

12. **Setophaga picta**, *Swain*. PAINTED REDSTART.—♂ and ♀, Chiracahua Mountains, April 7, 1880.
13. **Pipilo aberti**, *Baird*. ABERT'S TOWHEE.—♂, Big Sandy Creek, Arizona, Feb. 7, 1880.
14. **Aphelocoma sordida arizonæ**, *Ridg.* ARIZONA JAY.—Three specimens, two ♂, one ♀, Chiracahua Mountains, taken April 6-7, 1880.
15. **Empidonax fulvifrons pallescens**, *Coues*. BUFF-BREASTED FLYCATCHER.—♂, Chiracahua Mountains, April, 12, 1880.
16. **Centurus uropygialis**, *Baird*. GILA WOODPECKER.—♂, Tucson, March 8, 1880.
17. **Colaptes chrysoides** (*Malh.*) *Baird*. MALHERBE'S FLICKER.—♂, Tucson, March 7, 1880.

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REMARKS ON THE PRESENT STATE OF THE  
SYSTEMA AVIUM.

BY P. L. SCLATER.\*

[Concluded from p. 37.]

4. COCCYGES.

THE remaining families of Nitzsch's Picariæ (*i.e.* the Coccoymorphæ of Huxley) stand associated together in our 'Nomenclator' under the name Cocyges, given to them by Sundevall in 1835 (*K. Vet.-Ac. Handl.* 1835, p. 69), and are divided according to the structure of their feet nearly after the plan suggested by Prof Huxley (*P. Z. S.* 1867, p. 466). I fear, however, that this is not likely to be a permanent arrangement. Although we may not at once go to the length of following Prof. Garrod in separating the whole class of Birds into "Homalognatæ" and "Anomalognatæ," there can, I think, be no question that some weight must, in future, be allowed to the presence or absence of the ambiens muscle, and that it must be allowed that the Cuculidæ and Musophagidæ, in possessing this character and in other respects, stand *per se* among the Picariæ of Nitzsch, and show much affinity with the Gallinæ. I believe therefore that it will

\* From the "Ibis," 4th Ser., Vol. IV, pp. 399-411, Oct., 1880.

be better for the future to restrict the term *Coccyges* to these two families. The question then is, what shall we do with the remaining groups of the order? The arrangement of them by the structure of the feet, according to Prof. Huxley's scheme, although very simple, is not quite natural. *Leptosoma*, for instance (as I believe I first showed in 1865\*), although the outer toe is more or less reversed, must certainly come near the Rollers (*Coraciidæ*); and *Colius* would now appear to be nearly related to the same group,† although its foot-structure is by no means similar. There seem in fact to be several different categories combined in the order *Coccyges* thus considered. First we have the *Lipoglossæ* of Nitzsch, consisting of the four families *Alcedinidæ*, *Bucerotidæ*, *Upupidæ*, and *Irrisoridæ*.‡ These all belong to the *Piciformes* of Garrod,§ and all the best authorities are pretty well agreed as to their consanguinity. Along with these must come the *Cuculinæ calopteræ* or *Todidæ* of Nitzsch, containing also four families, which, to my mind, are also closely related — namely the *Meropidæ*, *Coraciidæ*, *Momotidæ*, and *Todidæ*. The two last-named groups are united by Garrod into one family.|| They all four have twelve tail-feathers, a naked oil-gland, and *cæca*. But to these must be added, as aberrant appendages (which sadly mar the uniformity of the group), the *Leptosomidæ* and *Podargidæ* and, as it would appear from Prof. Garrod's researches, the *Coliidæ*. *Leptosoma*, as stated above, is clearly more allied to the Rollers than to any other form. *Podargus* cannot be left with the *Caprimulgidæ*, looking to the conformation of its palatal bones,¶ and comes in best here, whereas *Nyctibius* belongs truly to the *Caprimulgidæ*.†† After Garrod's exhaustive disquisition on *Steatornis*,§§ we can no longer complain that its structure is unknown; but it becomes still more difficult, owing to its numerous peculiarities, to arrange this most extraordinary bird in a satisfactory place in the series. It must certainly be either put in here or placed as a separate order next to the *Striges*. Perhaps the former plan is for the present the most convenient.

\* P. Z. S. 1865, p. 682. Mr. Sharpe, in making the *Leptosominæ* merely a subfamily of *Coraciidæ* (*Ibis*, 1871, p. 285), appears to have entirely overlooked the structure of the feet.

† Cf. Garrod, P. Z. S. 1876, p. 416.

‡ Pterylography, p. 102.

§ P. Z. S. 1874, p. 117.

|| See P. Z. S. 1870, p. 101.

¶ Huxley, P. Z. S. 1867, p. 445.

†† Huxley, *l. c.* p. 454.

§§ P. Z. S. 1873, p. 526.

With these additions the Anisodactylæ, as we have called them in our 'Nomenclator,' will consist of the following twelve families:—

- |                 |                      |
|-----------------|----------------------|
| 1. Coliidae.    | 7. Momotidae.        |
| 2. Alcedinidae. | 8. Todidae.          |
| 3. Bucerotidae. | 9. Coraciidae.       |
| 4. Upupidae.    | 10. Leptosomidae.    |
| 5. Irrisoridae. | 11. Podargidae.      |
| 6. Meropidae.   | 12. Steatornithidae. |

The Heterodactylæ, which follow next in the 'Nomenclator,' consist of the single family Trogonidae, the only form of the whole class of birds in which the fourth or outer digit is reversed instead of the second. The pterylosis of *Trogon* is also quite different from that of the other Zygodactylæ, being purely passerine, except as regards its long aftershaft.\*

The true Zygodactylæ in the 'Nomenclator' consist of four families besides the Cuckoos, namely the Galbulidae, Bucconidae, Rhamphastidae, and Capitonidae. To these must be added the Indicatoridae, which do not occur in the New World. *Indicator* has now been conclusively shown to have nothing to do with either the Cuckoos (as supposed by the older authors) or with the Woodpeckers (as believed by Blyth†), but must form a family of itself, allied to the Capitonidae.‡

Lastly, I would now propose to place together in one group, under the restricted title of "Coccyges," the two families Cuculidae and Musophagidae. I am not yet prepared to remove them to the neighborhood of the Gallinæ altogether, but (as above stated) am ready to allow that Prof. Garrod has shown good reasons for separating them from the rest of the Zygodactylæ.

Moreover, on the whole, I have come to the conclusion that, looking to the successful assaults that have been made on Prof. Huxley's views as to the nature of the palate in the Pici and in the Trochilidae, it will be a better arrangement to sink the Pici and Cypseli to the rank of suborders and to revive the term Picariæ for the whole of the three groups denominated in the

\* Nitzsch, Pterylogr. p. 93.

† J. A. S. B. xi. p. 167 (1842).

‡ Cf. Sclater, Ibis, 1870, p. 176. For the species of *Indicator* consult Sharpe in Rowley's Orn. Misc. i. p. 192, and P. Z. S. 1878, p. 793.

'Nomenclator' Pici, Cypseli, and Coccyges. The order Picariæ may then be divided into the following six suborders:—

	Families.		Families.
1. Pici . . . . .	2	4. Heterodactylæ . . . . .	1
2. Cypseli . . . . .	2	5. Zygodactylæ . . . . .	5
3. Anisodactylæ . . . . .	12	6. Coccyges . . . . .	2

The Picariæ thus considered embrace altogether about 1600 species of birds referable, as shown above, to twenty-four families.

### 5. PSITTACI.

The Parrots (*Psittaci*), annexed by Cuvier and his disciples to the Zygodactylæ, are now generally allowed to form one of the primary divisions of the Carinatae, as was first, I believe, suggested by Nitzsch in 1829.\* The affinities of this ancient group to other orders appear to be somewhat remote, but their most natural position seems to be between the Picariæ and the Accipitres. The best mode of subdividing this order has long been a matter of discussion, Dr. Finsch's mode of grouping, as well as those adopted by previous writers, being not very satisfactory. But a flood of light has been thrown upon this subject by Garrod's excellent memoir on the anatomy of the Psittacidae,† and I think we may safely base our arrangement upon the results of his observations. This, indeed, I have already done in the last edition of the 'List of Vertebrated Animals living in the Zoological Society's Gardens' (1879), where I have arranged the Psittaci upon the following plan, of which the details are taken from Garrod's investigations:—

- A. Left carotid normal.
  - A'. Orbital ring complete . . . . . 1. *Cacatuidæ*.
  - B'. Orbital ring incomplete.
    - A". Sternal keel aborted . . . . . 2. *Stringopidæ*.
    - B". Sternal keel developed . . . . . 3. *Palæornithidæ*.
- B. Left carotid superficial . . . . . 4. *Psittacidæ*.

All the New-World Parrots belong to the last family.

### 6. STRIGES.

That the Owls, with so many peculiarities in their organization,‡ should constitute an order separate from the Accipitres I think there is little doubt. There is no known intermediate form, un-

\* Obs. de Avium art. carotide communi.

† P. Z. S. 1874, p. 586.

‡ Cf. Nitzsch, Pterylogr. p. 67.

less it may be said that *Pandion* approximates rather to the Striges in the absence of the aftershaft. In a previous paper in this Journal\* I have given my reasons for dividing them into two families (Strigidæ and Asionidæ), which Prof. Newton† and Mr. Sharpe‡ likewise agree to.

#### 7. ACCIPITRES.

The Accipitres, which follow naturally next to the Striges, are primarily divisible, as shown by Prof. Huxley,§ into three families, which I have termed Falconidæ, Cathartidæ, and Serpentiariidæ. Garrod goes much further than Prof Huxley in distinguishing the two latter groups from the former.|| The Cathartidæ he holds to be much more nearly allied to the Storks than to the Falconidæ, and *Serpentarius* (sive *Gypoggeranus*) he places, along with *Cariama*, among the Bustards. These two forms come in therefore in quite different parts of his "Systema." I confess I am not quite able to go so far as this, though I freely allow that the Cathartidæ (as already pointed out by Nitzsch, Pterylogr. p. 50) are in many respects very different from the rest of the Accipitres, and that the resemblance of *Serpentarius* and *Cariama* is most remarkable. But on the latter point Burmeister,¶ no mean authority, has come to quite an opposite conclusion to Garrod. At any rate I see no justification for the course Mr. Sharpe has adopted (without stating any reasons) of placing *Cariama* among the Accipitres, still less for treating it as merely a genus of the subfamily Polyborinæ!

#### 8. STEGANOPODES.

Although it is very easy to point out the defects in the arrangement of the remaining orders of birds (the Gallinæ, Grallatores, and Natatores) adopted by Cuvier and his disciples, it is by no means easy to suggest a better one. Let us first consider some of the weak points of the ordinary system. In the first place it is evident that the "*digiti palmati*," by which the Natatores are ordinarily characterized,†† is a very slight and super-

\* Ibis, 1879, p. 351.

‡ Cat. Birds, ii. p. 289.

|| Ibid. 1874, p. 117.

¶ "Beiträge z. Naturgeschichte des Seriema," Abh. nat. Ges. z. Halle, i. p. 11.

†† Even by Sundevall, who says "Nullo alio caractere opus est!" (Tentamen, p. 134).

† Newton's Yarrell, i. p. 148.

§ P. Z. S. 1867, p. 462.

ficial character, and one of which no trace is to be found in the osteology. No one will now-a-days deny that the Gulls (*Gavia*), though their feet are webbed, are so intimately allied to the Waders (*Limicolæ*) that it is most unnatural to put the two groups far apart. Again, to divorce the Flamingoes from the Herons simply because of their webbed feet, seems by no means satisfactory. Nor is it easy to find any point of resemblance between the true Anseres and other Natatores, except the one single character of palmatedism. Under these impressions I have thought it better to follow Prof. Huxley's plan of associating together the three great groups of Grallatores and Natatores that resemble the Accipitres in the formation of the palate. It appears to me that the great "Gallino-gralline" series runs off much more smoothly when these excrescences are removed, and that at the same time the three Desmognathous groups, even leaving the palatal conformation out of consideration, show much affinity *inter se*.

Acting on these ideas I placed the Steganopodes, Herodiones, and Anseres in the 'Nomenclator' immediately after the Accipitres, putting the Steganopodes first, amongst which the Fregatidæ show some sort of (at least superficial) resemblance to the birds of prey. I divided them into the following five families, which may, I think, be readily diagnosed:—

- |                  |                      |
|------------------|----------------------|
| 1. Fregatidæ.    | 4. Phalacrocoracidæ. |
| 2. Phaethontidæ. | 5. Plotidæ.          |
| 3. Pelecanidæ.   |                      |

#### 9. HERODIONES.

The Herodiones (Pelargomorphæ of Huxley) come very naturally, I think, between the Pelicans and the Ducks. In the 'Nomenclator' they are divided into four families—Ardeidæ, Ciconiidæ, Plataleidæ, and Phœnicopteridæ. I have, however, lately come to the conclusion that the last-named group should not be included in the Herodiones, although, as Nitzsch has told us, the pterylosis is completely Stork-like, and occupies a middle place between *Ciconia* and *Tantalus*. Prof. Huxley says "the genus *Phœnicopterus* is so completely intermixed between the Anserine birds on the one side and the Storks and Herons on the other, that it can be ranged with neither of these groups, but must stand as a division by itself." In this opinion I am not

quite disposed to agree, and propose to use Nitzsch's appropriate term "Odontoglossæ" to designate the order.

The family Plataleidæ, I may here remark, should include the Spoonbills and Ibises, as Nitzsch, who first constituted the group under the title Hemiglottides,\* has shown. It is a common but very obvious error, well exposed by Garrod,† to unite the Ibises with *Tantalus*. But *Tantalus* is a true Stork, and has nothing to do with *Ibis*. The Plataleidæ differ from all the other Herodiones in being "shizorhinal,"‡ in which respect they deviate towards the Limicolæ. But their pterylosis is that of the Storks, "even to the smallest details."§

#### 10. ANSERES.

The Anseres, if considered as limited to the single family Anatidæ, constitute a rather isolated group which can be very easily defined. Following Parker|| and Huxley¶ in the 'Nomenclator' I associated the Palamedeidæ with the Anseres. But after the recent investigation of Prof Garrod\*\* it would seem impossible to deny that the peculiarities of this group are such as to necessitate their recognition as a separate order, which I propose to call Palamedeæ. Nitzsch has long ago shown that the pterylosis of *Palamedea* is abnormal in showing scarcely any appearances of spaces between the feather-tracts (Pterylogr. pp. 16, 121); but in the Anatidæ, also, the spaces are very narrow.

The best position for the Palamedeæ appears to me to be just before the Anseres, which I commence with the genus *Anseranus*.††

#### 11. COLUMBÆ.

We now enter upon the great Schizognathous series of Prof. Huxley, which, I think it must be allowed, runs on much more smoothly after the removal of the five preceding groups. The Columbæ are Passerine in many respects (especially as regards the state in which the young are excluded from the egg, which

\* Pterylography, p. 133 (Engl. tr.).

† Garrod, P. Z. S. 1873, p. 37.

|| P. Z. S. 1863, p. 511.

\*\* P. Z. S. 1876, p. 189.

† P. Z. S. 1875, p. 301.

§ Nitzsch, Pterylogr. p. 133.

¶ P. Z. S. 1867, p. 460.

†† See P. Z. S. 1880, p. 497.

has caused Sundevall to place them at the end of his division Psilopædes\*), and, no doubt, belong to a new line of departure from the Passeres towards the Gallinæ. It is very hard to have to mar the symmetry of the Columbine group by adding to it the Pteroclidæ. Yet there can be no doubt that in most respects the Sand-Grouse are more truly Pigeons than Grouse, and that the only way to escape from the dilemma is to recognize the Pterocletes as a separate order, as Prof. Huxley has proposed to do, intermediate between the Columbæ and Gallinæ.

As regards the divisions of the Columbæ into families I have recognized two in the last edition of the 'List of Animals'—Carpophagidæ and Columbidæ. To these should have been added a third (Gouridæ) for the Crown Pigeons, in which the tarsi have a very peculiar conformation, and perhaps a fourth (Didunculidæ) for *Didunculus*.

The Dodos must be held to belong to quite a separate section of the order.

#### 12. GALLINÆ, and 13. OPISTHOCOMI.

As regards the true Gallinæ, which we now come to, we cannot do better than adhere to Prof. Huxley's excellent division of them into Peristoropodes and Alectoropodes. In the former section I have recognized two families, Cracidæ and Megapodiidæ; in the latter two also, Tetraonidæ and Phasianidæ. Whether the Meleagrina and Numidina should stand as subfamilies of the Tetraonidæ (as arranged in the 'List of Animals' for 1879), or as separate families, is, I think, not quite certain. The Turnicidæ, there treated as only a family of the Gallinæ, as also *Opisthocomus*, must, I think, after Prof. Huxley's elaborate discussion of the subject, † be definitely constituted as separate orders, Hemipodii and Opisthocomi—the former leading off towards the Crypturi, the latter most nearly allied to the Cracidæ, and also showing manifest signs of alliance with the Cocyges among the Picariæ.

#### 14. GERANOMORPHÆ.

In the 'Nomenclator' I have placed the Rails next after the Gallinæ, to which they show manifest symptoms of relationship,

\* Tentamen p. 97.

† P. Z. S. 1868, p. 311.

† P. Z. S. 1868, p. 254.



under Prof. Huxley's title Geranomorphæ,\* and divided them into two suborders, for which I have used Nitzsch's names Fulicariæ and Alektorides. In the last edition of the 'List of Animals' (1879) I have added the Bustards and Cranes and considered these suborders as orders, which is perhaps the most natural plan, although *Aramus* is certainly intermediate between the two groups. After Prof. Garrod's investigations, however,† we must, I think, allow that *Aramus* is essentially more nearly allied to the Gruidæ.

The families of these two orders will therefore accordingly stand somewhat as follows:—

FULICARIÆ.	ALECTORIDES.
Rallidæ.	Aramidæ.
Heliornithidæ.	Eurypygidæ.
	Gruidæ.
	—
	Psophiidæ.
	Cariamidæ.
	Otidæ.

By placing the Otidæ last we obtain a more gentle transition to the Limicolæ through *Ædicnemus*.

#### 15. LIMICOLÆ.

The Limicolæ or Scolopaciinæ of Nitzsch (Charadriomorpha of Huxley) form a very natural group with but small pterylographic differences. They also exhibit a characteristic form of skeleton and a well-marked type of schizognathous palate. In the 'Nomenclator' I have assigned the following families to this order:—

1. <i>Ædicnemidæ</i> .	4. <i>Chionididæ</i> .
2. <i>Parridæ</i> .	5. <i>Thinocoridæ</i> .
3. <i>Charadriidæ</i> .	6. <i>Scolopacidæ</i> .

Prof Garrod‡ would exclude *Ædicnemus* (as being holorrhinal) entirely from this order, and associate it with the Bustards (*Otis*). But if we give in to this principle we should have to place the Plataleidæ among the Limicolæ, which I cannot agree to.

\* P. Z. S. 1867, p. 457.

† P. Z. S. 1876, p. 275.

‡ P. Z. S. 1873, p. 37.

## 16. GAVIÆ.

In the 'Nomenclator' I have made the Gaviæ to include the Petrels (Procellariidæ) as well as the Gulls (Laridæ). But I now think it better to restrict the term Gaviæ to the latter group, the Longipennes of Nitzsch, which, not only as regards their osteology, but also in respect of their pterylosis, come very near to the Limicolæ.\*

The Gaviæ will therefore consist of the single family Laridæ, while the Procellariidæ will constitute the order "Tubinares" (Nitzsch). The propriety of this separation is confirmed by what Prof. Garrod has stated (P. Z. S. 1879, p. 37) as to the form of the nasal bone in these two groups.

## 17. PYGOPODES, and 18. IMPENNES.

The Pygopodes of Illiger combine the two families Colymbidæ and Alcidiæ, which are also closely allied pterylographically. They seem to form a natural transition between the Gaviæ and the Impennes. Nitzsch (Pterylogr. p. 151) has associated them with the latter group; but the Penguins are very distinct not only in their osteology, but also in their pterylosis, as admitted by Nitzsch himself, and have full claims to constitute an order *per se*.

## 19. CRYPTURI.

Under this term (of Illiger) I have placed in the 'Nomenclator' the Tinamidæ, which, as Mr. Parker has shown (Trans. Zool. Soc. v. p. 149), have a completely struthious palate, and in other respects come at the bottom of the series, and are nearest of all Carinate birds to the Ratitæ. In so doing I make, of course, no claim to originality, but have simply followed Prof. Huxley, who first located the Tinamous in their position under the title "Dromæognathæ."†

## 20. APTERYGES, and 21. STRUTHIONES.

In the table given in the 'Nomenclator' (p. iv) I have recognized only two orders of Ratite birds—Apteryges and Struthiones. But there is no doubt, I think, that the Casuaries have full claim

\* Cf. Nitzsch, Pterylogr. p. 141; and Huxley, P. Z. S. 1867, p. 458.

† P. Z. S. 1867, p. 125.

to ordinal rank, and should likewise stand as an independent order. Their very peculiar pterylosis, apart from their marked osteological differences from *Struthio* and *Rhea*, would alone entitle them to this distinction. I would therefore propose to designate them *Casuarii*, the simple Latin plural being, in my opinion, a better term for the group than any name which would be a fresh burden on the memory.

Amending the "*Systema*" according to the suggestions above made, we shall find it come out in two subclasses and twenty-six orders, somewhat as in the following table, where I have added to the name of each order about the number of species known to belong to it, basing my calculations mainly on the figures given in the second volume of Mr. Wallace's '*Geographical Distribution*.'

*Orders of existing Birds.*

Subclass *CARINATÆ* (10,121 species).

I. Passeres . . . . .	5700	XIII. Gallinæ . . . . .	320
II. Picariæ . . . . .	1600	XIV. Opisthocomi . . . . .	1
III. Psittaci . . . . .	400	XV. Hemipodii . . . . .	24
IV. Striges . . . . .	180	XVI. Fulicariæ . . . . .	150
V. Accipitres . . . . .	330	XVII. Alectorides . . . . .	60
VI. Steganopodes . . . . .	60	XVIII. Limicolæ . . . . .	250
VII. Herodiones . . . . .	130	XIX. Gaviæ . . . . .	130
VIII. Odontoglossæ . . . . .	8	XX. Tubinares . . . . .	100
IX. Palamedeæ . . . . .	3	XXI. Pygopodes . . . . .	65
X. Anseres . . . . .	180	XXII. Impennes . . . . .	20
XI. Columbæ . . . . .	355	XXIII. Crypturi . . . . .	40
XII. Pterocletes . . . . .	15		

Subclass *RATITÆ* (18 Species).

XXIV. Apteryges . . . . .	4
XXV. Casuarii . . . . .	10
XXVI. Struthiones . . . . .	4

In concluding these somewhat desultory remarks I must beg my fellow workers not to suppose that I claim any originality for the system above given. It having been a necessity for me to employ *some* system in certain pieces of work (such as the '*Nomenclator*' and the various catalogues of animals in the Zoological Society's Gardens), I have endeavored to frame one that is free from certain objections which are patent in the systems usually

followed. It will be seen at once, by those who care to examine the references above given, that I have borrowed freely from the labours of Nitzsch, Huxley, Sundevall, Parker, and Garrod—authors who have lately shed a flood of light upon one of the most difficult zoological problems of the day, the best arrangement of the class of birds. My system is, in fact, that of Prof. Huxley's reversed, *i. e.* beginning at the top instead of the bottom, with slight alterations and emendations extracted from the works of the other authors above mentioned.

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DESCRIPTION OF A NEW SPECIES OF THE  
FAMILY *PROCELLARIIDÆ.*

BY CHARLES B. CORY.

**Puffinus borealis.** Above brownish-ash, the feathers of the back becoming pale at the tips, those on the nape and sides of the neck narrowly tipped with white; on the sides of the neck and head the ash and white gradually mingling as in *P. kuhlii*. Tips of the upper tail coverts, white. Under eyelid, white, showing clearly in contrast with the ashy gray of the head. The first three primaries are light ash on the inner webs. Wings and tail brownish-gray. Under parts, white, slightly touched with ash on the flanks, lining of wings white. Under tail coverts white, the longest tinged with ash near the ends, which extend nearly to the tips of the longest tail feathers. Outside of foot greenish-black, inside and webs dull orange, bill pale yellowish at the base shading into greenish-black but again becoming pale near the tip.

Length, 20.50 inches; wing, 14.50; bill (straight line to tip), 2.25; depth at base, .75; tail, 6.50; tarsus, 2.20.

The type specimen of this Shearwater was killed near Chatham Island, Cape Cod, Mass., on the 11th of October last. Being unacquainted with it I showed it to some fishermen and requested them to procure any birds they might meet with resembling it. During the afternoon one of the boats returned bringing a number of birds of this species. The men stated that they had met with a flock a short distance from shore and had shot several and knocked others down with their oars. According to their statement, after firing the first shot, the birds flew about them in a dazed manner often passing within a few feet of the boat.