.)
 252. *Macronus ptilosus*. Jard. and Selby. (Obtained at Malacca.)
 253. *Cinelosoma punctatum*. (Latham.) Australia.
 254. *Malacopteron magnum*. Eyton. (Obtained at Malacca.)
 255. *Cacopitta lepidopleura*. Bonaparte. (Obtained at Malacca.)
 256. *Sclerurus caudatus*. (Vieillot.) Brazil.
 257. *Grallaria maculosa*. (De Wied.) Brazil.
 Chamaeza meruloides. Vigors.
 258. *Pitta strepitans*. Temminck. Australia.
 259. *Pitta cyanoptera*. Temminck. (Obtained at Malacca.)
 260. *Pitta cucullata*. Hartlaub. (Obtained at Singapore.)
 Pitta coronata. Peale.*
 261. *Formicivora loricata*. (Lichtenstein.) Brazil.
 262. *Ellipura variegata*. (Such.) Brazil.
 263. *Hylactes megapodius*. (Kittlitz.) Chili.

* "Crown chestnut, with a black line in the middle; cheeks, eyelids, throat, and neck black; back, scapulars, and greater wing-coverts green; breast and flanks green, of a lighter shade than the back; ventral spot bright scarlet; under tail-coverts paler scarlet; tail rounded, short, black, the central feathers slightly tipped with green; upper coverts and rump light silvery blue; wings rounded, short, second and third quills equal and longest; primaries black at each end and white in the middle; secondaries black on the inner web, blue-green on the outer; lesser coverts light silvery blue; under coverts black; bill black; the corners of the mouth yellow; legs reddish.

"Total length, six and nine-tenths inches; wing, from the carpal joint, four and eight-tenths inches; tarsi, one and four-tenths inches; middle toe, including the claw, one and one-fourth inches; claw, three-tenths of an inch; hind toe, nine-tenths of an inch; claw, one-half of an inch; bill, eight-tenths of an inch; to the angle of the mouth, one and one-tenth inches.

"Inhabits the Peninsula of Malacca. We obtained a single specimen at Singapore," Peale, Zool. U. S. Exp. F. Birds, p. 89.

264. *Pterotochus albicollis*. Kittlitz. Chili.
 265. *Triptorhinus paradoxus*. (Kittlitz.)* Chili.
 266. *Certhilauda tenuirostris*. D'Orb. and Lafr. Tierra del Fuego.
 267. *Cineloramphus cruralis*. Vig. and Horsf. Australia.
 268. *Anthus ludovicianus*. (Gmelin.) Oregon.
 269. *Anthus striolatus*. Blyth. (Obtained at Malacca.)
 270. *Anthus pratensis*. (Linnaeus.) Madeira.
 271. *Saxicola oenanthe*. (Linnaeus.) At Sea, off Coast of Western Africa.
 272. *Sialia mexicana*. Swainson. Oregon.
 273. *Origma rubricata*. (Latham.) Australia.
 274. *Petroica rosea*. Gould. Australia.
 275. *Petroica multicolor*. (Vig. and Horsf.) Australia.
 276. *Petroica phoenicea*. Gould. Australia.
 Petroica coccinea. Peale.*
 277. *Petroica pusilla*. Peale. Samoan Islands.
 278. *Ephthianura albifrons*. Jard. and Selby. Australia.
 279. *Acanthiza lineata*. Gould. Australia.
 280. *Acanthiza reguloides*. Vig. and Horsf. Australia.
 281. *Zosterops dorsalis*. Vig. and Horsf. Australia.
 282. *Zosterops albugularis*. Gould. Australia.
 283. *Zosterops flaviceps*. Peale. Feejee Islands.
 284. *Zosterops montana*. Bonaparte.
 285. *Euscarthmus parulus*. (Kittlitz.) Chili.
 Regulus plumulosus. Peale.
 286. *Cyanotis omnicolor*. (Vieillot.) Chili.
 287. *Malurus cyaneus*. (Gmelin.) Australia.
 288. *Malurus melanocephalus*. Australia.
 289. *Stipiturus malachurus*. (Shaw.) Australia.
 290. *Calamanthus strigatus*. (Latham.) Australia.
 291. *Grallina cyanoleuca*. (Latham.) Australia.
 292. *Parula brasiliana*. (Lichtenstein.) Brazil.
 293. *Trichas velata*. (Vieillot.) Brazil.
 294. *Meliphaga novae hollandiae*. (Latham.) Australia.
 295. *Meliphaga australasiana*. (Shaw.) Australia.
 296. *Meliphaga auricomis*. (Latham.) Australia.
 297. *Meliphaga phrygia*. (Latham.) Australia.

* "Head, back, wings, and tail ashy black; lesser wing-coverts, bar across the quills, and outer edge of the tertials, white; a longitudinal white line extending the whole length of the outer tail-feathers; a white spot at the base of the upper mandible; chin-spot cinereous; throat, breast, and abdomen scarlet; under coverts of the wings and tail white; irides brown; bill and legs black.

"Total length, five and one-tenth inches; wing, from the carpal joint, three and four-tenths inches; tail, two and two-tenths inches; tarsi, eight-tenths of an inch; middle toe, including the claw, seven-tenths of an inch; claw, two-tenths of an inch; hind toe, one-half of an inch; claw, one-fourth of an inch; bill, four-tenths of an inch; to the angle of the mouth, thirteen-twentieths of an inch.

"Our specimens were obtained near Sydney, New South Wales, in the month of December. At the same season, specimens were obtained of *P. multicolor* (*Muscicapa multicolor*, Grm.) and *P. Lathamii* (*Muscicapa Lathamii*, Vigors, Zool. Jour. vol. 1, p. 410, pl. 13.)" Peale, Zool. U. S. Exp. Birds, p. 92.

298. *Ptilotis chrysotis*. (Latham.) Australia.
299. *Ptilotis leucotis*. (Latham.) Australia.
300. *Ptilotis carunculata*. (Gmelin.) Feejee and Samoan Islands.
301. *Prosthodroma novae zealandiae*. (Gmelin.) New Zealand.
302. *Anthornis melanura*. (Sparrman.) New Zealand.
303. *Manorhina garrula*. (Latham.) Australia.
304. *Manorhina melanophrys*. (Latham.) Australia.
305. *Anthrochaera carunculata*. (Latham.) Australia.
306. *Anthrochaera mellivora*. (Latham.) Australia.
307. *Tropidorhynchus corniculatus*. (Latham.) Australia.
308. *Tropidorhynchus samoensis*. (Homb. and Jacq.) Samoan Islands.
Entomiza? olivacea. Peale.*
309. *Acanthorhynchus tenuirostris*. (Latham.) Australia.
310. *Ptilorus paradiseus*. Swainson. Australia.
311. *Paradisaea papuana*. Bechstein. (Obtained at Singapore.)
312. *Diphyllodes magnifica*. (Scopoli.) (Obtained at Singapore.)
313. *Mohoa nobilis*. (Merrem.) Sandwich Islands.
314. *Mohoa angustipluma*. (Peale.) Sandwich Islands.
315. *Melithreptus lunulatus*. (Shaw.) Australia.
316. *Promerops cafer*. (Linnaeus.) Cape of Good Hope.
317. *Irisor erythrorhynchus*. (Latham.) Cape of Good Hope.
318. *Arachnothera chrysogenys*. (Temminck.) (Obtained at Malacca.)
319. *Arachnothera longirostris*. Jerdon. (Obtained at Malacca.)
320. *Myzomela sanguinolenta*. (Latham.) Australia.
321. *Myzomela jugularis*. Peale. Feejee Islands.
322. *Myzomela nigriventris*. Peale. Samoan Islands.
323. *Drepanis coccinea*. (Gmelin.) Sandwich Islands.
324. *Drepanis sanguinea*. (Gmelin.) Sandwich Islands.
325. *Nectarinia famosa*. (Linnaeus.) Cape of Good Hope.
326. *Nectarinia violacea*. (Linnaeus.) Cape of Good Hope.
327. *Cinnyris chalybea*. (Linnaeus.) Cape of Good Hope.
328. *Cinnyris amethystina*. (Shaw.) Cape of Good Hope.
329. *Diceum hirundinaceum*. (Latham.) Australia.
330. *Polytmus serrirostris*. (Vieillot.) Brazil.
331. *Polytmus albigollis*. (Vieillot.) Brazil.

* "Body, above and beneath, olive-colored, running into a dusky black on the head and breast; a yellowish-olive line runs from the base of the bill through the auriculars; wings dusky brown, the outer webs of the feathers yellowish, fourth, fifth, and sixth quills nearly equal, and double the length of the first, shafts black above, dusky beneath; tail rounded, consisting of twelve reddish-brown feathers, their outer webs yellowish, shafts white beneath, brown above; bill slightly curved, the edges very sharp, in some specimens the upper mandible is toothed, whilst in others it appears to be worn smooth; tongue divided into a corneous brush at the extremity; inside of the bill yellow, outside black; legs black; soles yellow; irides pale lead-color.

"Total length, thirteen and one-half inches; extent of wings, eighteen and one-eighth inches; wings, from the carpal joint, six and four-tenths inches; tail, five and one-half inches; outside feathers, four and three-fourths inches; tarsi, one and seven-eighths inches; middle toe, including the claw, one and four-tenths inches; claw, one-half of an inch; hind toe, one and one-tenth inches; claw, six-tenths of an inch; bill, one and one-half inches; to the corners of the mouth, one and fifteen-twentieths inches." Peale, Zool. U. S. Exp. Birds, p. 145.

332. *Polytmus glaucopsis*. (Gmelin.) Brazil.
333. *Polytmus Riefferi*. (Bourcier.) Chili.
334. *Polytmus brevirostris*. (Lesson.) Brazil.
335. *Polytmus mazeppa*. (Lesson.) Brazil.
336. *Polytmus chrysobronchus*. (Shaw.) Brazil.
337. *Polytmus dominicus*. (Linnaeus.) Brazil.
338. *Polytmus thaumatias*. (Linnaeus.) Brazil.
339. *Heliothrix auritus*. (Gmelin.) Brazil.
340. *Mellisuga Delalandii*. (Vieillot.) Brazil.
341. *Mellisuga galerita*. (Molina.) Chili.
342. *Mellisuga magnifica*. (Vieillot.) Brazil.
343. *Mellisuga amethystina*. (Gmelin.) Brazil.
344. *Mellisuga rubinea*. (Latham.) Brazil.
345. *Mellisuga moschita*. (Linnaeus.) Brazil.
346. *Hylocharis gigas*. (Vieillot.) Chili.
347. *Hylocharis cyanea*. (Vieillot.) Brazil.
348. *Hylocharis prasina*. (Lesson.) Brazil.
349. *Hylocharis albirostris*. (Vieillot.) Brazil.
350. *Hylocharis sapphirina*. (Gmelin.) Brazil.
351. *Topaza atra*. (De Wied.) Brazil.
352. *Phoebastria eurynoma*. (Lesson.) Brazil.
353. *Phoebastria Davidiana*. (Lesson.) Brazil.
354. *Phoebastria Longuemarea*. (Lesson.)
355. *Grypus naevius*. (Dumont.) Brazil.
356. *Hemignathus olivaceus*. (Lafresnaye.) Sandwich Islands.
357. *Hemignathus lucidus*. (Lichtenstein.) Sandwich Islands.
358. *Hemignathus? obscurus*. (Gmelin.) Sandwich Islands.
359. *Daenis cyanocephala*. (Linnaeus.) Brazil.
360. *Daenis spiza*. (Linnaeus.) Brazil.
361. *Daenis plumbea*. (Latham.) Brazil.
362. *Lochmias St. Hilarii*. (Lesson.) Brazil.
363. *Scytalopus squamiger*. (Lafresnaye.) Brazil.
364. *Troglodytes magellanicus*. Gould. Peru.
365. *Menura superba*. avis. Australia.
366. *Tatara otaitensis*. Lesson. Sandwich Islands.
367. *Cinclodes vulgaris*. (Lafresnaye.) Chili.
368. *Cinclodes patagonicus*. (Gmelin.) Tierra del Fuego.
369. *Cinclodes nigrofumosus*. (D'Orb. and Lafr.) Peru.
370. *Orthonyx spinicauda*. Temminck. Australia.
371. *Anabates leucophthalmus*. De Wied. Brazil.
372. *Dendrocolaptes platyrostris*. Spix. Peru.
373. *Synallaxis aegithaloides*. Kittlitz. Peru.
374. *Synallaxis spinicauda*. (Gmelin.) Chili.
375. *Hirundo rustica*. Linnaeus. At Sea.
376. *Hirundo Riocourti*. Audouin. At Sea.
377. *Hirundo fulva*. Vieillot. Peru.
Hirundo rufocollaris. Peale.

378. *Petrochelidon nigricans*. (Vieillot.) Australia.
 379. *Petrochelidon cyano-leuca*. (Vieillot.) Peru.
 380. *Cotyle flavigastra*. (Vieillot.) Brazil.
 381. *Collocalia cinerea*. (Gmelin.) Society Islands.
 Macropteryx leucophaeus. Peale.
 382. *Collocalia spodiopygia*. (Peale.) Samoan Islands.
 383. *Cypselus apus*. (Linnaeus.) Cape of Good Hope.
 384. *Acanthylis zonaris*. (Shaw.) Peru.
 385. *Caprimulgus albonotatus*. Tickell. (Obtained at Singapore.)
 Caprimulgus bimaculatus. Peale.*
 386. *Caprimulgus macrurus*. Horsfield. (Obtained at Singapore.)
 387. *Nyctibius aethereus*. (De Wied.) Brazil.
 388. *Batrachostomus javanensis*. (Horsfield.) (Obtained at Malacca.)
 389. *Podargus humeralis*. Vigors and Horsfield. Australia.
 390. *Nyctidromus americanus*. (Linnaeus.) Brazil.
 391. *Stenopsis longirostris*. (Bonaparte.) Chili.
 Caprimulgus conterminus. Peale.
 392. *Stenopsis parvulus*. (Gould.) Peru.
 Caprimulgus aequicauda. Peale.
 393. *Antrostomus Nuttallii*. (Audubon.) Oregon.
 394. *Chordeiles acutipennis*. (Boddaert.) Peru.
 Chordeiles peruvianus. Peale.
 395. *Alcedo bengalensis*. Gmelin. (Obtained at Malacca.)
 396. *Ceryle alcyon*. (Linnaeus.) Oregon.
 397. *Ceryle americana*. (Gmelin.) Brazil.
 398. *Corythornis cyanostigma*. (Rüppell.) South Africa.
 399. *Halcyon pileata*. (Boddaert.) (Obtained at Singapore.)
 400. *Halcyon erythrorhyncha*. Gould. Cape de Verde Islands.
 401. *Todiramphus vagans*. (Lesson.) New Zealand.

* "Crown and occiput cinereous gray, the feathers having a central black pointed mark down the middle; auriculars and chin rufous, crossed by fine lines of dark brown; a white line along the lower edge of the mouth; throat white, margined with black below; breast and belly tawny gray, finely spotted with dark brown; vent and under tail-coverts very pale tawny, crossed by small brown lines, which are widest separated on the under tail-coverts; back dark tawny gray; scapulars tawny gray, the outer feathers having an oblique black band, and those of the middle, black centres and broad outer margins of pale buff; wings mottled tawny gray, the upper coverts dark brown in the middle, and tipped with white, the under coverts tawny, with dark brown bars; quills black, running into brown towards the tips, the second longest, third nearly equal to it, fourth and first even, a white bar crosses them in the middle, excepting the outer web of the first, second and third deeply incised in the middle of the outer web; secondaries crossed by scattered rufous spots; tail rounded, dark brown, the middle feathers mottled with dark tawny gray, the outer ones slightly barred with rufous spots, two on each side are white one-third of their length from the tip; tarsi covered with tawny feathers barred with brown; toes dusky.

"Total length, eleven and six-tenths inches; wing, from the carpal joint, eight and three-tenths inches; tail, five and nine-tenths inches; tarsi, six-tenths of an inch; middle toe, including the nail, nine-tenths of an inch; nail, two-tenths of an inch; bill, three-tenths of an inch; to the angle of the mouth, one and one-tenth inches.

"Inhabits the Malay Peninsula; the specimen was obtained at Singapore." Peale, Zool. U. S. Exp. Exp. Birds, p. 170.

402. *Todiramphus tuta*. (Gmelin.) Samoan Islands.
Dacelo coronata. Peale.
 403. *Todiramphus vitiensis*. (Peale.) Feejee Islands.
 404. *Todiramphus recurvirostris*. (Lafresnaye.) Samoan Islands.
Dacelo minima. Peale.
 405. *Todiramphus sanctus*. Vig. and Horsf. Australia.
 406. *Todiramphus divinus*. Lesson. Society Islands.
Dacelo nullitorques. Peale.
 407. *Dacelo gigas*. (Boddaert.) Australia.
 408. *Galbula ruficauda*. Cuvier. Brazil.
 409. *Eurystomus orientalis*. (Linnaeus.) Philippine Islands.
 410. *Eurystomus pacificus*. (Latham.) Australia.
 411. *Merops philippinus*. Gmelin. Philippine Islands.
 412. *Merops Savigni*. Swainson. Cape of Good Hope.
 413. *Merops quinticolor*. Vieillot? (Obtained at Malacca.)
 414. *Trogon viridis*. Linnaeus. Brazil.
 415. *Trogon collaris*. Vieillot. Brazil.
 416. *Trogon curucui*. Linnaeus. Brazil.
 417. *Trogon purpuratus*. Swainson? Brazil.
 418. *Harpactes Temminckii*. (Gould.) (Obtained at Malacca.)
 419. *Harpactes rutilus*. (Vieillot.) (Obtained at Malacca.)
 420. *Harpactes ardens*. (Temminck.) Philippine Islands.
Harpactes rodiosternus. Peale.

V. ORDER SCANSORES.

421. *Conurus nobilis*. (Linnaeus.) Brazil.
 422. *Pionus cobaltinus*. Massena and Souance. Brazil.
 423. *Psittacula pileata*. (Scopoli.) Brazil.
 424. *Psittacula erythrocephala*. (Vieillot.) Brazil.
 425. *Psittacula passerina*. (Linnaeus.) Brazil.
 426. *Psittacula galgulus*. (Linnaeus.) (Obtained at Malacca.)
 427. *Psittacula malaccensis*. (Latham.) (Obtained at Malacca.)
 428. *Palaeornis longicauda*. (Boddaert.) (Obtained at Malacca.)
 429. *Coriphilus solitarius*. (Latham.) Feejee Islands.
 430. *Coriphilus cyaneus*. (Sparrman.) Society Islands.
 431. *Coriphilus australis*. (Gmelin.) Samoan Islands.
 432. *Aprosmictus scapulatus*. (Bechstein.) Australia.
 433. *Aprosmictus erythropterus*. (Latham.) Australia.
 434. *Aprosmictus tabuensis*. (Gmelin.) Feejee Islands.
Platyercus atrigularis. Peale.
 435. *Aprosmictus Anna*. (Bourj. St. Hil.) Feejee Islands.
 436. *Aprosmictus splendens*. (Peale.) Feejee Islands.
 437. *Aprosmictus personatus*. (G. R. Gray.) Feejee Islands.
 438. *Trichoglossus pusillus*. (Shaw.) Australia.

439. *Trichoglossus australis*. (Latham.) Australia.
 440. *Trichoglossus chlorilepidotus*. (Kuhl.) Australia.
 441. *Trichoglossus porphyrocephalus*. Diet. Australia.
 442. *Trichoglossus multicolor*. (Gmelin.) Australia.
 443. *Platycercus Barnardii*. (Latham.) Australia.
 444. *Platycercus Pennantii*. (Latham.) Australia.
 445. *Platycercus Adalaidae*. Gould. Australia.
 446. *Platycercus eximius*. (Shaw.) Australia.
 447. *Euphema pulchella*. (Shaw.) Australia.
 448. *Euphema chrysostoma*. (Kuhl.) Australia.
 449. *Melopsittacus undulatus*. (Shaw.) Australia.
 450. *Pezoporus formosus*. (Latham.) Australia.
 451. *Tanygnathus pileatus*. (Scopoli.) Sooloo Islands.
 452. *Enicognathus leptorhynchus*. (King.) Chili.
 453. *Aratinga vittata*. (Shaw.) Brazil.
 454. *Aratinga tiriacula*. (Boddaert.)
 455. *Cacatua galerita*. (Latham.) Australia.
 456. *Cacatua philippinarum*. (Gmelin.) Sooloo Islands.
 457. *Calyptrorhynchus funereus*. (Shaw.) Australia.
 458. *Calyptrorhynchus Leachii*. (Kuhl.) Australia.
 459. *Calyptrorhynchus Banksii*. (Latham.) Australia.
 460. *Nestor australis*. (Shaw.) New Zealand.
 461. *Picus Harrisii*. Audubon. Oregon.
 462. *Melanerpes torquatus*. (Wilson.) Oregon.
 463. *Melanerpes ruber*. (Gmelin.) Oregon.
 464. *Centurus flavifrons*. (Vieillot.) Brazil.
 465. *Dendrobates griseocephalus*. (Boddaert.) Cape of Good Hope.
 466. *Dendrobates passerinus*. (Linnaeus.) Brazil.
 467. *Meiglyptes Blythii*. Malherbe. (Obtained at Malacca.)
 468. *Meiglyptes tristis*. (Horsfield.) (Obtained at Malacca.)
 469. *Meiglyptes brunneus*. (Eyton.) (Obtained at Singapore.)
 Meiglyptes fuscus. Peale.*
 470. *Colaptes mexicanus*. (Swainson.) California.
 471. *Gecinus miniatus*. (Forster.) (Obtained at Malacca.)
 472. *Gecinus puniceus*. (Horsfield.) (Obtained at Malacca.)
 473. *Gecinus mentalis*. (Temminck.) (Obtained at Malacca.)
 474. *Celeus flavescens*. (Gmelin.) Brazil.

* "Yellowish-brown; back, wings, and tail crossed by irregular tawny bars; breast nearly black, crossed on the lower part by fine, tawny lines; throat crossed by numerous tawny lines; a tawny spot on each side of the breast; upper mandible blue-black; the lower mandible greenish near the base and lower angle; feet large, strong; the inner hind toe very small.

"Total length, eight and a half inches; wing, from the carpal joint, four and four-tenths inches; tail, two and seven-tenths inches; tarsi, eight-tenths of an inch; outer front toe, including the claw, nine-tenths of an inch; claw, nine-twentieths of an inch; versatile or outer hind toe, nine-tenths of an inch; claw, three-tenths of an inch; inner hind toe, seven-twentieths of an inch; nail, three-twentieths of an inch; bill, seventeen-twentieths of an inch; to the angle of the mouth, one and one-tenth inches.

"Inhabits the Malay peninsula. Our specimen was obtained at Singapore." Peale, Zool. Exp. Exp. Birds, p. 132.

475. *Chrysoptilus melanochloris*. (Gmelin.) Brazil.
 476. *Chloronerpes aurulentus*. (Lichtenstein.) Brazil.
 477. *Tiga Rafflesii*. (Vigors.) (Obtained at Malacca.)
 478. *Dryocopus erythrops*. (Cuvier.) Brazil.
 479. *Campephilus robustus*. (Lichtenstein.) Brazil.
 480. *Hemicercus concretus*. (Temminck.) (Obtained at Malacca.)
 481. *Picumnus Temminckii*. Lafresnaye. Brazil.
 482. *Megalorhynchus Hayii*. (Gray.) (Obtained at Malacca.)
 483. *Megalaima trimaculata*. (Gray.) (Obtained at Malacca.)
 484. *Megalaima chrysopogon*. (Temminck.) (Obtained at Malacca.)
 485. *Megalaima malaccensis*. (Hartlaub.) (Obtained at Malacca.)
 Bucco rubritorques. Peale.*
 486. *Megalaima versicolor*. (Raffles.) (Obtained at Malacca.)
 487. *Acanthisitta chloris*. (Spurman.) New Zealand.
 488. *Sitella chrysoptera*. (Latham.) Australia.
 489. *Climacteris scandens*. Temminck. Australia.
 490. *Cuculus cinerascens*. Vig. and Horsf. Australia.
 491. *Cuculus simus*. Peale. Feejee Islands.
 492. *Cuculus inornatus*. Vig. and Horsf. Australia.
 493. *Cuculus tenuirostris*. Lesson. Sooloo Islands.
 Cuculus fucatus. Peale.
 494. *Cuculus lugubris*. Horsfield. (Obtained at Malacca.)
 495. *Cuculus merulinus*. Scopoli. (Obtained at Malacca.)
 496. *Oxylophus coromandus*. (Linnaeus.) (Obtained at Malacca.)
 497. *Chalcites lucidus*. (Gmelin.) Australia.
 498. *Coccyzus minor*. (Gmelin.) Peru.
 499. *Eudynamys orientalis*. (Linnaeus.) Sooloo Islands.
 500. *Eudynamys Flindersii*. (Latham.) Australia.
 501. *Eudynamys tahitiensis*. (Gmelin.) Feejee Islands.
 Eudynamys cuneicauda. Peale.
 502. *Piaya cayana*. (Linnaeus.) Brazil.
 503. *Piaya erythrorhyncha*. (Cuvier.) (Obtained at Malacca.)
 504. *Rhinorhiza chlorophæus*. (Raffles.) (Obtained at Malacca.)
 Andaenus ruficaudus. Peale.†

* "Front and line each side of the crown golden-yellow; crown, throat, and under parts of the tail light blue; lores black; cheek, brows, breast, and belly light green; back, wings, and tail darker; a narrow collar or band of bright red crosses the back part of the neck; there is a spot of the same bright red on each side of the breast, at the lower edge of the blue; bill black; legs lead-color.

† "Total length, seven and eight-tenths inches; wing, from the carpal joint, four and seven-tenths inches; tail, two and three-twentieths inches; tarsi, nine-tenths of an inch; middle toe, including the claw, nine-tenths of an inch; claw, three-tenths of an inch; versatile or outer hind toe, three-fourths of an inch; claw, one-fourth of an inch; inner hind toe, four-tenths of an inch; claw, two-twentieths of an inch; bill, nine-tenths of an inch; to the corners of the mouth, one and one-fourth inches.

"Five specimens of this bird were obtained at Singapore. They do not vary in plumage." Peale, Zool. U. S. Exp. Birds, p. 133.

† "Head, neck, and breast, light cinereous gray; back, wings, and tail, light chestnut; vent, thighs, and under tail-coverts, paler; tail cuneate, composed of ten broad feathers, with black terminal bands

505. *Zanclus cornutus*. (Raffles.) (Obtained at Malacca.)
Phoenicophaeus nigripennis. Peale.*
 506. *Phoenicophaeus curvirostris*. (Shaw.) (Obtained at Malacca.)
 507. *Centropus phasianus*. (Latham.) Australia.
 508. *Centropus melanops*. Lesson. Philippine Islands.
Centropus nigrifrons. Peale.
 509. *Indicator maculatus*. G. R. Gray. South Africa.
 510. *Crotophaga sulcirostris*. Swainson. Brazil.
 511. *Scythrops novae-hollandiae*. Latham. Australia.
 512. *Ramphastos dicolorus*. Gmelin. Brazil.
 513. *Pteroglossus aracari*. (Linnaeus.) Brazil.
 514. *Pteroglossus Bailloni*. Wagler. Brazil.
 515. *Pteroglossus maculirostris*. Lichtenstein. Brazil.

III. ORDER RASORES.

516. *Gallus Bankiva*. Temminck. (Obtained at Malacca.)
 517. *Gallus Bankiva*, var. *tibeticus*. Cassin. Society Islands.
 518. *Gallophasis pyrrhonotus*. G. R. Gray. (Obtained at Malacca.)
 519. *Gallophasis purpureus*. Gray. (Obtained at Malacca.)
 520. *Polyplectron bicalcaratum*. (Latham.) (Obtained at Malacca.)
 521. *Argus giganteus*. Temminck. (Obtained at Malacca.)
 522. *Tetrao obscurus*. Say. Oregon.
 523. *Tetrao urophasianus*. Bonaparte. Oregon.
 524. *Bonasia umbellus*. (Linnaeus.) Oregon.
 525. *Francolinus afer*. (Latham.) South Africa.
 526. *Francolinus capensis*. (Gmelin.) South Africa.
 527. *Rollulus cristatus*. (Gmelin.) (Obtained at Malacca.)
 528. *Rollulus niger*. (Vigors.) (Obtained at Malacca.)

and white tips; wings rounded, sixth quill longest, all the quills tipped with sepia-brown; bill green; legs lead-color.

* "Total length, twelve and three-tenths inches; wing, from the carpal joint, four and seven-tenths inches; tail, six and eight-tenths inches; outer feathers, three and one-half inches; tarsi, nine-tenths of an inch; middle toe, including the claw, eight-tenths of an inch; claw, one-fourth of an inch; outer hind toe, seven-tenths of an inch; claw, two-tenths of an inch; inner hind toe, one-half of an inch; claw, two-tenths of an inch; bill, one inch; to the corner of the mouth, one and two-tenths inches." Peale, as above.

* "Head, neck, and breast, dark cinereous gray; back, wings, and tail, dark, metallic blue-green; vent dusky black; tail long, cuneate, and tipped with white; wings rounded, fourth, fifth, and sixth quills equal and longest; cheeks covered with red papillae, margined next the bill with short black bristles; eyelashes composed of strong black bristles; bill stouter, and not so long as that of *P. Sumatranus*; nostrils nearly round or pyriform, and opening downwards into the inflated base of the bill.

"Total length, fourteen inches; wing, from the carpal joint, five and four-tenths inches; tail, eight inches; the outer feathers, four and one-tenth inches; tarsi, one and one-fourth inches; middle toe, including the claw, one inch; claw, three-tenths of an inch; outer hind toe, nine-tenths of an inch; claw, two-tenths of an inch; inner hind toe, one-half of an inch; claw, two-tenths of an inch; bill, one and one-twentieth inches; to the corners of the mouth, one and one-fourth inches." Peale, as above.

520. *Odontophorus gulanensis*. (Gmelin.) Brazil.
 530. *Callipepla californica*. (Shaw.) California.
 531. *Callipepla picta*. (Douglas.) Oregon.
 532. *Coturnix communis*. Bonnaterra. Cape de Verde Islands.
 533. *Coturnix chinensis*. (Linnaeus.) (Obtained at Malacca.)
 534. *Coturnix australis*. (Latham.) Australia.
 535. *Coturnix pectoralis*. Gould. Australia.
 536. *Turnix pugnax*. (Temminck.) (Obtained at Malacca.)
 537. *Turnix varius*. (Latham.) Australia.
 538. *Eudromia elegans*. Patagonia.
 539. *Thinocorus ingae*. Tschudi. Peru.
 Glareola cuneicauda. Peale.
 540. *Telegallus lathamii*. (Gray.) Australia.
 541. *Columba fasciata*. Say. Oregon.
 542. *Columba araucana*. Lesson. Chili.
 543. *Columba vitiensis*. Quoy and Gaimard. Feejee Islands.
 544. *Columba castaneiceps*. Peale. Samoan Islands.
 545. *Carpophaga spadicea*. (Latham.) New Zealand.
 546. *Carpophaga magnifica*. (Temminck.) Australia.
 547. *Carpophaga pickeringii*. Cassin. Sooloo Islands.
 548. *Carpophaga aurorae*. Peale. Society Islands.
 549. *Carpophaga wilkesii*. Peale. Society Islands.
 550. *Carpophaga latrans*. Peale. Feejee Islands.
 551. *Carpophaga bicolor*. (Scopoli.) Sooloo Islands.
 Carpophaga casta. Peale.
 552. *Carpophaga microcera*. (Bonaparte.) Samoan Islands.
 553. *Lopholaimus antarcticus*. (Shaw.) Australia.
 554. *Phaps chalcoptera*. (Latham.) Australia.
 555. *Phaps picata*. (Latham.) Australia.
 556. *Peristera erythroptera*. (Gmelin.) Paumotu Islands.
 Peristera pectoralis. Peale.
 557. *Peristera geoffroyi*. (Temminck.) Brazil.
 558. *Geopelia humeralis*. (Temminck.) Australia.
 559. *Chalcophaps indica*. (Linnaeus.) (Obtained at Malacca.)
 560. *Chalcophaps chrysoclora*. (Wagler.) (Obtained at Malacca.)
 561. *Ectopistes carolinensis*. (Linnaeus.) Oregon.
 562. *Turtur chinensis*. (Scopoli.) (Obtained at Malacca.)
 563. *Chamaepelia amazilia*. Bonaparte. Peru.
 564. *Chamaepelia meridionalis*. (King.) Patagonia.
 565. *Calenas nicobarica*. (Shaw.) Sooloo Islands.
 566. *Treron vernans*. (Linnaeus.) (Obtained at Malacca.)
 567. *Treron capellei*. (Temminck.) (Obtained at Malacca.)
 568. *Treron olax*. (Temminck.) (Obtained at Malacca.)
 569. *Ptilinopus jambu*. (Gmelin.) (Obtained at Malacca.)
 570. *Ptilinopus swainsonii*. Gould. Australia.
 571. *Ptilinopus fasciatus*. Peale. Samoan Islands.
 572. *Ptilinopus perousei*. Peale. Feejee Islands.

573. *Ptilinopus coralensis*. Peale. Paumotu Islands.
 574. *Ptilinopus purpuratus*. (Gmelin.) Society Islands.
 Ptilinopus furcatus. Peale.
 Columba taitensis. Lessor.
 575. *Pleiodus strigirostris*. (Jardine.) Samoan Islands.
 Didunculus strigirostris. Peale.*

IV. ORDER GRALLATORES.

576. *Grus canadensis*. (Linnaeus.) Oregon.
 577. *Grus australasianus*. Gould. Australia.
 578. *Ardea Herodias*. Linnaeus. Oregon.
 579. *Ardea novae-hollandiae*. Latham. Australia.
 580. *Ardea jugularis*. Forster. Society and Friendly Islands.
 581. *Ardea Greyi*. Gould. Society and Friendly Islands.
 582. *Ardetta stagnalis*. (Gould.) Society Islands.
 Ardea patruellia. Peale.
 583. *Ardetta sinensis*. (Gmelin.) (Obtained at Malacca.)
 584. *Ardetta macrorhyncha*. Gould. Australia.
 585. *Egretta thula*. (Molina.) Peru.
 586. *Egretta immaculata*. (Gould.) Australia.
 587. *Nycticorax cyanocephalus*. (Molina.) Chili.
 588. *Nycticorax caledonicus*. (Gmelin.) Australia.
 589. *Mycteria americana*. Linnaeus. Brazil.
 590. *Platalea flaviceps*. Gould. Australia.
 591. *Platalea regia*. Gould. Australia.
 592. *Ibis Ordii*. Bonaparte. Oregon.
 593. *Ibis guarauna*. (Linnaeus.) Chili.
 Ibis brevirostris. Peale.
 594. *Geronticus spinicollis*. (Jameson.) Australia.
 595. *Threskiornis strictipennis*. (Gould.) Australia.
 596. *Rallus philippensis*. Linnaeus. (Obtained at Malacca.)
 597. *Rallus pectoralis*. Cuvier. Australia.
 598. *Rallus sanguinolentus*. Swainson. Tierra del Fuego.
 Rallus luridus. Peale.
 599. *Corethrura fusca*. (Linnaeus.) (Obtained at Malacca.)
 600. *Corethrura fuscata*. (Raffles.) (Obtained at Malacca.)

* Genus *Didunculus*. Peale, Zool. U. S. Exp. Birds, p. 208 (1st edition, 1848).

"Bill large, compressed, hooked, the culmen forming a segment of about one-third part of a circle; margins of the upper mandible waved, contracted in the middle, and very sharp; lower mandible large, closing outside of the upper, double notched, truncated at the extremity, the margins sharp; gonys prominent and rounded; nares lateral, oval, opening downwards, and surrounded by a naked cere; tongue fleshy, and having a rounded, corneous point; wings short, rounded; spurious wings large; tail short, nearly square; legs large, muscular, covered with a soft skin; toes protected by scales; nails strong, curved, the middle ones expanded to a sharp cutting edge inside." Peale, as above.

601. *Aramides cayennensis*. (Gmelin.) Brazil.
 602. *Zapornia umbrina*. Cassin. Feejee Islands.
 603. *Fulica alai*. Peale. Sandwich Islands.
 604. *Oedonemus gallarius*. (Latham.) Australia.
 605. *Esacus magnirostris*. (Temminck.) Philippine Islands.
 606. *Himantopus leucocephalus*. Gould. Australia.
 607. *Recurvirostra rubricollis*. Temminck. Australia.
 608. *Parra jacana*. Linnaeus. Brazil.
 609. *Numenius longirostris*. Wilson. Oregon.
 610. *Numenius hudsonicus*. Latham. Peru.
 611. *Numenius femoralis*. Peale. Paumotu Islands.
 612. *Limosa novae-zealandiae*. G. R. Gray. Samoan Islands.
 Limosa Foxii. Peale.
 613. *Gallinago paraguayae*. (Vieillot.) Brazil.
 614. *Gallinago magellanica*. (King.) Tierra del Fuego.
 615. *Gallinago stenura*. (Temminck.) (Obtained at Singapore.)
 Scolopax pectenicauda. Peale.
 616. *Scolopax sucklandica*. G. R. Gray. Auckland Islands.
 Scolopax Holmesii. Peale.
 617. *Scolopax meridionalis*. Peale. Tierra del Fuego.
 618. *Scolopax australis*. Latham. Australia.
 619. *Rhynchoea semicollaris*. (Vieillot.) Chili.
 620. *Gallinula phoenicurus*. (Pennant.) (Obtained at Malacca.)
 621. *Porphyrio melanotus*. Temminck. Australia.
 622. *Porphyrio indicus*. Horsfield. Samoan Islands.
 Porphyrio samoensis. Peale.
 623. *Porphyrio vitiensis*. Peale. Feejee Islands.
 624. *Charadrius longipes*. Temminck. (Obtained at Malacca.)
 625. *Charadrius xanthocheilus*. Wagler. Samoan Islands.
 626. *Charadrius fulvus*. Gmelin? Sandwich Islands.
 627. *Squatarola helvetica*. (Linnaeus.) California.
 628. *Hiaticula vocifera*. (Linnaeus.) Peru.
 629. *Hiaticula falklandica*. (Latham.) Patagonia.
 630. *Hiaticula fusca*. (Gould.) Tierra del Fuego.
 631. *Hiaticula melanops*. (Vieillot.) Australia.
 632. *Vanellus cayensis*. (Gmelin.) Chili.
 633. *Vanellus lobatus*. (Latham.) Australia.
 634. *Sarciophorus pectoralis*. (Gould.) Australia.
 Charadrius vanelloides. Peale.
 635. *Totanus glareola*. (Linnaeus.) (Obtained at Malacca.)
 636. *Totanus ocellatus*. Lesson. Feejee and Society Islands.
 Totanus polynesiensis. Peale.
 637. *Totanus brevipes*. Vieillot. Paumotu Islands.
 638. *Tringa australis*. Jard. and Selby. Australia.
 639. *Tringa parvirostris*. Peale. Paumotu Islands.
 640. *Schoeniclus australis*. (Latham.) Australia.
 641. *Streptopelia terps*. Linnaeus. Peru.

642. *Phalaropus hyperboreus*. (Linnaeus.) Oregon.
 643. *Haematopus palliatus*. Temminck. Peru.
 644. *Haematopus niger*. Cuvier. Tierra del Fuego.
 645. *Haematopus Bachmanii*. Audubon. Oregon.

V. ORDER NATATOIRES.

646. *Phoenicopterus ignipallius*. Geoff. and D'Orb. Chill.
 647. *Cygnus atratus*. (Latham.) Australia.
 648. *Anser albatrus*. Cassin. California.
 649. *Anser Gambelii*. Hartlaub. California.
 650. *Bernicla antarctica*. (Gmelin.) Tierra del Fuego.
 651. *Bernicla magellanica*. (Gmelin.) Tierra del Fuego.
 652. *Bernicla melanoptera*. (Eyton) Chili.
 653. *Bernicla inornata*. (King.) Tierra del Fuego.
 654. *Bernicla sandwichensis*. (Vigors.) Sandwich Islands.
 Anser Hauiaensis. Peale.*
 655. *Bernicla jubata*. (Latham.) Australia.
 656. *Nettion albigularis*. Gould. Australia.
 657. *Anas boschas*. Linnaeus. Oregon.
 658. *Anas superciliosa*. Gmelin. Australia.
 659. *Dafila bahamensis*. (Linnaeus.) (Locality unknown.)
 660. *Mareca americana*. (Gmelin.) Oregon.
 661. *Querquedula ipecutii*. (Vieillot.) Brazil.
 662. *Querquedula carolinensis*. (Gmelin.) Oregon.
 663. *Querquedula crecooides*. (King) Tierra del Fuego.
 664. *Querquedula chalcophaps*. (Kittlitz.) Tierra del Fuego.
 665. *Spatula rynchotis*. (Latham.) Australia.
 666. *Spatula clypeata*. (Linnaeus.) Oregon.
 667. *Dendrocygna arcuata*. (Cuvier.) (Obtained at Malacca.)
 668. *Dendrocygna viduata*. (Linnaeus.) Brazil.
 669. *Fuligula collaris*. (Donovan.) Oregon.
 670. *Oidemia perspicillata*. (Linnaeus.) Oregon.
 671. *Oidemia carbo*. (Pallas) Oregon.
 672. *Casarka tadornoides*. (Jard. and Selby.) Australia.

* "The general aspect is somewhat that of the Chinese goose, but it is not more than half its size; and its long legs give it more the appearance of some of the 'Bustard' or upland geese of Cape Horn.

"Bill small, black; throat, head, and back of the neck black; sides of the neck tawny; breast, belly, and flanks pale brown; the feathers being cinerous at the roots, and having a pale, shaded amber bar near the tip; vent and under tail-coverts white; back dark amber, the feathers edged with brown; rump nearly black; upper tail-coverts white; tail black; legs dusky; toes long, semi-palmate; the nails slender, the middle one sharp on the inner edge; irides brown.

"Total length, twenty-two and a half inches; bill, one and six-tenths inches; along the commissure, one and thirteen-twentieths inches; tarsi, two and eight-tenths inches; middle toe, three and one-tenth inches; nail, thirteen-twentieths of an inch; hind toe, nine-tenths of an inch." Peale, Zool. U. S. Exp. Exp. Birds, p. 249.

673. *Erismatura australis*. Eyton. Australia.
 674. *Micropterus cinereus*. (Gmelin.) Tierra del Fuego.
 675. *Mergus cucullatus*. Linnaeus. Oregon.
 676. *Podiceps californicus*. Heermann. Oregon.
 677. *Uria columba*. (Pallas.) Oregon.
 678. *Brachyramphus antiquus*. (Gmelin.) Oregon.
 679. *Fratercula cirrhata*. (Gmelin.) Oregon.
 680. *Ceratorhyncha monocerata*. (Pallas.) Oregon.
 681. *Aptenodytes pataconica*. Forster. Antarctic Ice.
 682. *Spheniscus magellanicus*. (Forster.) Tierra del Fuego.
 683. *Spheniscus demersus*. (Linnaeus.) Tierra del Fuego.
 Aptenodytes magnirostris. Peale.
 684. *Eudyptes antipoda*. (Homb. and Jacq.) Auckland Islands.
 Aptenodytes flavilavata. Peale.
 685. *Eudyptes Adeliae*. (Homb. and Jacq.) Antarctic Ice.
 Aptenodytes longicaudata. Peale.
 686. *Eudyptes papua*. (Forster.) Macquarie's Island.
 Aptenodytes taeniata. Peale.
 687. *Eudyptes minor*. (Forster.) New Zealand.
 688. *Pelecanus roseus*. Gmelin. (Obtained at Singapore.)
 689. *Pelecanus conspicillatus*. Temminck. Australia.
 690. *Pelecanus trachyrhynchus*. Latham. Oregon.
 691. *Pelecanus fuscus*. Linnaeus. Oregon.
 692. *Tachypetes aquila*. (Linnaeus.) Patagonia.
 693. *Tachypetes Palmerstonii*. (Gmelin.) Horden Island.
 694. *Carbo magellanicus*. (Gmelin.) Tierra del Fuego.
 695. *Carbo atriceps*. (King.) Tierra del Fuego.
 696. *Carbo leucogaster*. (Gould.) New Zealand.
 697. *Carbo brasiliensis*. (Gmelin.) Chili.
 698. *Carbo Gaimardii*. (Garnot.) Peru.
 699. *Carbo hypoleucus*. Brandt. New Zealand.
 Carbo fuscus. Peale.
 700. *Carbo sulcirostris*. Brandt. New Zealand.
 Carbo purpuragula. Peale.
 701. *Carbo brevirostris*. (Gould.) New Zealand.
 Carbo flavagula. Peale.
 702. *Plotus novae-hollandiae*. Australia.
 703. *Sula fusca*. Vieillot. Bellinghausen's Island.
 704. *Sula personata*. Gould. Paumotu Islands.
 705. *Sula piscator*. (Linnaeus.) Horden Island.
 Sula rubripes. Peale.
 706. *Sula fiber*. (Linnaeus.) Enderby's Island.
 707. *Lestris antarcticus*. Lesson. Tierra del Fuego.
 708. *Lestris*. Tierra del Fuego.
 709. *Larus dominicanus*. Lichtenstein. Chili.
 710. *Larus fuliginosus*. Gould. Peru.
 711. *Larus occidentalis*. Audubon. Oregon.

712. *Larus albipennis*. Peale. Chili.
 713. *Larus glaucotea*. Meyen. Chili.
 714. *Sterna pelecyanoides*. Vigors. Patagonia.
 715. *Sterna fuliginosa*. Gmelin. Paumotu Islands.
 716. *Sterna lunata*. Peale. Paumotu Islands.
 717. *Sterna gracilis*. Gould. Paumotu Islands.
 718. *Sterna poliocerca*. Gould. Feejee Islands.
 Sterna rectirostris. Peale.
 719. *Sterna frontalis*. G. R. Gray. New Zealand.
 Sterna albifrons. Peale.
 720. *Sterna meridionalis*. Cassin. Tierra del Fuego.
 Sterna antarctica. Peale.
 721. *Anous stolidus*. (Linnaeus.)
 722. *Anous leucocapillus*. Gould. Paumotu Islands.
 723. *Anous parvulus*. Gould. Paumotu Islands.
 Megalopterus plumbeus. Peale.
 724. *Inca mysticallis*. Jardine. Peru.
 725. *Gygis alba*. (Sparrman.) Paumotu Islands.
 726. *Phaeton aethereus*. Linnaeus. Paumotu Islands.
 727. *Phaeton rubricauda*. Boddaert. Samoan Islands.
 728. *Rhyncops nigra*. Linnaeus. Peru.
 729. *Diomedea exulans*. Linnaeus. Pacific Ocean.
 730. *Diomedea chlororhyncha*. Gmelin. Pacific Ocean.
 731. *Diomedea brachyura*. Temminck. California.
 732. *Diomedea fuliginosa*. Gmelin. Pacific Ocean.
 733. *Thalassidroma furcata*. (Gmelin.) Oregon.
 Thalassidroma plumbea. Peale.
 734. *Thalassidroma lineata*. Peale. Samoan Islands.
 735. *Thalassidroma Wilsonii*. Bonaparte. Atlantic Ocean.
 736. *Procellaria Cookii*. G. R. Gray. Antarctic Ice.
 Procellaria breviceps. Peale.
 737. *Procellaria nivea*. Gmelin. Antarctic Ice.
 Procellaria candida. Peale.*
 738. *Procellaria parvirostris*. Peale. Paumotu Islands.
 739. *Procellaria rostrata*. Peale. Society Islands.
 740. *Procellaria mollis*. Gould. Antarctic Ocean.
 Procellaria gularis. Peale.
 741. *Procellaria gigantea*. Gmelin. Cape Horn.

* "The whole plumage, including the shafts of the quills and feathers, pure white, covering a plumbeous down; tail slightly rounded, consisting of twelve feathers; the under coverts even with and sometimes exceeding the tail in length; bill black, compressed, point slender; the under mandible comparatively strong; irides brown; feet bluish flesh-color; nails strong, flattened, the inner ones very sharp on the inner edge; first quill longest.

"Total length, fourteen and one-tenth inches; extent of the wings, thirty inches; tail, four and three-tenths inches; bill, to the angle of the mouth, one and four-tenths inches; along the culmen, seven-tenths of an inch; tarsi, one and four-tenths of an inch; middle toe, including the nail, one and six-tenths inches; nail, four-tenths of an inch." Peale, Zool. U. S. Exp. Birds, p. 295.

- 742. *Procellaria capensis*. Linnaeus. Cape Horn.
- 743. *Procellaria glacialis*. Linnaeus. Oregon.
- 744. *Procellaria glacialis*. A. Smith. Atlantic Ocean.
- 745. *Procellaria antarctica*. Gmelin. Antarctic Ocean.
- 746. *Procellaria Lessonii*. Garnot. Tierra del Fuego.
- 747. *Puffinus major*. Faber. Tierra del Fuego.
- 748. *Puffinuria Garnotii*. Lesson. Peru.

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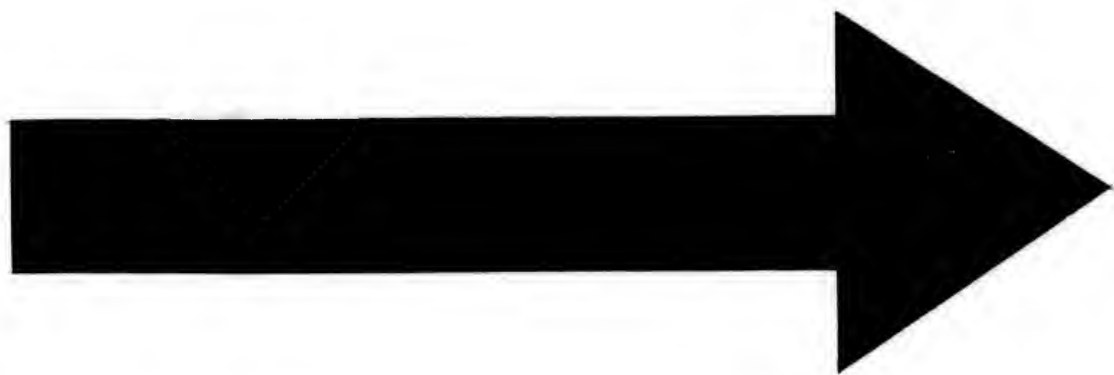
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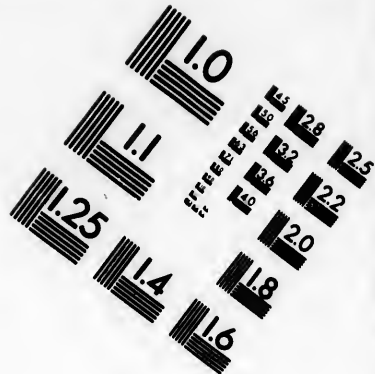
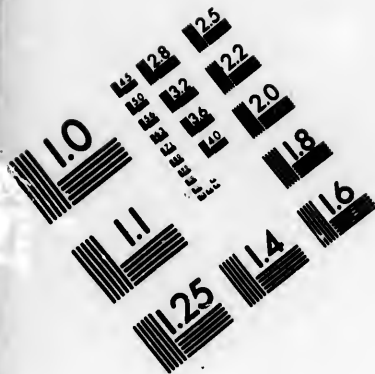
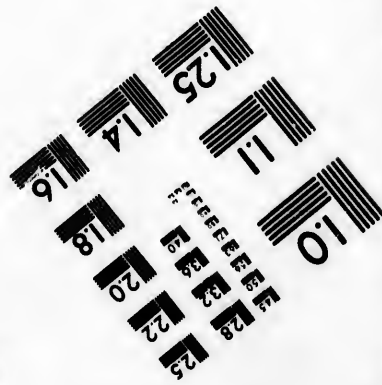
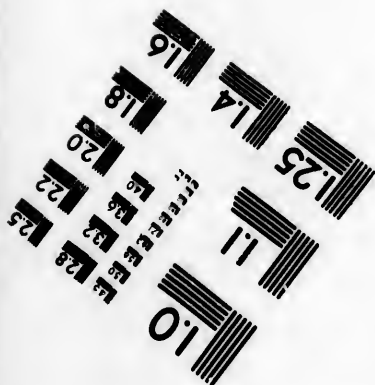
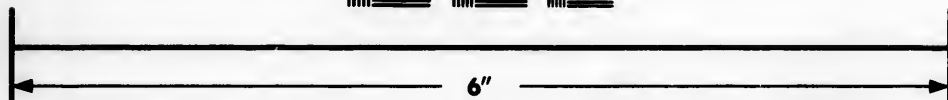
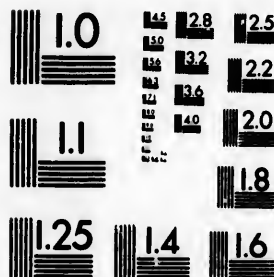


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