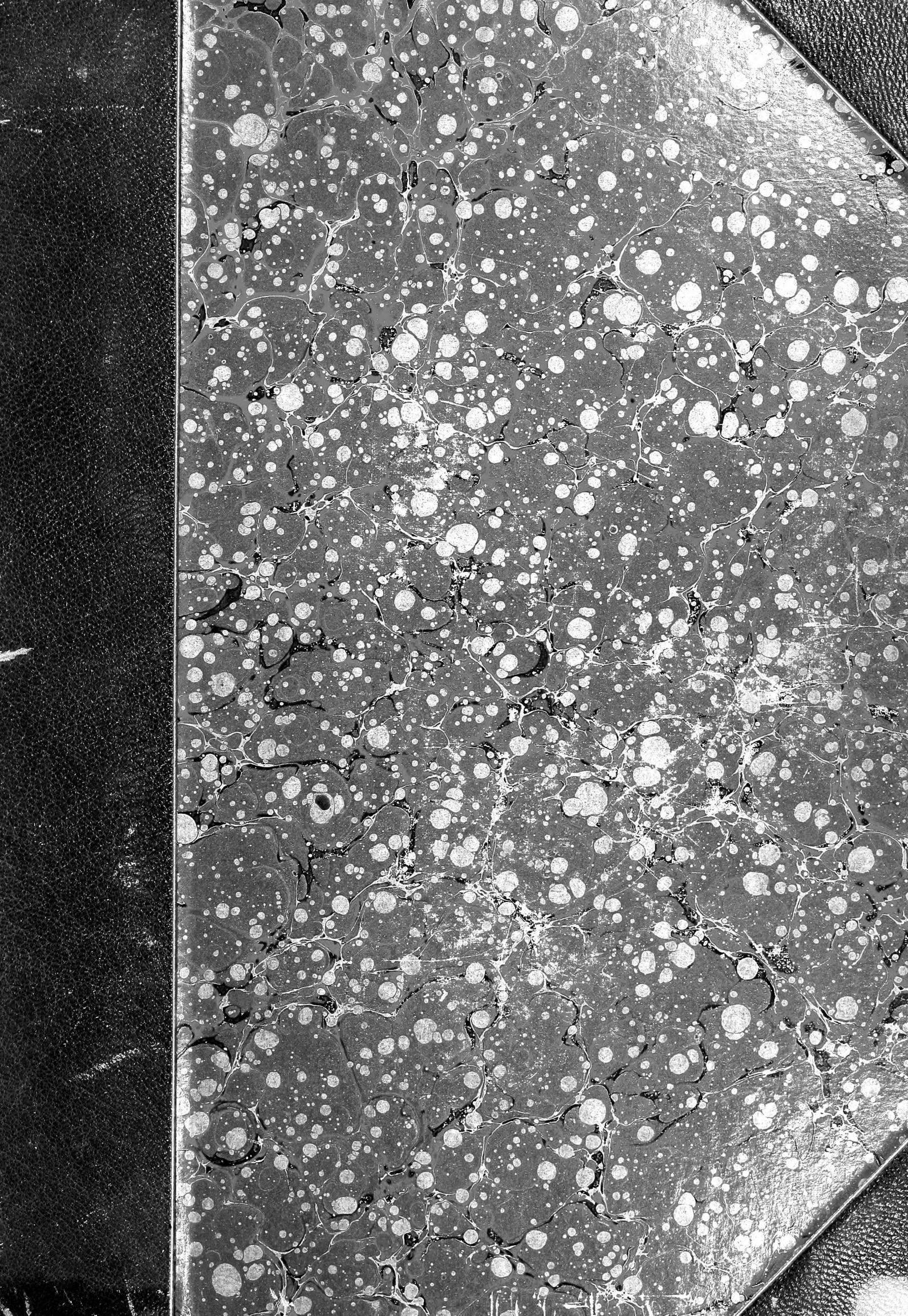

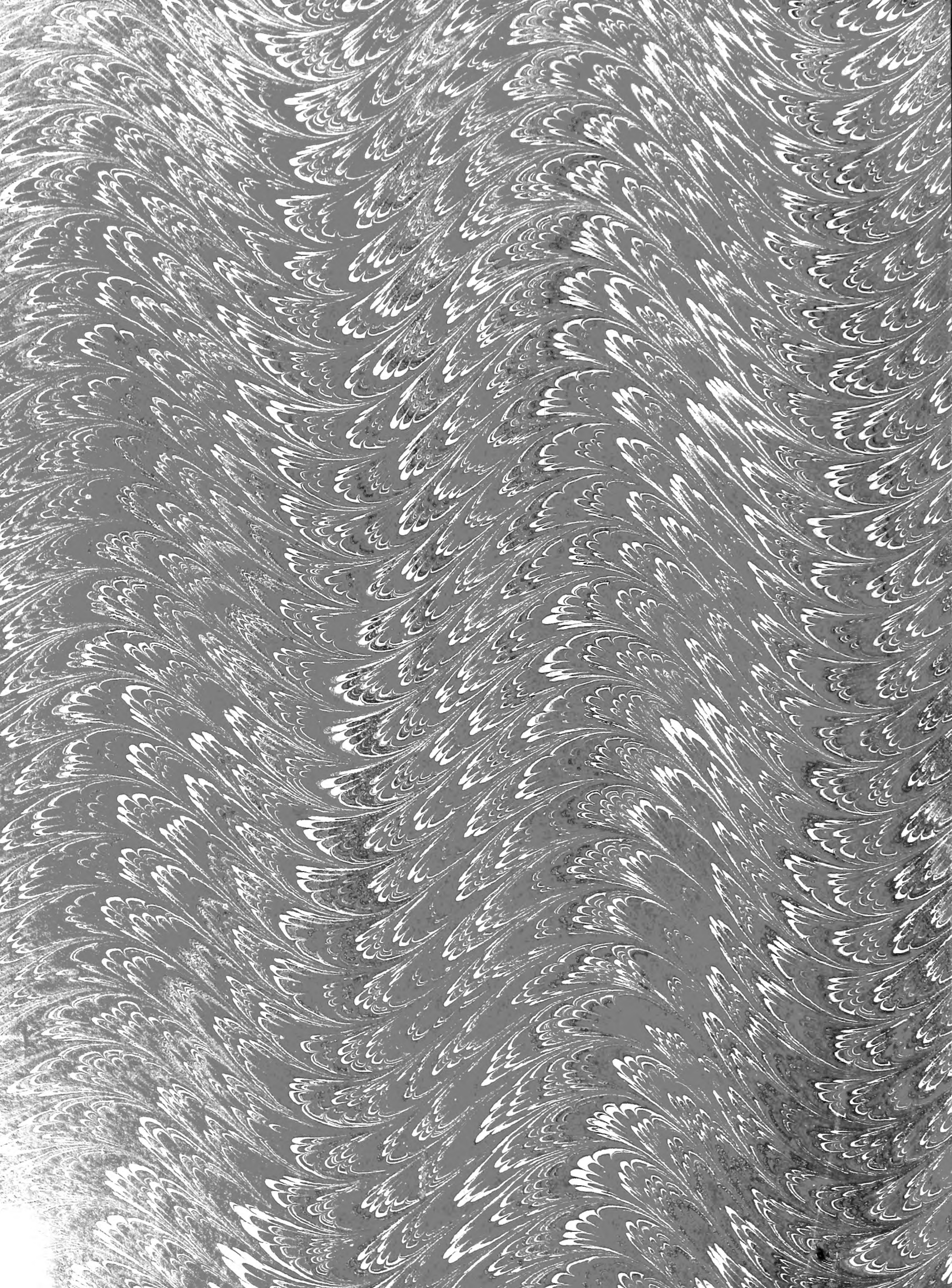

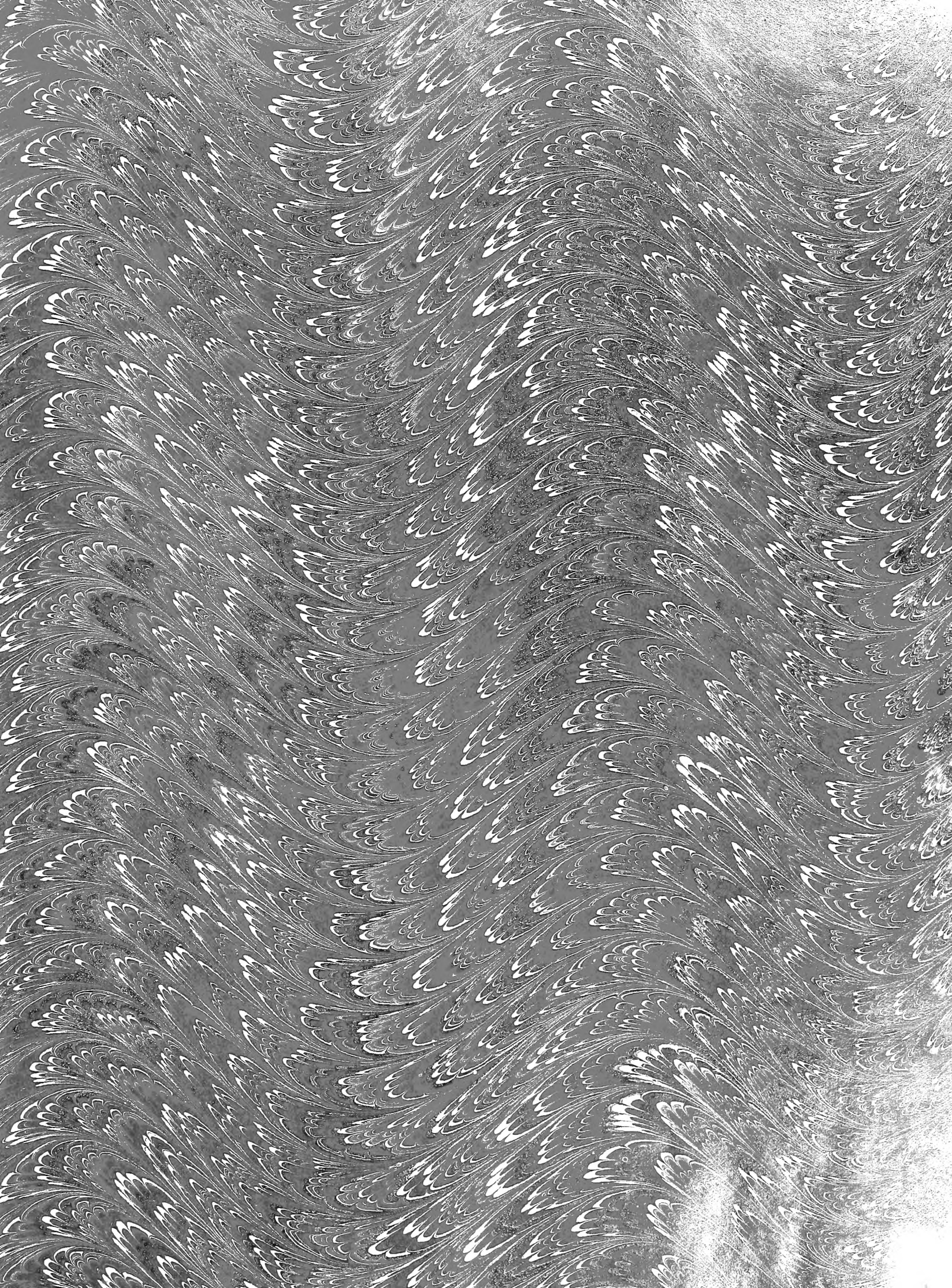

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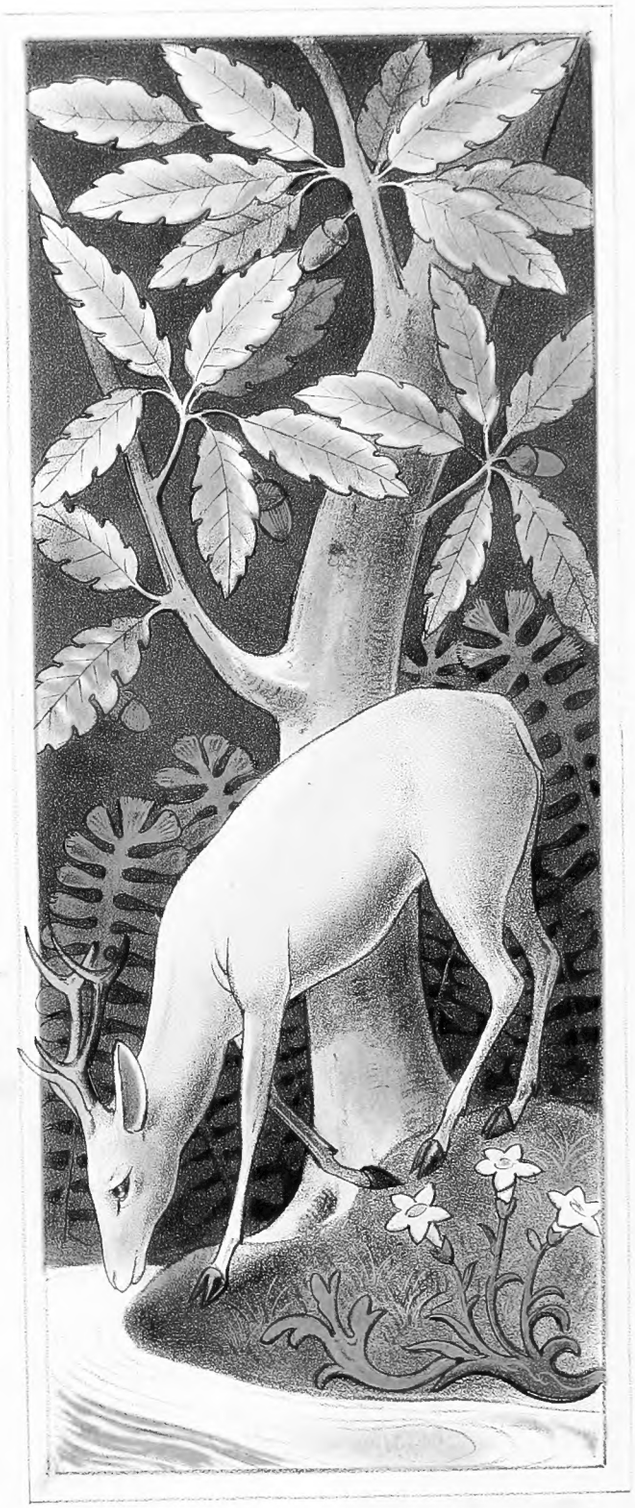
VOLUME III.



ORNITHOLOGICAL MISCELLANY.

EDITED BY

GEORGE DAWSON ROWLEY, M.A., F.L.S., F.Z.S.,

MEMBER OF THE BRITISH ORNITHOLOGISTS' UNION.

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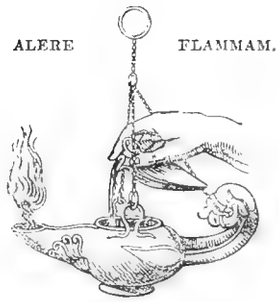

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NAMES OF THE CONTRIBUTORS,

WITH THE TITLES OF, AND REFERENCES TO, THE SEVERAL ARTICLES OF EACH.

VOLUME III.

LIST OF ILLUSTRATIONS.

VOLUME III.

ERRATA IN VOL. III.

Page 62 :—

For "*Ptilopus rivolii*, Prov.," read "*Ptilopus rivolii*, Prév."

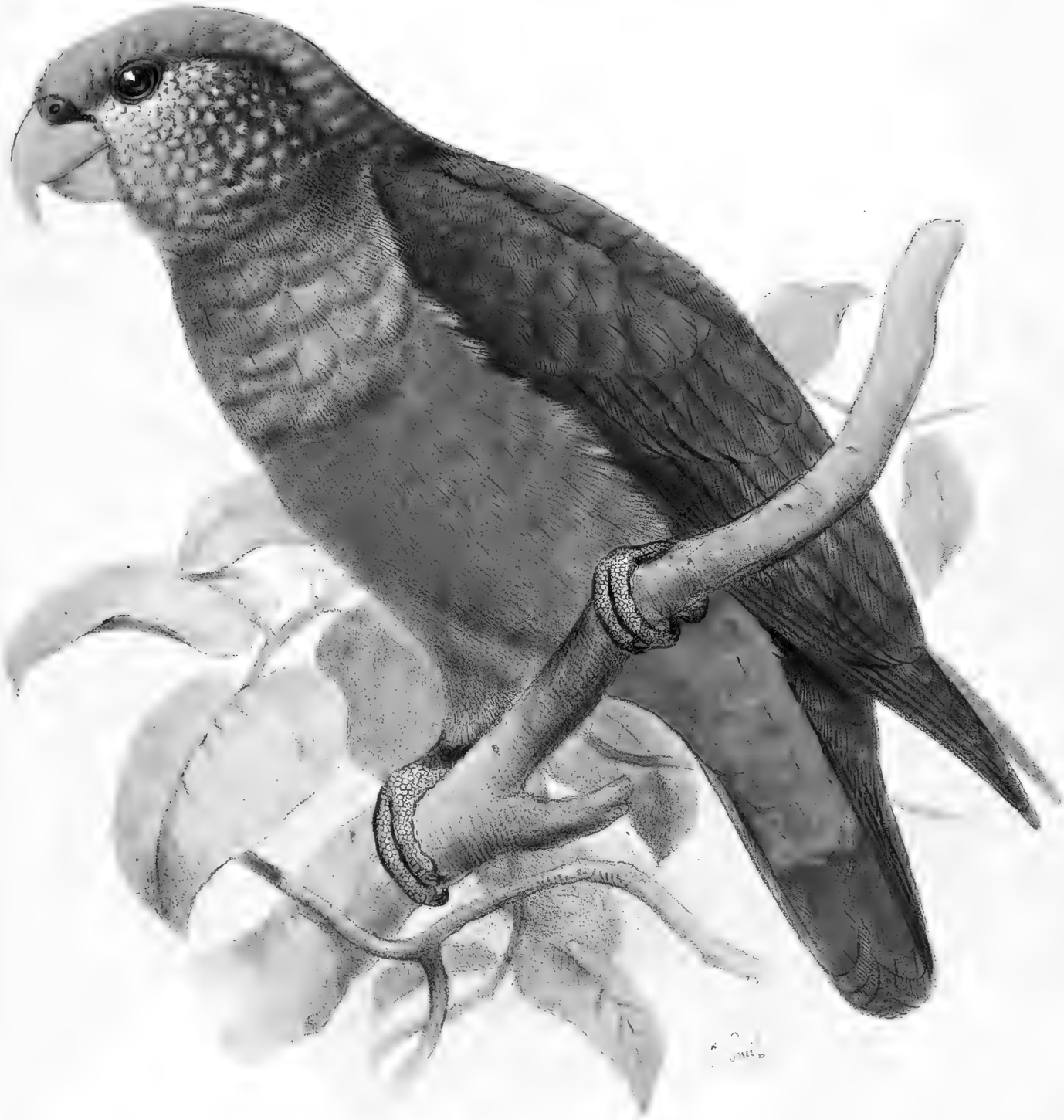
Page 76 :—

For "July 5th, 1877," *read* "May 1876."

PART XI.

"The cormorant on high
Wheels from the deep, and screams along the land.
Loud shrieks the soaring hern; and with wild wing
The circling sea-fowl cleave the flaky clouds."

THOMSON'S *Seasons* (*Winter*).



Hanhart imp

PIONUS TUMULTUOSUS

ON THE AMERICAN PARROTS OF THE GENUS PIONUS.

By P. L. SCLATER, M.A., Ph.D., F.R.S.

(Plates LXXX. & LXXXI.)

In spite of what certain Indian criticizers may say, Dr. Finsch's 'Papageien' is, in my opinion, one of the best bits of ornithological work of the present day; and although it will no doubt be eventually superseded by a new monograph, it will ever remain as the leading authority upon the subject up to the time of its publication. Having constantly used Dr. Finsch's work for the determination of the Parrots in the Zoological Society's Gardens during the past ten years, I am able to bear good testimony as to its merits; and I may add a wish that we had many other ornithological monographs of the same solid character.

But our knowledge of the American avifauna has been much increased recently; and as regards the Parrots of the genus *Pionus* I am able to make certain additions to what is given by Dr. Finsch in his work, from sources that were not accessible to him ten years ago.

In the first place, I consider that the genus *Pionus* (founded by Wagler

in 1832) should be restricted to the American species for the reception of which it was originally instituted—*i. e. Psittacus menstruus* of Linnæus and its allies, which form the second division of Dr. Finsch's genus *Pionias* (Papag. ii. p. 373). From these, however, I would moreover exclude *Ps. accipitrinus* as a peculiar form which should remain isolated under Wagler's title, *Deroptyus*.

There remain, then, according to Dr. Finsch's views, eight species in this section. But, as I shall presently show, Dr. Finsch has in one case united two very distinct species under the same title. The true number of species of *Pionus* at present known to science is therefore, according to my views, nine.

Dividing these into two groups according to the colour of the primaries, as proposed by Dr. Finsch, we may separate the nine species, by their most obvious external characters, as follows:—

a. Remigibus viridibus.
- *a'.* pileo cæruleo . . . . . 1. *menstruus.*
  - 2. *maximiliani.*
- *b'.* pileo viridi . . . . . 3. *sordidus.*
  - 4. *corallinus.*
- *c'.* pileo albo . . . . . 5. *seniloides* *.
- *d'.* pileo rubro . . . . . 6. *tumultuosus.*

b. Remigibus cæruleis.
- *e'.* pileo dorso discolori, albo . . . . . † 7. *senilis.*
- *f'.* pileo dorso concolori, fusco . . . . . 8. *violaceus.*
- *g'.* pileo dorso concolori, purpureo . . . . 9. *chalcopterus.*

The range of these species in the Neotropical Region may be conveniently shown as follows:—

* *Pionias gerontodes,* Finsch, Papag. ii. p. 455, the name *seniloides* being rejected as a *vox hybrida.*

	1. Mexico, Guatemala, and Costa Rica.	2. Veragua.	3. Columbia.	4. Ecuador.	5. Peru.	6. Bolivia.	7. S.E. Brazil.	8. La Plata.	9. Amazonia.	10. Guiana.	11. Venezuela.	12. Trinidad.
1. *P. menstruus*	*	*	*	*	*	*	*	*	*	*	*	*
2. *P. maximiliani*	...	...	...	...	...	*	*	*	*	*		
3. *P. sordidus*	...	...	...	...	...	...	...	...	...	...	*	
4. *P. corallinus*	...	...	...	*								
5. *P. seniloides*	...	...	*	*								
6. *P. tumultuosus*	...	...	...	...	*	*						
7. †*P. senilis*	*											
8. *P. violaceus*	...	...	...	...	...	...	...	...	*	*		
9. *P. chalcopterus*	...	...	*									

In the preceding lists it will be seen that I have followed Dr. Finsch's arrangement very closely, except in giving an additional species, *P. corallinus*. I will now say a few words on this subject, and as regards *P. tumultuosus*, of which Dr. Finsch was unable to examine specimens.

First, as regards *P. corallinus*, as I have already had occasion to remark, I cannot but consider this species perfectly distinct from *P. sordidus* of Venezuela. So far as I can tell from what Dr. Finsch says, it would appear that, at the time when he wrote his description of *Pionus sordidus* (Papag. ii. p. 452), he had never met with examples of the Venezuelan bird. His descriptions and notes seem to apply entirely to *P. corallinus*.

The true *P. sordidus*, of which I have a skin from Venezuela, collected by Mr. Goering in 1868 †, is immediately distinguishable from *P. corallinus* by the whole back, nape, and wing-coverts being of a sordid yellowish olive-colour with the edgings of the feathers lighter, instead of a uniform green as in *P. corallinus*. The abdomen is nearly of the same colour, only rather

† See Proc. Zool. Soc. 1868, p. 169.

lighter, and there is less blue on the neck than in *P. corallinus*. Again, the basal part of the upper mandible in *P. sordidus* is black, passing into yellowish towards the cutting-edges, only the tip of it and the lower mandible being red; in *P. corallinus* the whole of the bill is of a bright coral-red, which renders Prince Buonaparte's name for the species very appropriate.

Besides my skin of *P. sordidus*, I have examined another similar specimen from Venezuela in Mr. Spence's collection; and in 1873 there were two living examples of the same bird in the Zoological Society's Parrot-House*. I am therefore pretty confident that I am correct in discriminating this species from *P. corallinus*.

Of this last-named bird (through Mr. Rowley's kindness) I am now enabled to give a good figure, of the size of life, taken from a specimen in my collection obtained at Babahoyo, in Ecuador, by Fraser.

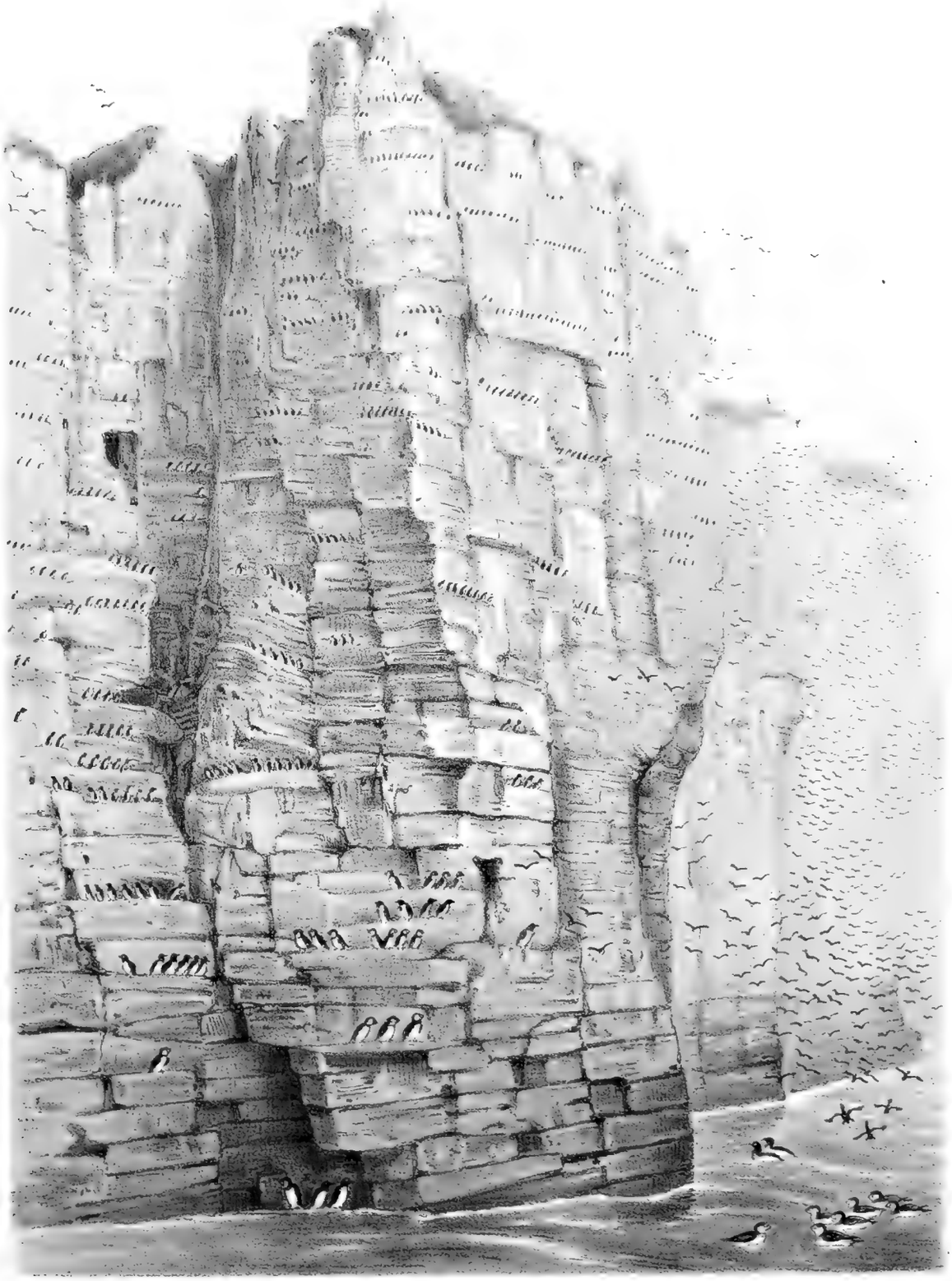
The true *P. sordidus* is sufficiently accurately figured by Edwards ('Birds,' iv. tab. 167).

As a companion figure to *P. corallinus* I am enabled to give, by our Editor's courtesy, a representation of another imperfectly known species of this group of Parrots. *P. tumultuosus*, originally described by Tschudi, in his 'Fauna Peruana,' from examples obtained in the wood-region of Peru, was referred by Bonaparte and G. R. Gray to *Chrysotis*. After an examination of the typical specimen in the Museum of Neufchâtel, I was enabled to assure Dr. Finsch that this determination was incorrect, and that Tschudi's bird was undoubtedly a species of *Pionus*. It was accordingly so arranged by Dr. Finsch, who had never himself met with an example of it.

* See List of Animals in the Gardens of the Zoological Society of London (6th edition), p. 259.

Nor, so far as I am aware, have any specimens been more recently obtained until Mr. Buckley's expedition into Bolivia in 1875, when, along with many other new and interesting birds *, several new examples of this species were procured. From one of these, now in my collection, the accompanying figure has been prepared by Mr. Smit. A glance at it will be sufficient to show how distinct *P. tumultuosus* is from every other known species of the genus. It belongs to the green-winged section of the group, and may be most conveniently placed next to *P. seniloides*; but it is immediately distinguishable from this and every other known species of the genus by its rosy-red head. This colour pervades also the sides of the face and throat, but is there varied by purplish margins to many of the feathers. As regards size there is apparently little difference between the two species.

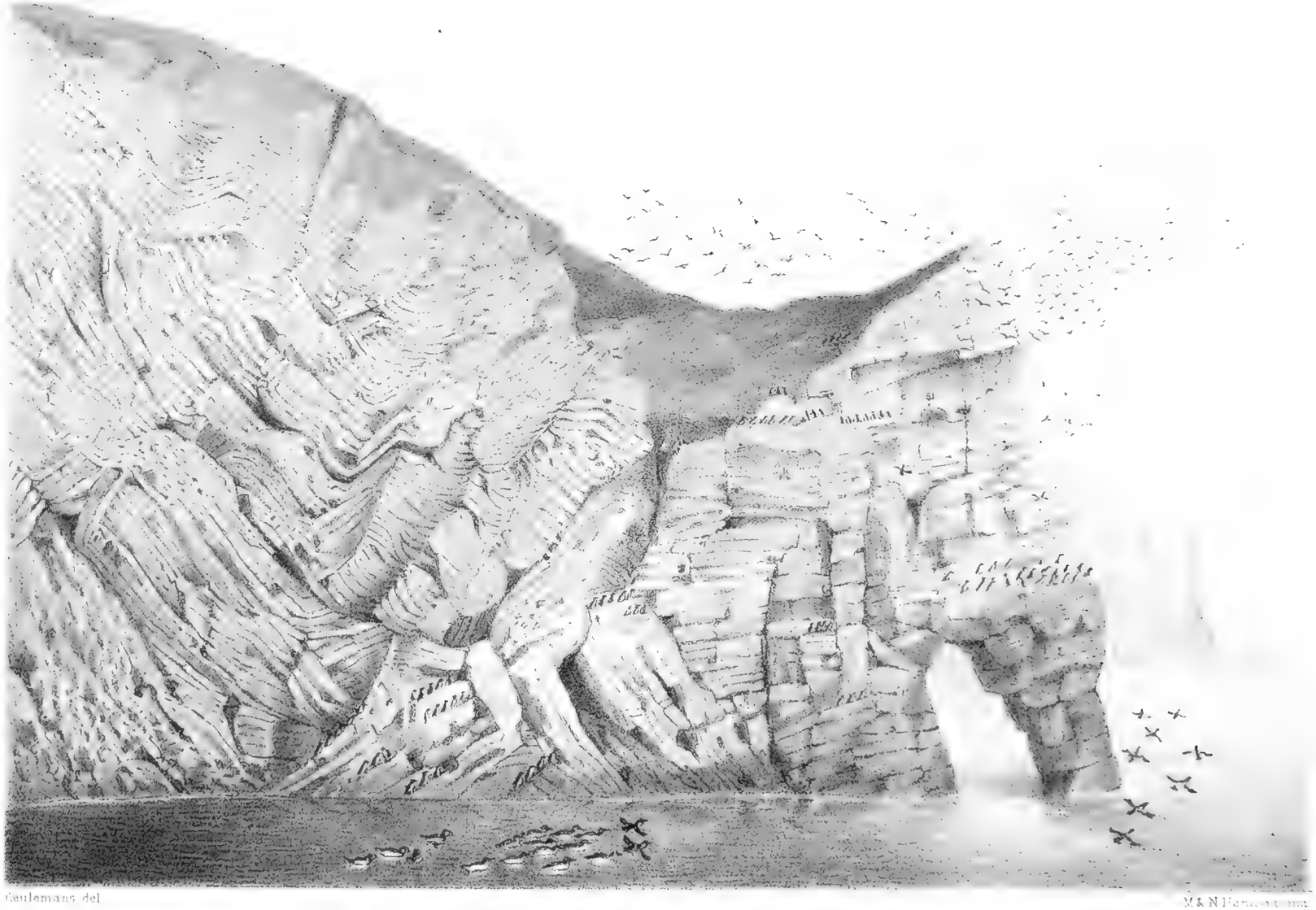
* *Cf.* Sclater & Salvin, Proc. Zool. Soc. 1876, pp. 253 et 352.



J. G. Keulemans del.

M & N Hanhart imp.

RAMCLIFF END.
FLAMBOROUGH
LOW TIDE 6–12 a.m. JUNE 5. 1877



Keulemans del.

GUILLEMOTS.

M & N Hanhart imp.

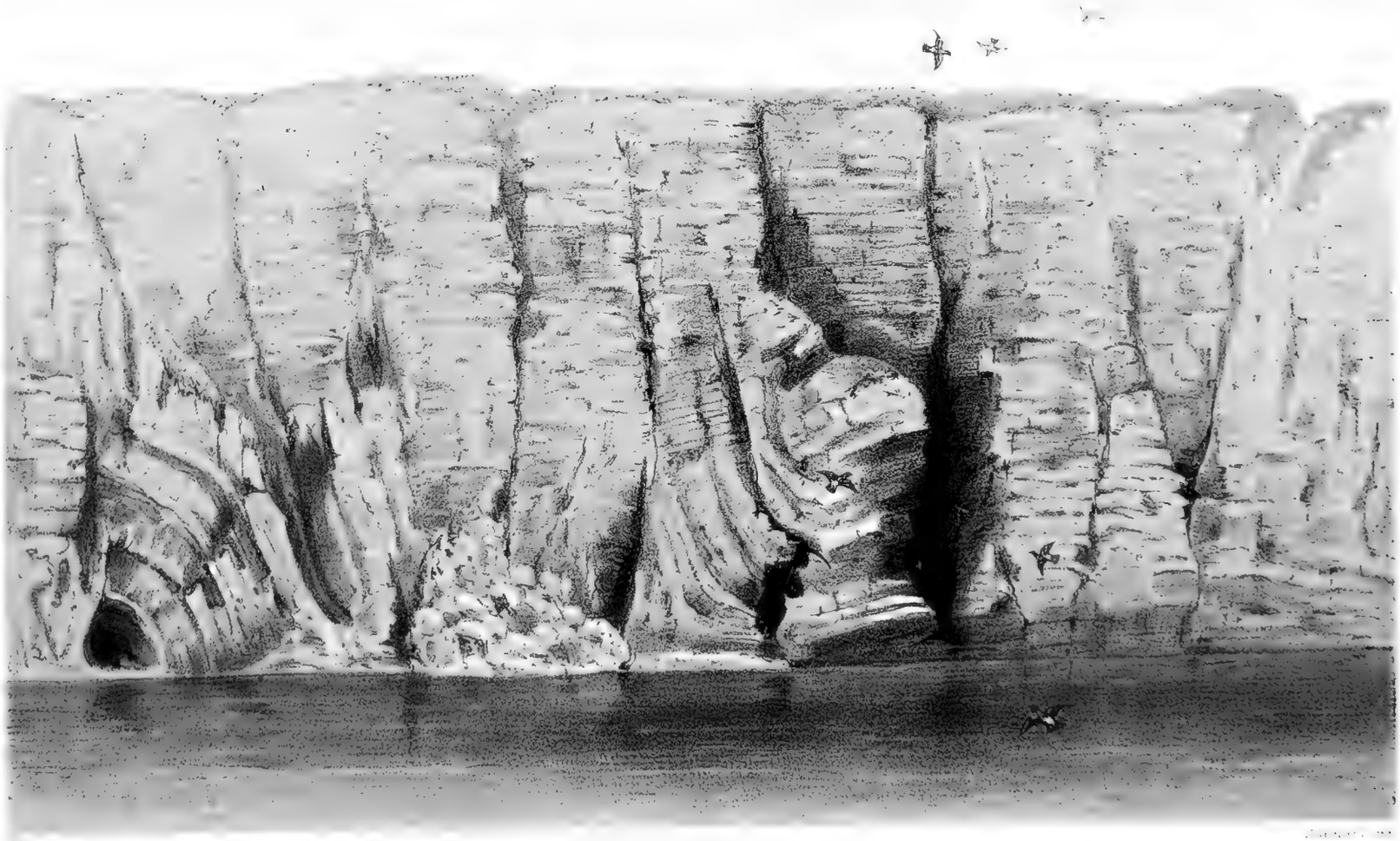
RAZOR BILLS
RAMCLIFF END, IN THE DISTANCE

FLAMBOROUGH
JUNE 5TH 1877 10 to 12 a.m.

6 to 8.30 p.m. JUNE 4th 1877.

FLAMBOROUGH WEST [illegible]

LOW TIDE



J. Greenhalgh del.

CAVERN. LANDSLIP. 200 TO 250 ft. HIGH. ROCK PIGEON'S CAVE COLUMBA LIVIA. DYKE END

FLAMBOROUGH.

ON FLAMBOROUGH HEAD.

By Mr. G. D. ROWLEY.

(Plates LXXXII.–LXXXV.)

"They told how sea-fowl's pinions fail,
As over Whitby's towers they sail,
And, sinking down with flutterings faint,
They do their homage to the Saint."
Marmion.

Flamborough Head is perhaps one of the most enjoyable places in England to the ornithologist, now that it is no longer a scene of slaughter. To this spot Mr. Keulemans went from London at my request; and I here set the results before the reader.

The lithographs are from faithful sketches taken by him, June 5th and 6th, 1877, for this work.

Yorkshire has always been famous for its birds and the interest taken in them by its inhabitants; for even the "fair ladies" of York formerly wore the blown eggs of Hedge-Sparrows as earrings. This we read in Ray's 'Willughby' (Preface), A.D. 1678. It may be believed that diamonds were scarce in those days.

But these northern belles were surpassed in their love of birds by the

Vicar of Morwenstow, the Rev. Robert Stephen Hawker, of whom it is related by Mr. S. Baring-Gould that, in order "to obtain Rooks, he went into his chancel, and, kneeling before the altar, besought God to give him a rookery where he wanted."

One is curious to know if he did get it—when, reading on, we find that "the colony of Rooks subsists to this day."

Perhaps one would hardly go the length of the vicar; but then, having always lived under a rookery, the writer is hardly able to judge of the intensity of the desire for such a thing.

The vicar, however, is quite beaten by those Christians in Persia who turned Mahometans for the sole purpose of being allowed to keep Pigeons, which as Christians they were not permitted to do. This is quoted by Mr. Harting ('Ornithology of Shakespeare,' p. 182) from Tavernier, 1677.

In Allen's 'History of the County of York' (vol. ii. p. 312) we find:—

"The cliffs at Flamborough are of tremendous grandeur, and from a hundred to a hundred and fifty yards in perpendicular height. They are composed of a mouldering limestone rock, of a snowy whiteness, and periodically covered with an astonishing number of birds, remarkable for the variety and brilliancy of their plumage."

At the foot of the cliffs are certain caverns:—the principal is Robin Lyth's Hole, thought to have been named after a smuggler or pirate; Dovecot, the breeding-place of Rock-Pigeons; Kirk-hole, said to extend from the shore under the church (but this is doubtful); &c.

Of the spires of rock, the most remarkable are "the Matron" and the "King and Queen."

According to Murray, the birds choose the north side of the cliff to

breed on by preference, because it is that best sheltered from the sun's rays. The eggs are never nearer the ground than one hundred feet.

The northern portion of the east coast of England is associated with numerous legends of more or less poetic beauty, relating to birds as well as other things; and the ocean has always been closely allied to sacred and profane song. Thus Longfellow also, in 'The Secret of the Sea,' speaks of

> "Telling how the Count Arnaldos,
> With his hawk upon his hand,
> Saw a fair and stately galley
> Steering onward to the land;—
>
> "How he heard the ancient helmsman
> Chant a song so wild and clear,
> That the sailing sea-bird slowly
> Poised upon the mast to hear."

It is not, however, necessary to enter into these well-known tales, such as that of St. Cuthbert and his Duck, &c.

Perhaps the Guillemot (*Uria troile*) is one of the most characteristic birds of Flamborough. The mode by which the young bird, unable to fly, arrives safely at the sea, used to attract the attention of visitors, Waterton among others. It seems to be done in two ways—by the old bird taking its offspring on its back, and also between its mandibles.

In the 'Zoologist,' 2nd ser., 1875, p. 4342, Mr. F. Boyes, Beverley, describes this circumstance, which he saw at Flamborough. The Guillemot "did this almost perpendicularly, and with very quick beating of its wings. My attention was attracted to it by the squeaking, or rather whistling, of the

young one, as if it were much afraid. . . . I could not see the chick; but as soon as the old bird reached the water it dived, leaving the little one on the surface. . . . Now, as the old bird and its burthen reached the water within twenty yards of the boat, I had a good opportunity of seeing what took place."

Mr. John Cordeaux has a series of remarks on Flamborough and its birds, with Guillemots among them (*cf.* 'Zoologist,' 1867, 2nd ser. vol. ii. p. 1008 *et seq.*; continued, 1868, vol. iii. p. 1025; and again, 1871, vol. vi. p. 2822).

In 'Birds of the Humber District,' p. 185, Mr. Cordeaux says of the common Guillemot ("Flamborough Scout"):—

"During the nesting-season it flies daily immense distances to and from its feeding-grounds, Flamborough birds going as far south as the Norfolk and Suffolk coasts, and northward to the Durham coast halfway between the Tees and Tyne, where they are joined by the Farn-Island birds."

In 'Land and Water,' July 21, 1877, p. 49, we have the following:—

"*Departure of Guillemots.*

"The fishermen tell me the Guillemots are already leaving this coast by hundreds; they are coming off with their young, and going to sea; they generally take a southerly direction. It is wonderful to see them bring down their young from the cliffs so great a distance. Now, when the tides have been great—that is, high spring tides—the sea approaches higher up the cliffs. You will then see them come down by wholesale. Those already off will not pay the cliffs a visit any more this season.

"MATTHEW BAILEY (Flamborough Head)."

Mr. Henry Stevenson and Mr. J. H. Gurney, jun., have an interesting

joint article ('Zoologist,' 2nd ser. vol. vii. 1872)—"Ornithological Notes from Norfolk;" and the latter writer says (p. 3227):—

"*Guillemot* (Sept. 1872).—In the beginning of the month some young were seen off Cromer by a fisherman. It appears that some of the young *Alcadæ* wander down here from Flamborough long before they are able to fly."

Mr. Robert Gray and Mr. Thomas Anderson remark ('Birds of Ayrshire and Wigtownshire,' p. 48):—

"Towards the close of summer large companies of these birds occasionally congregate near the shore, and remain there for days in calm weather, over the sandbanks where their food is obtained."

Mr. Robert Gray also (in 'Birds of the West of Scotland,' p. 421) says, at Ailsa Craig the keeper "has seen the parent birds daily taking" the young "down upon their backs to the sea, and unceremoniously pitching them off when within a few feet of the water. He has also observed them seize their young ones by the hind neck, as a cat would do its kittens, and, after a moment's hesitation, launch from their high perches, and descend with an unsteady flutter till they could drop them with safety."

It will be observed in one of the lithographs that boys are descending by a rope; this was the case at the time. It is needless to repeat a thing so often described.

Waterton mentions, in his article on the Guillemot, that while at Flamborough "one of the climbers grinned purposely, and showed his upper jaw . . .; a stone falling had driven two of his teeth down his throat."

Lives are lost at times. In Anderson's 'Guide to the Highlands and

Islands,' it is stated:—"On Foula (or Fughloe, or Fowl-Island), one of the Shetlands, it was formerly said of the Foula man—his gutcher (grandfather) guid before, his father guid before, and he must expect to go over the sneug too,"—"guid before" standing for "falling over the cliff."

If a person wishes properly to understand how a Guillemot acts under water, he need not go to Flamborough, or any other place than the Brighton Aquarium. I confess, when I first heard of these birds I did not think it worth while to look at what I supposed I had so often observed at sea. But once there, I soon changed my opinion. The spectator is at the bottom of the water, under the bird; and the whole body of the diver appears to be in a mass of silver air-bubbles or iridescence; and a stream of such remains in its track. In swimming it uses its legs, in diving its wings only; and the motion does not seem rapid—nothing like the rapidity of the several species of Penguin (*Spheniscus*) which I have observed at the Zoological Gardens. The eye can hardly follow *Spheniscus demersus*, for instance, as I noted May 31, 1872. This bird takes a fish across.

During the time of moulting, as is the case with many other birds, the Guillemot is unable to fly. *Cf.* 'Zoologist,' 1873, 2nd ser. vol. viii. pp. 3454 & 3455; here Mr. Cecil Smith, of Lydeard House, Taunton, remarks:—"In September 1871 Mr. Gurney, jun., and myself had a chase after one in the same predicament. . . . I have found common Scoters, off Dawlish, in October and November, quite unable to fly."

In the 'Zoologist,' 1874, 2nd ser. vol. ix. p. 3907, Baron A. von Hügel calls attention to a "curious habit these birds have of flying *through the waves*." He says, "I do not know if this has been noticed before."

It is needless to go through all the sea-fowl. Perhaps, however, the Cormorant might have a word—

> "As with his wings aslant,
> Sails the fierce cormorant,
> Seeking some rocky haunt,
> With his prey laden."
>
> LONGFELLOW: *Skeleton in Armour.*

A curious anecdote is mentioned in the 'Transactions of the Tyneside Naturalists' Field-Club,' 1864, vol. vi. part ii. p. 160. Under the head of Johnston's Hump-backed Whale (*Megaptera longimana*, Rudolphi), we read that a female was thrown up on Holy Isle fifty-eight feet in length. "On opening the stomach six Cormorants were found in it, and another in the throat; so that it was presumed that the whale was choked in the attempt to swallow the bird."

COLUMBA LIVIA.

(The Rock-Pigeon.)

By Mr. G. D. ROWLEY.

"Then it came to pass that a pestilence fell on the city,
Presaged by wondrous signs, and mostly by flocks of wild pigeons,
Darkening the sun in their flight, with nought in their craws but an acorn."

Longfellow: *Evangeline.*

Evangeline did not receive any addition to her troubles from *Columba livia,* the original of our dovecot birds. It, however, once caused me some; for, shooting this species in my earlier days, at Mingaree Castle (a ruin on the coast of Argyle, in the Sound of Mull), I had such a tumble, from rocks concealed in long grass, as kept me quiet for a time.

Still worse was the bad luck of Edward Barttelot, of Stopham, who is stated, in the pedigree of that ancient Sussex family, to have been disinherited for eating a Pigeon on Good Friday (*cf.* 'Sussex Archæological Collections,' vol. xxvii. p. 52).

The speed of the Pigeon has often been noted; but the following is of interest, taken from 'Land and Water,' July 21, 1877:—

"*Race between a Pigeon and an Express Train.*

"A most interesting race took place last week, from Dover to London,

between the Continental mail express and a Carrier Pigeon bred by Messrs. Hartley and Sons, Birmingham. As the train moved from the Admiralty Pier the bird was tossed into the air; and for upwards of a minute it continued swooping round at a great altitude, and then sailed away in the direction of London. By this time the train had got to full speed; and going at sixty miles an hour, the odds were evidently against the bird. But 'the race was not to the strong;' and by the time the train reached Cannon Street the bird had been home twenty minutes.

"This is a truly wonderful feat, and well worthy to rank with the 'Antwerp fly' and the toss from St. Quentin in May 1874, in which a bird, with the wind in its favour, accomplished ninety miles in ninety minutes."

The illustration of the "Rock-Pigeons' cave" is from a sketch made by Mr. Keulemans for this work on the spot.

The birds are not always safe in these places; for Lieut.-Col. Irby mentions, in 'Ornithology of the Straits of Gibraltar,' p. 105, that, "in a cave at the back of the rock, which can only be entered by landing from a boat in fair weather," and is "very large and open, with sand at the bottom, sloping upwards for a considerable distance at a sharp angle," the floor is covered with "tail-feathers and pinions of numbers of Rock-Martins" [*Cotyle rupestris* (Scop.)], "mingled with those of a good many Swifts, Rock-Doves, and a few Lesser Kestrels."

Mr. Gurney, jun., has provided me with an article on the birds of Flamborough; and he has been there so recently that I now leave the subject in his hands.

NOTES ON

PHAROMACRUS COSTARICENSIS.

By M. ADOLPHE BOUCARD*, C.M.Z.S. &c.,
Author of 'Catalogus Avium' &c.

Order COCCYGES.

Suborder HETERODACTYLÆ.

Family TROGONIDÆ.

+ Pharomacrus mocina, La Llave, var. costaricensis, Cab.

Quetzal, Mexican name.
Long-tailed Trogon, English name.

This fine bird is found in the Republic of Costa Rica, and also in the Province of Veragua, near Panama. I have never yet heard that specimens had been seen in either of the Republics of Nicaragua, San Salvador, and Honduras; it would be very interesting to know if the species occurs also in these countries. In Guatemala it is found in the highlands of the country, chiefly in the Province of La Vera Paz. It is also seen in the Province of Quezaltenango, now belonging to Guatemala. But in remote times this province was a tributary of the empire of the Mexicans; and it is a well-

* [M. Adolphe Boucard, who has lately returned from a scientific expedition in Central America, has kindly forwarded to us for publication some personal observations on *Pharomacrus*

known fact that the tribute paid to Moctezuma, or Montezuma, by this province was composed chiefly of feathers and skins from the Quetzal and other brightly coloured birds found abundantly in that country.

This Trogon was an emblem of royalty and deity among the Mexicans; and I have seen many antiquities, representing gods or kings, in which the image of this bird was carved. With the feathers, the monarch and his household used to adorn their regal dresses.

It is very curious to observe that after several hundred years the plumes of these magnificent birds are again used for ornamental purposes by the fair sex of the nineteenth century.

There is not any doubt that it is the finest species of bird found in America; and it can well bear comparison with the most superb Birds of Paradise from New Guinea. It was first described by La Llave (a Mexican naturalist), under the name of *Pharomacrus mocina**, which it still retains by the law of priority. It has also been called *Paradisea resplendens*, *Couroucou resplendissant*, &c.

It is rather a rare species, although you can procure easily a large quantity of specimens; but this is due to the great demand in Europe, which commenced a few years ago.

Some naturalists have been hunting the birds in their most inaccessible

---

costaricensis. Any fresh information respecting this magnificent Trogon must be interesting. M. Boucard has a genuine love of ornithology—a fact which impressed itself very strongly upon us in our conversations with him. He states that he has been very successful in the object of his journey, which was chiefly to observe the habits of birds. He returns with fully 250 species and some good notes, which are valuable, because every reliance can be placed upon the accuracy and conscientiousness of M. Boucard as an observer.—Editor of O. M.]

* Mocina, the name of a celebrated Mexican.

recesses, for the sake of a dollar or two (4*s*. or 8*s*.), which is usually paid for a bird in the flesh. When skinned it fetches as much as 20*s*. or 25*s*., as foreigners always buy some specimens before returning home.

The hunting of these birds has been so extensive of late years that they are rather scarce now; and I have not the least doubt that this species will be totally extinct before long, if the Governments of Central America do not adopt measures for their preservation.

This extinction would be greatly to be deplored, as it is, without doubt, the handsomest ornament of the American forests.

In Costa Rica, hunters of Quetzals generally start on Monday for the forest, and return on Saturday (the market-day). They bring sometimes only one or two, sometimes ten or twelve of these birds, which represent the hunting of the week. They sell them usually from one dollar to one dollar and a half each. Then you have to find a naturalist to skin them. This is done by one or two persons living at San José; they charge from one dollar to one dollar and a half for each skin. These same persons buy some of the birds on their own account, skin them, and sell them to strangers at distinct prices, from three to six dollars.

Perfect and adult specimens are very difficult to get; there is scarcely one among twenty. During my stay in Costa Rica I procured a large number of specimens, nearly all of them from the Volcan of Irazu, Navarro, and Naranjo.

I have also seen the bird at Sarzero, Candelaria, and Cervantes, always at the altitude of from 3000 to 6000 feet.

When feeding, they go in small bands of from ten to twelve birds. They eat fruits, and are very fond of acorns. In May, these fruits being plentiful, the birds are more easily got at than at any other time of the year. Some of the specimens which I have skinned had acorns in the crop and in

the stomach. One of these, of a very large size, I found entire; and I have kept it as a curiosity.

In the breeding-season they go in pairs (male and female), and keep together. They fly about in the forest, perching on the branches of high trees. Sometimes the female is alone; in that case she will call her mate until he comes close to her and has a caress. After a little while the female will fly further on, and call him again; and so on, the greater part of the day. They inhabit the dense parts of the forest, principally along the streams. What are called "barrancas"—deep ravines, difficult of access—are their chosen retreats.

These birds are rare; and it is only because of their being sought, as they are, for the sake of their value, that quantities are sent yearly to Europe.

However, what better shows the rarity of the bird is, that about one hundred men, at least, are busily engaged all the year round in hunting it, and through all their exertions they are not able to kill more than about 500 to 800 specimens in one year, which gives a result of from five to eight birds in one year per man. This number of 500 to 800 includes all the birds sent from every part of Central America and Veragua.

They have two distinct cries—one dull, from the female, and one sharp, from the male. It is by imitating the cry of the female that the men of the country are able to entice males within shot.

The female lays its eggs in old nests of Parrots, Woodpeckers, or any other hole found on the trunks of large trees, chiefly dead ones.

This species is not easy to detect. Some few nests obtained by natives had one or two eggs in them, of the size of those of a Pigeon, and of

a uniform green, rather pale. I have seen one of them in the possession of Mr. J. Zeledon; he intended to send it to the Smithsonian Institution.

Although I tried very hard to get some, offering a high price and also searching for them, I could not succeed in obtaining any.

The male sits on the eggs; meanwhile the female goes out for food. The position of the bird then is very curious: its head appears at the entrance of the hole; and the long feathers of its tail are spread over its head, and are seen outside the nest.

I have heard that sometimes the nests have two openings—one to go in, and another to go out. But I do not believe it—first because it was not told me by persons of any authority, and secondly because there is no necessity for it. Besides, this bird could not dig a hole in the trunk of a tree as Woodpeckers do; and it would be very difficult for him to find a nest in such conditions already made. But it is possible that now and then they build their nests in the forks of trees, as other species of Trogons do.

The young male at first does not differ from the female; but when about one year old, green and red feathers appear at intervals on the breast and on the belly. When one year and a half old it is quite a mixture of green, grey, and red; the underside of the tail also is black and white. At two years he is exactly like the old male, except that the long feathers of the tail are short. Every year after, these grow longer, until the tail reaches from one yard to one yard and a quarter.

I have collected over a hundred specimens of males; and every one of them, including some very fine adult birds, agrees in having a long and

narrow tail. I do not know if this character is sufficient to separate it as a species from the Guatemala one; but I am of opinion that the name of *costaricensis* may be retained for this bird as a curious local race, only found up to this time at Costa Rica and Veragua.

These Trogons are seen all the year round in Costa Rica, where they breed; and there is little probability that they emigrate to Guatemala. Neither do those of the latter place go to Costa Rica, because they would have to cross forests which are only a few hundred feet above the level of the sea; and I am not aware that this bird has ever been seen anywhere else except in the mountains not lower than 2500 feet altitude.

Excepting the four long feathers of the tail, which are much longer and nearly as broad again in the specimens from Guatemala, the two races are exactly alike.

It has been occasionally domesticated, and kept for several months in private houses. Sometimes it used to go about in the yard with the chickens; or it would perch on a branch and stay at the same place for hours. It was fed with seeds and fruits.

At the time of dissection I have found on several specimens a species of parasitic Diptera, which I intend to describe shortly. It is very large and peculiar.

In fact, there are few birds which are not infested with parasitic insects. Unfortunately, for want of time, I have not been able to secure all of them; but scarcely any of the skins which I have prepared were without, and it would be very interesting to make a collection of them. New species

would surely be abundant. Sometimes I have been greatly annoyed with them. At the time of dissecting, these animals spread over me, went on my body, principally on my beard and on my hair, and annoyed me for a few days.

In conclusion, I have urged strongly upon several persons living in Costa Rica and at Guatemala to do their utmost for the remittance of some living specimens of this Trogon to me. They have promised me to do so; and I am in hopes that before long Europeans may be able to see this magnificent bird alive.

ON FLAMBOROUGH HEAD.

By Mr. J. H. GURNEY, Jun.

I have made two visits to this noted headland to study the birds that frequent it—once in the month of March, and once in June—and have noted down a great many interesting facts, a few of which are partly new.

Flamborough is the largest nursery of our rock-breeding sea-fowl in England. It is also the best-known, and, I may add, the most accessible. Those of us who are naturalists and who have never seen it, would do well, the next holiday that they get, to take the train from Bridlington, and from there get over to the headland as best they can. A trap can easily be hired, though it is nothing of a walk.

Yet it is not at the actual headland itself that the cliffs will be found to be highest. It is more to the west, about Bempton, that they attain their greatest elevation; and there (at Bempton), in the summer time, no one who has come over to see the birds need fear that he will be disappointed; for all up the face of that grand precipice, reaching to the height of 400 feet, will be seen a moving multitude of Guillemots and Puffins, Razorbills and Kittiwakes. It is a scene that the painter's brush alone can describe.

I should like to draw a picture of Flamborough on a stormy day, when

the sea spends its wild fury on the rocks—hard as adamant, not to be moved by the force of the waters. In one place a tall column of spray, 400 feet in height, bounds over the summit of the cliff, and, like the uncertain jet of a fireman's hose, plays upon the fields and sprinkles the sheep that graze on the green pastures, perhaps also giving the unwary naturalist, who is not on the look-out, a good wetting. In another the foam is borne on the wind, as it were, miles into the air; and occasionally an unwise Guillemot, which has miscalculated the distance, is whirled aloft, and for a moment or two there seems no chance of its getting down the cliff again. Fitfully the wind howls over the bleak old headland—now sinking, now dying almost away, and now swelling forth again with unequalled volume. Faster and faster the sea-horses scud across the horizon. The shriek of the birds and the wail of the Sea-mew are drowned in the uproar.

Amid this terrible scene of the elements, a weather-beaten seaman, small but active, with sinewy arms, though slightly made, is seen standing with a rope on the edge of the beetling crags; it is a long one, and is passed round an iron bar. He shakes his head. The old man has not the hardihood to venture down to-day; but you may see him if you come again, when the storm has subsided, with his basket on his back to receive the eggs for which he is thus jeopardizing his life. From ledge to ledge, with measured tread and careful foot, and an eye that takes in all the peril of his situation, he pursues his giddy way. Nothing daunts him: the narrow platforms, which have blossomed in such various hues, are despoiled of their eggs in quick succession, until enough have been gathered. Then comes the part which it makes one's blood run cold to see—when the old man begins to ascend, with only two people to pull him up, and one of those a woman; but he lessens their labour wherever he can, by helping himself with his feet; and very soon we all breathe freely as we see him safe on *terra firma.*

THE GUILLEMOT.

Let me first narrate my experience of the Guillemot (or "Skout," as it is called—a name which has been in use for centuries) as jotted down at the time of my last visit, because it is *par excellence* the bird of these limestone cliffs.

Craning over the verge of the mighty abyss, I perceived, hundreds of feet below me, as it were a nation of people coming and going, in an unceasing, endless stream. It was a sight so novel to me that in a few minutes it made my senses reel. Dizzy with the Babel of sounds and the maze of living forms, I was fain to cover my bewildered eyes, and turn away; yet all the time I was so fascinated by the marvel of those short, squat, dapper little Guillemots, with their abbreviated wings (almost like fishes' fins) bearing them down, down, down, rapidly and straight, until it seemed as if they had gone too far and all hope was over for them, that the spectacle was focused in my mind for months after. Always they recovered themselves just when it seemed as if they must be dashed to pieces; and in a few minutes there were scores and scores of them, which had been sitting before on the ledges, carrying on an aggressive war with the tribes of the deep.

Of some the fishing-ground lies near; but of many it is far away, beside the distant Dogger bank; and there they fly, in little arrow-headed regiments, one after another, like winged missiles directed against an unseen and finny foe.

Many more sit expectant on their rocky platforms, making unmeaning bows, or raising a shrill chorus of alarm as a successful fisher returns to his ledge and bowls off a couple of the nearest to make room for himself.

Numbers swim in the water, in long meandering lines, in circles, stars, and crescents—in short, in all manner of patterns.

There is an idea prevalent that they cannot fly upwards unless their

wings are wet; but this is quite wrong, as any one may see by putting them off. Some which I frightened from their places, and never took my eye off, made one or two wide circuits and returned to the cliff below me without touching the sea. It is true that they have a great objection to seeing any thing under them except water; but they certainly are not unable to fly over the land, although such good authorities as the Messrs. Strickland stated, at one of the meetings of the British Association, that such was the case.

When once on the level ground they are almost incapable of getting off again, though not entirely so. For I know one reliable instance, at any rate, of a Razorbill which deliberately rose from the earth and flew away in front of the cliff-climber's cottage-door; and what a Razorbill could do, a Guillemot could do.

Their position in the air, and the character of their flight, has always seemed to me something remarkable. The legs are very much used to steer by, as may be observed when a Guillemot is turning round in the act of alighting on the cliff. This is in default of sufficient tail*.

The Guillemots are much the earliest birds to come. Mr. Bailey, of Flamborough, assures me that he now sees a few upon the cliffs as early as New Year's day. They always used to make their appearance in February. In March great numbers arrive; and a tempestuous sea at the end of that month will drive hundreds and hundreds of them to the cliff.

All that I saw on the cliffs on the 21st and 22nd of March were in their complete summer garb; but a specimen obtained on one of those days out at sea had not begun to change at all†.

* If any reader wishes to know further the purpose for which Guillemots were made with abbreviated tails, he may refer to the 'Zoologist,' 2nd ser. vol. ix. p. 4119.

† On the 5th of April I observed some which were in winter plumage, in a poulterer's shop at Newcastle. On the 27th of April, 1869, Mr. Cordeaux observed others in winter dress at Flamborough ('Zoologist,' vol. iv. p. 1737).

The egging-season lasts five weeks, and ends about the 21st of June. The climbers rather like wet weather, because when it is fine the Guillemots often lay their eggs out at sea. I was informed that about a week before my first visit a trawler had brought six into Burlington Quay, and that it was a very common thing for them to find them in their nets*. The eggs are deposited on such narrow ledges that the old Guillemots often knock them off; but I cannot seriously believe that when they begin to sit they knock them off on purpose. I do not understand why they are sometimes so dirty when brought up; for I believe that at Flamborough they do not deposit them in foul places.

Let us now hear the evidence of old Lowney (the Methuselah of cliff-climbers, the intrepid veteran of forty years), who has taken, perhaps, not far short of a million eggs. He tells off the ornithologists that he has sent eggs to in his day, the Ringed Guillemot's eggs (or "Silver-eyed Skouts," as he calls them) that he has taken at their desire from under the birds themselves, the three double-yelked Guillemot's eggs†, and the fourteen red Guillemot's eggs which in seven consecutive years he took from one particular spot, known only to him by a dip in the stone. Gravely the old man rebuts our statement that the Great Auk has never been seen at his cliffs. It was at Flamborough, he tells us, for two seasons following, and kept always near the same place, but never mounted onto the cliff. Who will venture to say that he is not right?

Lowney has seen two Guillemots fight, like a pair of gladiators, until the rocks which were their arena were dyed with their gore. He is quite

* We have, in our collection, an egg which was dredged up at Lowestoft at a depth of 24 fathoms.

† He showed me a double-yelked Razorbill's egg, which he had at his house, measuring 7 inches in circumference.

sure that the young Guillemots are carried down on their mothers' backs and in no other way (*cf.* 'Zoologist,' s. s. vol. x. pp. 4342 & 4666).

Now for what Mr. Leng has to say. Mr. Leng is the professional shooter who went to Lundy Island. He has been bred to a gun; and if any one ought to know about sea-birds, he is the man. He tells me that all Guillemots know their own young ones. It is not uncommon to see an old Guillemot swim up to a young one which is not hers, immediately find out her mistake, and swim away. He also affirms that they know their own eggs; and that I believe: for what other purpose can so great a variety of markings have been given to them? (*Cf.* 'Zoologist,' vol. x. p. 3478.) Questioned as to their mode of carrying their young to the water, he affirms (like Lowney) that it is always done on the back. Asked if the descent is not at too abrupt an angle for the little ones to stick on*, he explains that *at that time the descent is made at a less angle.* It is not until dusk, he adds, that the performance generally takes place, which may most likely account for the discrepancies in the accounts even of those who have observed it themselves. What he has said of the Guillemot applies equally to the Razorbill—but not to the "Parrot" or Puffin, whose young remain in the holes and crannies until they are old enough to get down.

Having now done with these two authorities, I shall conclude my notes on the present species by remarking that soon after my second visit to Flamborough, viz. on the 16th of June, I received a white Guillemot from Bailey. It was a hen bird, and seemed to have lately laid an egg. Strange to say, the eye was yellow; the legs also were yellowish brown, darkest on the hinder part.

* *Cf.* Macgillivray, 'British Birds,' vol. v. p. 322.

THE GANNET.

Anybody who has handled a Gannet knows what a heavy bird it is, and may judge with what force it would come down to the earth from a great height in the air. The splash which it makes in fishing, when it simply lets itself fall into the sea, and which is visible from, I should be afraid to say how far, shows what a weight it is. Some years ago I remember having a visible proof of this. I shot a Gannet, which happened to be flying almost directly over my head; it was very high up, and it fell down onto the rocks among which I was standing, only a few paces from me: on going up to it, I found that its breast was completely rent open; and it was with some difficulty that I sewed it up and cleaned it when I afterwards prepared it for my collection.

Now the story which this leads up to was an adventure which happened to a fisherman at Flamborough Head; and I will relate it as he told it to me. He had gone out with his gun; and he saw two Gannets approaching him. They came within shot; and he aimed at one, and killed it; and then, without lowering his gun, he fired his second barrel at the other. It fell; and at the same instant as it dropped in the air, the Gannet which had been killed by the first shot tumbled on him, and its pointed beak passed through the rim of his "sou'-wester" hat. The man's name was Thomas Leng; and among all the escapes which that adventurous fellow has had, his friends may well reckon this one of the closest. If his Gannet came down with the force which mine did, I can readily believe that its beak would have gone through a man's skull; and if it had been an inch on one side, Leng's days would have been numbered.

THE KITTIWAKE.

Liver of fish is the best bait for Kittiwakes. They can scent this afar; or perhaps their keen vision enables them to descry it. Boat-loads of them used to be shot to it; and a great many are still. The smacks that go to sea open their fish, and toss out the refuse; and the hungry birds come, and are killed.

A Kittiwake will make two plumes, which are worth 1*s.* each; and the head and wings are useful for screens, penwipers, &c. The supply does not nearly equal the demand since the Act was passed; and I was greatly amused at the shifts to which the plumassiers have had to resort—Larks, Starlings, and even Sparrows being cut up by them in default of any thing better. Guillemots, Razorbills, and Puffins are of no use for plumes: these birds ought soon to increase enormously.

I hope the Act has not come too late to save the much persecuted Kittiwake, as it is almost the only sort of Gull which breeds at Flamborough; I believe that the common Gull never does. That the persons who were making a rich harvest before should feel some animosity against those who passed the Bill is very natural; but I am glad to say that all that is now dying away. One man, now dead, told me that he used to take £15 to £18 a week in feathers, and that with the money from that alone he built three houses; but he confessed to me that, while he did it, he always thought it was an "infamous shame to cut up so many good birds." Another said, "You gentlemen ought to stand us £1000 for the damage you 've done us." But there is a great deal of right feeling among the Flamborough men; and I believe that many a one is secretly pleased that the slaughter is put a stop to.

Boats full of excursionists from Sheffield, who could not hit a haystack,

might go out day after day and pepper away a pound or two of shot, and pay for it handsomely; but a different class will come now—not to shoot, but to see—who will pay just as well, without endangering the lives of themselves and all who accompany them; and the beautiful birds will benefit by the change.

Mr. Bailey tells me that sometimes, when the fishermen are shooting their lines, a Kittiwake will seize the bait and be pulled under with the sinking cord, in which case no more is seen of him until fair weather permits the fishermen to raise the lines again.

I forgot to ask in what state such a bird would come up; but probably the anatomizers of the sea, with their busy nippers, would soon make a skeleton of him, and he would return much in the condition of Montagu's Fulmar:—

> "Here hangs I, John Down, for ever,
> That often cross'd the bank for liver;
> Now to my sorrow and great surprise
> Here I hang an' anatomize."

THE ROCK-DOVE.

This is a characteristic bird of Flamborough; and the price set on its head by Pigeon-shooters alone would be enough to make it greatly sought.

The most ingenious expedient I heard of was tried by Lowney, who thought that by letting down a net, with rings on iron rods, he would entrap them wholesale. Accordingly he selected a suitable night for the venture, and let the net down over Bempton Pigeon-cote, as one of the large caverns is called. Instantly it was full of Pigeons, and he made certain of getting

any quantity; but though caught in a cage, it was another matter to get hold of them; and Lowney soon found that he could not catch them—at least, not alive. But he knocked down fifteen with a stick.

The guano, which was once got out in large quantities, is not now worth going for.

All the Pigeons on the east side of the north landing are Stock Doves. This discovery was made by Bailey; and I confirmed it* by shooting one. Bailey told me it was only about the third year that Stock Doves had nested in their cliffs.

THE JACKDAW.

One of the most abundant breeders on the cliffs of Flamborough, and a great enemy to the eggs of other birds. Before the Bird-Act, when the Guillemots were much shyer, the descent of a man was generally enough to frighten them off the ledges; and then, Lowney tells me, the thievish Jackdaws made spoil of their eggs. I have seen the shells which these knaves have carried to the top of the cliff and left there†. Sometimes a Jackdaw more bold than the rest attacks a Kittiwake; and then a hard fight ensues; but the same authority tells me that the Kittiwakes get the best of it. As an old cliff-climber of many years' standing, he bears a great spite against these feathered rivals; and the old chap never lets an opportunity slip of destroying both them and their eggs.

* 'Zoologist,' s. s. vol. xi. p. 5040.

† *Cf.* 'Zoologist,' s. s. vol. xi. p. 4957.

ODONTOPHORUS CINCTUS, *Salvin*

ODONTOPHORUS CINCTUS (*Salvin*).

By Mr. G. D. ROWLEY.

(Plate LXXXVI.)

The following appeared in 'The Ibis,' 3rd ser. vol. vi. (1876) pp. 379, 380 :—

"XXXVI.—*On two additional Species of Central-American* Odontophorinæ. By Osbert Salvin, M.A., F.R.S., &c.

"Through Mr. Boucard's kindness I have lately been able to add to our Central-American collection of birds two species of Odontophorinæ—one of which is the tolerably common South-American *Eupsychortyx leucotis*, the other a species of *Odontophorus* which I do not hesitate to describe below as new. The two specimens (one of each species) were contained in two collections evidently made by our late collector, Enrique Arcé, in Veragua, one of which came directly, and the other indirectly into Mr. Boucard's hands. Both from the style in which the skins are made up, and from the birdskins associated with them, there cannot be the slightest doubt as to their origin."

[Here follows the description of the specimen of *E. leucotis*, Gould, P. Z. S. 1843, p. 133, et Mon. Odont. pl. x.]

"Odontophorus cinctus, n. sp.

"Capite, collo, dorso antico et pectore læte rufescentibus, auricularibus nigris: stria postoculari indistincta e punctulis albis formata: dorso postico cinereo, albo et nigro minute vermicu-

lato: supracaudalibus rufescentibus, scapularibus externis nigris, scapis albis et pogoniis externis rufescentibus: alis fuscis, secundariis rufo variegatis: gula et ventre medio albis, hypochondriis et crisso distincte nigro transfasciatis: rostro nigro: pedibus fuscis: long. tota circ. 7·5, alæ 4·3, caudæ 1·8, tarsi 1·3, rostri a rictu ·6.

"*Hab.* Veragua (*Arcé*).

"This species is quite distinct from any hitherto described. It is smaller than even *O. thoracicus*, to which it is perhaps most nearly allied. The white throat and belly, the strongly marked flanks, together with the deep rufous colour which encircles the whole of the anterior part of the body, neck, and head, render it a conspicuous species."

The bird figured in the Plate is a male, in my collection, killed at Agua Dulce, December 1876.

"Agua dulce" means "sweet water." Perhaps the name was given to this place from its proximity to the river Rio de Agua Dulce.

Round the place the hills are small; and the nearest mountain is Calovevora.

This small village is situated about ten miles from Panama, on the coast of the Pacific. In the 'Proceedings of the Zoological Society' for 1870, between pages 174 and 175, there is a map of the State of Veragua, belonging to Mr. Salvin's well-wrought article on the birds of that place; none that I can find, however, marks Agua Dulce.

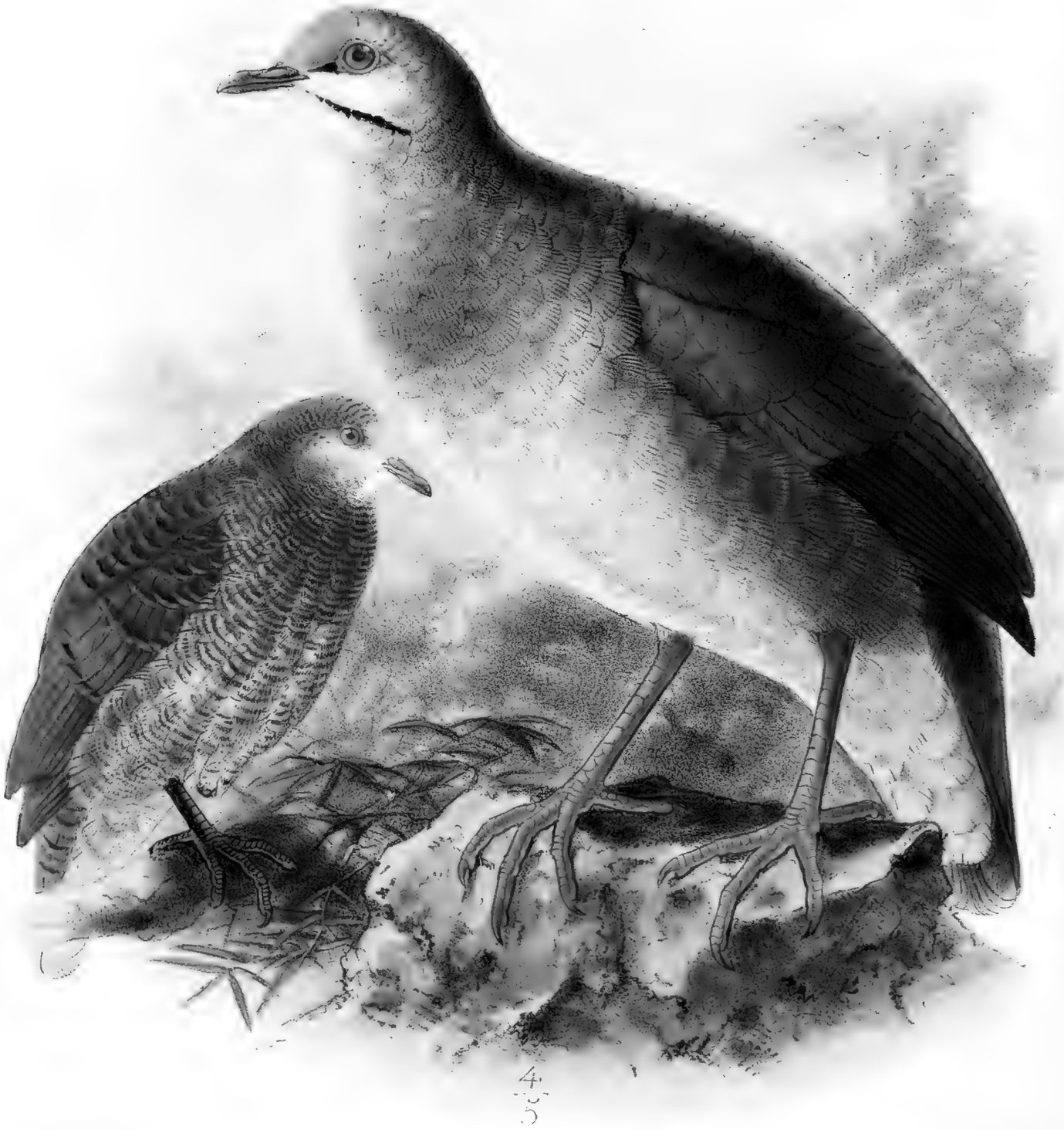
Mr. Boucard informs me that this species is found on the hills near the sea, in tropical forests, and is scarce. Small numbers of both sexes are seen together, always on the ground, feeding principally on worms, insects, and larvæ, perhaps also seeds. They run very quickly when frightened, and sometimes fly, but not more than a few feet above the ground, making a

great noise with their wings, "like Snipes;" but they cannot stay long in the air.

It is only by accident that they are discovered, as they always keep in dense and dark forests. The eggs are laid upon the ground; but Mr. Boucard did not find any. The flesh of these birds is splendid, solid and white, capital to eat.

This skin was not sent by Arcé. It is hard work hunting for specimens, as at Agua Dulce the forests are magnificent, the country quite tropical, and the heat excessive.

Total length about 7 inches.



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MELOTRIGON COSTARICENSIS. (Lawrence.)
♂ and ♀ ad.

GEOTRYGON COSTARICENSIS (*Lawrence*).

By Mr. G. D. ROWLEY.

(Plate LXXXVII.)

In 'A Catalogue of the Birds found in Costa Rica,' by George N. Lawrence, p. 136 (reprinted from the 'Annals of the Lyceum of Natural History in New York,' vol. ix. April 1868), we find:—

"451. Geotrygon costaricensis, n. sp.

"Forehead and the forward part of the cheek next the bill of a brownish salmon-colour; cheeks and throat white; there is a bar of deep black on each side from the eye to the bill; and a stripe of the same colour extends from the upper part of the throat along each side of the neck, and borders the white cheeks; these black lines approach each other quite closely on the throat; across the middle of the crown and adjoining the salmon-coloured front is a narrow band of greyish blue, which gradually merges into the dark green of the occiput and hind neck; the lower part and sides of the hind neck, and the upper part of the back, are of a lighter and yellowish green, more lustrous and quite distinct from the deep green of the occiput; scapulars and upper part of back rich purplish violet; lower part of back, rump, and wing-coverts of a cinnamon-brown; the upper tail-coverts are

darker, more of a vinous brown; two central tail-feathers dull purplish brown, the two next of a duller brown, the outer three purplish black, terminating with ashy grey; primaries and secondaries blackish brown; the tertiaries have their inner webs blackish brown, the outer brownish cinnamon; the under wing-coverts of a dusky brown; neck and breast dark greyish plumbeous; middle of abdomen testaceous white with a slight tinge of pale rose-colour, sides chocolate-brown; feathers of the flanks and under tail-coverts brownish ash, ending in whitish; thighs ashy brown; bill hazel-brown, the under mandible yellowish at the end; tarsi and toes yellowish flesh-colour.

"Length about $10\frac{1}{2}$ in.; wing $5\frac{3}{4}$, tail $3\frac{7}{8}$, bill $\frac{5}{8}$, tarsi $\frac{9}{16}$.

"Received from Dr. A. v. Frantzius: precise locality unknown.

"Type in Mus. Smiths. Inst. no. 30431.

"*Remarks.*—This beautiful Pigeon bears but little resemblance to any species of which I can find an account. It is allied to the group represented by *G. caniceps*, from Cuba. The colour of the breast, in each, is nearly the same; but they are not alike otherwise. It has much longer and stouter tarsi and toes than *G. caniceps*."

I have four specimens of this bird in my collection, received from Mr. Boucard—male and female adult, and male and female young. This gentleman informs me that they were all killed on the mountain of Candelaria, at an elevation of 2500 or 3500 feet, in the month of May 1877. He considers that the young, obtained at the same time, show that the breeding-season was over. He says:—

"I always found them on the ground, scratching the earth like chickens, in search of insects. They have very much the same habits as *Tinamidæ* and

Odontophorinæ, are very scarce; and it is only because I knew the great rarity of the species that I was able to procure several specimens; I was quite satisfied when I could bag one in a day's hunting. The flesh is white, and delicious to eat; it is one of the best birds for the table.

"When dissecting, I found the crop full of seeds; I am therefore more certain about this kind of food than about insects, although the probabilities are that they eat insects also. All those which I killed used to go singly in the dense forests; but it is usually the case that, where one is seen, the other is not far off.

"The Candelaria mountains begin about four miles from San José, the capital; and their greatest altitude is 5000 feet. The birds were killed on the other side of the mountains, at an elevation of 2500 or 3500 feet, but perhaps are found still higher. The summit of the one on which they were obtained is covered with a species of oak.

"On the side of San José the plantations of coffee-trees, Indian corn, &c. reach the summit. On the other side, where the birds were found, there are dense forests of oaks, mixed with a great number of other tropical trees; orchids are very abundant. Many streams spring from the mountain, and, some miles further down, form the Navarro river. The country has a very savage aspect, and deep, broad, hollow roads (called 'barrancas') are frequent; these are caused by the rain, which falls abundantly from May to December."

In *Geotrygon costaricensis* the sexes do not vary; I have therefore figured an adult male and a very young male. The latter, as will be seen, differs much in this stage from the adult.

Description of the young male.—The isabelline patch on the forehead has not yet appeared. The feathers on the head, like those on the chest, are brown, with black bars; the same applies to those on the rump. The vivid green and purple of the back in the adult are much fainter; the wings, instead

of being chestnut-brown, are mottled with black and brown. The legs, as far as I can judge from a faded skin, instead of being bright red, are black. The white patch on the throat is almost absent.

The *young female* is not in so interesting a dress, being too much advanced. It differs slightly from the adult. The isabelline patch on the forehead is rather smaller; the legs not red, but dusky; and a few mottled feathers remain on the flanks.

Total length of adult male about $11\frac{3}{4}$ inches.

THE BIRDS

OF

MONGOLIA, THE TANGUT COUNTRY,

AND THE

SOLITUDES OF NORTHERN TIBET.

By Lieut.-Col. N. PRJEVALSKY.

[Continued from vol. ii. p. 438.]

Order VI. GRALLÆ (*continued*).

220. Grus monacha, Temm.

Temm. & Schleg. Faun. Jap. pl. lxxiv.

Is very numerous during the spring migration in S.E. Mongolia—*i. e.* between Lake Dalay-nor and the town of Kalgan; further west it does not occur. It is very common about Lake Baikal, and must consequently migrate thither along the borders of the Gobi desert.

We saw the first migrants in S.E. Mongolia on the 15th of March; but the principal flocks appeared about the middle of April. A few of these Cranes were seen also about Lake Hanka in spring.

221. Grus leucogeranus, Pall. *Juravl beley* or *sterch.*

Temm. Pl. Col. pl. cccclxvii.

Only once (on the 9th of October, 1872) a flock of some fifty specimens

was noticed by us about Koko-nor; whether it got there accidentally, or not, I cannot state.

In the neighbourhood of Lake Hanka it arrives towards the end of March, in small flocks of from four to ten specimens, and is not very common there, especially in summer, as only very few of them remain to breed in that locality. Its voice is very harmonious.

222. Anthropoides virgo, L. *Juravl maley.*

This is the only Crane that breeds in Mongolia, not only in the fertile districts, but also in the deserts of Ala-shan, where they frequent the wells, which they visit regularly to quench their thirst. This they usually do after the Mongols have driven their cattle to drink, and when small puddles are left by the latter at the edge of the well.

When living in deserts their food principally consists of a species of *Phrynocephalus*, n. sp., which are very abundant there. They arrive in Mongolia in spring, about the end of March, and leave early in September. Only a single flock appeared at Koko-nor on the 28th of February, after which we never met with any there, but saw a large flock of them, on the 16th of September, in Kan-su, migrating in company with *Grus cinerea*. It does not occur in Ussuri country.

223. Ardea cinerea, L. *Zaplia seraya.*

Is tolerably abundant in Dalai-nor and in the Hoang-ho valley—*i. e.* in localities where marshes can be found. It arrives in S.E. Mongolia towards the end of March; and about Gu-bey-key we noticed it even on the 3rd of March. We did not meet with it at Koko-nor, but obtained a specimen in Kan-su about the middle of May.

It is very common in Ussuri country, and arrives at Lake Hanka about

the 10th of March in small numbers, whilst the principal migration takes place in the end of this month; at this time the birds keep together in flocks, sometimes in company with *Herodias alba, Grus leucogeranus,* or Ibises.

They are extremely cautious, and choose for their nesting-places the small, thick, reedy islands of the river Lefa, which runs into Lake Hanka. Here the nests are very numerous, close to each other, all being built of the same shape and very carelessly. Some twigs, without any lining, form the whole structure, which is of a flat shape and not elevated beyond two or three feet above the water-mark. It is difficult to understand how the eggs do not get injured in these nests during a strong wind.

I visited the above-described locality in the middle of June, when the young had partly left their nests, whilst the others were just at the point of doing so.

During the autumnal migration (*i. e.* in September and beginning of October) I met with many flocks of these birds on the coast of the Japanese Sea.

224. Herodias alba, L. *Zaplia belaya.*

We observed this bird in S.E. Mongolia only on one occasion, on the marshes of the Hoang-ho valley, in large numbers; it apparently breeds there.

The first migrants appeared in Tsaidam on the 18th of February, notwithstanding the heavy snowfalls and frost of 12° C.

At Koko-nor we observed these birds only about the end of March, singly or in pairs.

At Lake Hanka they are as common as the preceding species, and arrive usually at the same time with it, about the middle of March.

H. alba does not form large flocks, but, as a rule, lives singly, in pairs, or in small flocks. In the middle of April, those which stop here disperse

themselves over the islands at the mouth of the river Lefa, of which I have spoken above.

After the young leave their nests, early in July, they wander about the marshes, sometimes in company with White Storks.

225. Botaurus stellaris, L. *Vip.*

We met with them only on the lakes of the Hoang-ho valley; but in the Lake-Hanka basin they are very numerous, and find there a great many suitable localities in the impenetrable marshes, where they arrive about the end of March and beginning of April, when their voice can be heard not only at dusk but also at night and in the evening.

226. Ciconia boyciana, Swinh.? *Aist beley.*

We only once noticed this species in the northern parts of Gu-bey-key; and, according to Dr. Dybowsky, it has also occurred in the Ussuri country. During my whole stay there I could not obtain a single specimen of *C. boyciana*; and when I first saw it I mistook it for *C. alba.*

At Lake Hanka these Storks arrive about the 10th of March, and commence breeding early in April, usually on high trees, along the shores of rivers and in the Sungatchin marshes. During the breeding-season, they are extremely shy.

It is remarkable that a great many nests of the present species are destroyed by Tibet bears (*Ursus thibetanus*), who climb up to the nests and eat the young birds.

227. Ciconia nigra, L. *Aist cherney.*

An occasional visitor to S.E. Mongolia, and perhaps breeds in the

wooded parts of Muni-ul. In Ordos and Kan-su it has been observed only in limited numbers during migration.

At Lake Hanka these birds appear about the end of March in only limited numbers, and apparently do not stop there to breed, but rear their young in the more desolate parts of the Ussuri and Amur countries, returning to the south in large flocks *viâ* Hanka.

228. Platalea major, Temm. *Kolpitza bolshaya.*

Temm. & Schleg. Faun. Jap. pl. lxxv.

In the early part of April we met with some migrants at Dalai-nor; and in July we observed them in the Hoang-ho valley, where the bird probably breeds. When travelling from Ala-shan to Urgey we met, in the midst of a desert, four young birds at a well, which evidently had lost themselves.

In the Ussuri country we found *P. leucorodia,* and have brought home one specimen from Lake Hanka. There they are very common from the end of March until the beginning of April, and breed in similar localities at the mouth of the river Jeffa, as do *Herodias alba* and *Ardea cinerea.* The young leave their nests towards the end of June or beginning of July, and then commence to wander about on the marshes.

229. Ibidorhyncha struthersii, Vig.

Gould, Birds of Asia, part viii. pl.
Falcirostra kaufmanni, Sev. Vert. i gor. raspr. Turk. Jev. pl. x. figs. 1 & 2.

This interesting bird (which was originally obtained in the Himalayas, and, later on, about Pekin and in the Thian-shan) was met with by us only in the Koko-nor and Kan-su mountains, keeping mostly to the brooks and rivulets of the middle circle. Each pair occupies its particular district, where

they rear their young. In its habits it is rather shy. When taking wing, it always utters a loud note, flying very low above the water, and following the curves of the rivulet. When wounded, it very cleverly hides itself among some loose stones, where, on account of its dull ashy plumage, it is difficult to find.

This species is rather scarce in Kan-su; and I do not know if it stops there for the winter, although Père David states that, notwithstanding the severe frosts, it often winters in the mountains north-west of Kalgan; and on one occasion we observed a specimen in the Koko-nor mountains in the beginning of November, when the frost amounted to 23°.

230. Numenius major, Temm. *Croushnep bolskoy.*

Temm. & Schleg. Faun. Jap. pl. lxvi.

Common in S.E. Mongolia from the end of March (or beginning of April) until the end of the latter month, on the shores of small lakes or in the burnt-out steppes, where some puddles are found.

We found it breeding in the Hoang-ho valley in small numbers, and noticed the arrival of the first migrants at Koko-nor on the 15th of March; and at the end of that month numerous flocks of about fifteen or twenty-five were seen there: whether they stopped to breed or not, I am unable to state.

Besides the present species, we noticed also a smaller one in the Hoang-ho valley, but did not succeed in obtaining a specimen. It may have been *N. phæopus.*

About Lake Hanka these birds are rather common, arriving about the end of March, and some of them stopping to breed, which they do about the middle of April.

231. Limosa melanuroides, Gould. *Veretennic.*

Gould, Birds of Australia, vi. pl. xxviii.

It passes S.E. Mongolia in large numbers at the end of April; and flocks of several hundreds were seen by us there, on the shores of lakes. We met with them also in the Hoang-ho valley, but only in August, in their winter plumage.

At Koko-nor the first migrants were noticed on the 22nd of March; whilst in Kan-su and Halka we did not see them at all.

In the Lake-Hanka basin they are found breeding in rather small numbers; but large flocks were seen on the coast of the Japanese Sea, about Possiet Bay, in the month of September. These birds were usually frequenting the shores during the ebb, and seemed to have quite disappeared in October.

[To be continued.]

THE LATE
MR. ROBERT SWINHOE, F.R.S.

We cannot pass over in silence the loss which Ornithology has experienced in the death of Mr. Robert Swinhoe, one of our contributors. It is not within the scope of this work to notice at length the many valuable additions to the science humbly advocated by us which have been discovered by Mr. Swinhoe. These will probably be enumerated by our contemporary 'The Ibis,' and others; but we think we have the general assent of those best qualified to form an opinion when we say that not only Ornithology but Zoology itself has suffered a chill, and sustained a check, by the removal from our midst of the very painstaking and successful naturalist who has now been taken away from us. Some scientific men have to contend with inadequate pecuniary resources: the great Swedish naturalist, when a student at the University of Upsala, was forced to put folded paper into his old shoes to keep out the damp and cold—a state of things also not unknown to the greatest of English lexicographers. Others are doomed to struggle against ill health; and Mr. Swinhoe, in consequence of his long residence in China, was among the latter. His absence will be acutely felt, not only by the Societies to which he belonged, and in particular by that one to whose members this work is dedicated, but also by all those to whom the science of Natural History is dear in every part of the world.

Editor of the O. M.

PART XII.

"States fall; art fades; but Nature doth not die."
Childe Harold's Pilgrimage, Canto iv. stanza iii.

ON THE GENUS PTILOPUS

(PTILONOPUS, Swains.).

By Mr. G. D. ROWLEY.

[Continued from vol. ii. p. 351.]

PTILOPUS MIQUELI, Von Rosenberg.

Ptilopus miquelii, Schlegel, Ned. Tijd. voor de Dierk. iv. p. 22 (1873).
Ptilopus miqueli, Schlegel, Mus. P.-B. Col. p. 26 (1873).
Ptilopus micqueli, Meyer, Sitzungsber. d. k. Akad. d. Wiss. lxx. p. 128 (1874).
Ptilopus miquelii, Salvadori, Prodr. Orn. Pap. Col., Ann. Mus. Civ. d. Gen. ix. p. 196 (1876).

The beauty of Pigeons is great; and our knowledge of the number of species increases rapidly. Mr. Alfred R. Wallace (in his most interesting article in 'The Ibis,' 1865, N. S. vol. i. p. 365 *et seqq.*) puts those of the Austro-Malayan subregion at fifty-four*; whereas Dr. Salvadori, in 1876 (Ann. Mus. Civ. d. Gen.), enumerated ninety species. How many will have been discovered fifty years hence? What the number would have been if the world had not seen a monkey, we cannot tell; it is to this animal that Mr. Wallace, with much reason, attributes their absence in certain localities. As regards the genus under consideration, he says (p. 367):—"New Guinea is their metropolis, whence they diminish in every direction, only one species occurring in Borneo and Sumatra, and the utmost

* At page 372, however, he makes them eighty-four species.

limits of the genus being reached in the southern part of the Malay peninsula. In the Pacific islands and in the Moluccas they abound, many even of the smallest islands having their peculiar species. These are the smallest and most beautiful of the Fruit-Pigeons; their ground-colour is generally of a rich grass-green, diversified with bands and spots, caps, and shoulder-patches of the most vivid colours—crimson, pink, purple, white, or yellow, in endless diversity."

The bird before us was named by Von Rosenberg after F. A. W. Miquel*, a learned Professor of Botany at the University of Leiden, where there is a fine botanical garden. He was the author of more than eighteen considerable works.

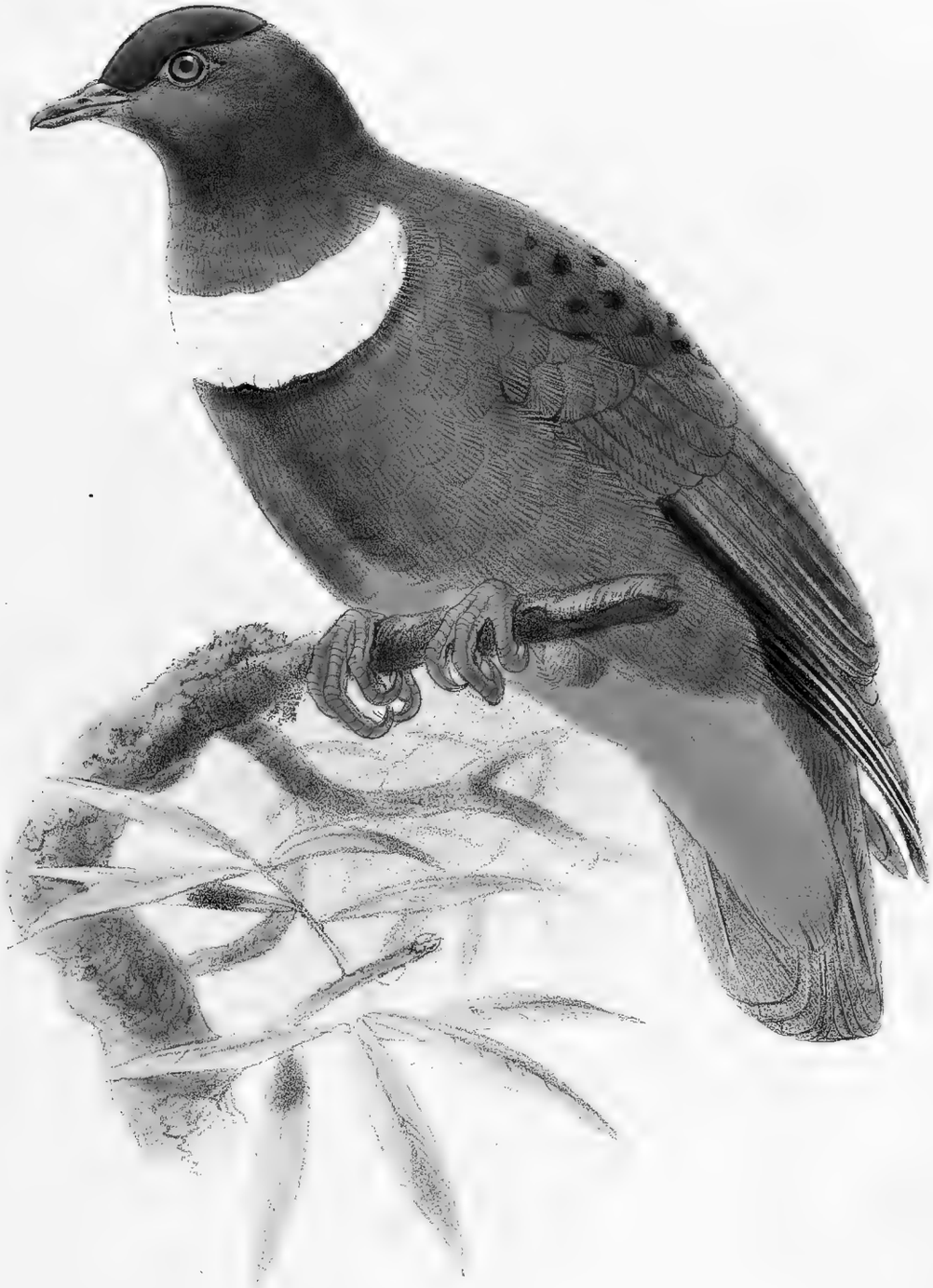
The following translations refer to this bird.

Schlegel, Nederl. Tijd. v. d. Dierk. iv. p. 22 (1873):—

"PTILOPUS MIQUELII, Von Rosenberg, in litteris.

"M. von Rosenberg has recently sent us, under this name, a series of specimens of a *Ptilopus* related to *P. rivolii*, but offering very obvious characters, and originating from other localities, where it appears to represent *P. rivolii*. These localities are the islands of Meosnoum and Jobie, which extend across the large Geelvink's Bay. This fact is the more curious, as this bird does not live on the other islands of the Geelvink's Bay, viz. Mefoor, nor on the group of Schouten (islands Soëk and Biak), as the first is inhabited, in addition to *P. rivolii*, by a species with a white cross band,

* "F. W. Miquel was born on October 24th, 1811, at Neuenhaus, in Hanover (Germany), studied in Groningen, became (1831) Physician at the Amsterdam Hospital, (1835) Master of Botany at the Clinical School of Rotterdam, (1846) Professor of Botany at the Athenæum of Amsterdam, (1859) Professor at the University of Utrecht, (1862) Director of the Government Herbarium at Leiden, died at Utrecht on the 23rd of January, 1871. Blume called after him the genus *Miquelia*."



J.G.Keulemans lith.

Hanhart imp

PTILOPUS MIQUELI

differing very much from *P. rivolii* and *P. miquelii*, a species which also inhabits the island of Soëk, where *P. rivolii* is not to be found: it is *P. speciosus*, about which we shall treat immediately.

"*Ptilopus miquelii* is distinguished from the other species by a white cross band on the breast, by the constant want of red on the breast and belly, these parts being coloured with the same green colour which occurs on the other parts of the bird. We add that the abdomen and the under tail-coverts are of a fine uniform citron-yellow, that the red on the upper part of the head in the male is a little darker and of a deeper purple colour, and that the bird in general is of a somewhat larger size.

"Wing 4″ 6‴ to 4″ 11‴, tail 2″ 9‴, bill from the front 6½‴."

Schlegel, Mus. P.-B. *Columbæ*, p. 26 (1873):—

"Ptilopus miqueli, Von Rosenberg, in litteris; Schlegel, Obs. Zool. in Nederl. Tijdschr. vol. iv. p. 22.

"This species approaches *Ptilopus rivoli*, from which it is distinguished by the entire want of red on the breast, by its somewhat larger size, and by the red on the head being darker and more purple. Add that the under tail-coverts and the abdomen are constantly and in both sexes of a fine yellow. It remains uncertain whether this species is identical with *Ptilopus strophium* of G. R. Gray (List Columbæ Brit. Mus. 1856, p. 6) or *P. cinctus* of Gould (in Jardine, Illustr. 1850, p. 105, fig. on p. 102). The bird bearing this name comes from the Louisiade, and differs (judging from the figure of Jardine) by the red on the head being restricted to the front and offering a rosy tint.

"Wing 4″ 6‴ to 4″ 11‴, tail 2″ 9‴ to 3″.

"Observed on the islands of Meosnoum and Jobie. (From Jobie two males and two females, from Meosnoum three males and one female—all killed in the year 1869.)"

Dr. Meyer remarks, in a letter to me :—

"The Pigeons of the Eastern Archipelago belong to the choicest and most interesting birds of the globe, in consequence of the variety which they show as to gay colours and strange markings, and, from a scientific point of view, as to the materials which they afford to prove the variation of species effected by isolation through insular conditions.

"Among the very numerous species of Pigeons inhabiting the Papuan archipelago, there are four nearly allied ones which present a special interest, because, notwithstanding their being closely related to one another, they are yet very distinct in marking and colour—the more obvious as they live in close proximity; they, indeed, form a small natural subgroup within the large group of the *Ptilopi.* These four species are, enumerated chronologically in the order of their discovery,

"1. *Ptilopus rivolii*, Prov.,
2. *Ptilopus miquelii*, Rosenb.,
3. *Ptilopus speciosus*, Rosenb.,
4 *Ptilopus bellus*, Sclater.

"*P. rivolii* has a wide range over a part of the Moluccas, the islands in the west and north of New Guinea, and New Guinea itself. In the following diagram of the geographical distribution we only consider its occurrence on New Guinea and the islands of the Geelvink Bay :—

	"New Guinea.	Mysore.	Jobi.	Mafoor.
"*Ptilopus rivolii*	1	—	—	1
Ptilopus miquelii	—	—	1	—
Ptilopus speciosus . . .	—	1	—	1
Ptilopus bellus	1	—	—	—

"The females of the four species are green nearly all over, differ a little in size, but are difficult to distinguish one from another. The males are all green on their upper parts, *P. speciosus* and *P. rivolii* shading a little more into bronze. Except *P. speciosus,* they all have a red patch on the head; *P. spe-*

ciosus shows only a small violet stripe; but the colours of their underparts are such as to enable one to distinguish them at a glance. The most similar to one another are *P. speciosus* and *P. bellus*; they have a white breast-shield, the upper part of which is citron-yellow. Besides, the belly has a large patch in *P. bellus* rosy red, in *P. speciosus* violet; the abdomen and under tail-coverts are yellow. *P. rivolii* is more like *P. bellus*, but has the white breast-shield entirely without the yellow; the belly has a rosy-red patch, like *P. bellus*; the abdomen and under tail-coverts are sometimes yellow, sometimes green variegated with yellow. Lastly, *P. miquelii* has neither yellow on the white breast-shield nor a red patch on the belly, notwithstanding it has the red on the head; abdomen and under tail-coverts yellow. But a small feature of *P. miquelii*, not to be overlooked or neglected, is a stripe of bluish-green feathers bordering the white breast-shield below—a character which contributes remarkably to the beauty of the species.

"Except *P. miquelii*, all have been figured:—*P. rivolii* several times, among others by Mad. Knip, Pig. ii. pl. 57, and by Des Murs, Icon. Orn. pl. 4; *P. bellus* by Dr. Sclater, P. Z. S. 1873, pl. 57; *P. speciosus* by von Rosenberg, Reistochten, pl. xv.

"The bird in the Plate accompanying Mr. Rowley's paper was drawn after a specimen killed on the island of Jobi, near Ansus, by myself in April 1873, now belonging to the Dresden Museum.

"To characterize the four species better than words do, they ought to be figured together on *one* plate. How Nature likes to vary the same character, would be apparent to all observers as it is striking to every one who sees the four birds together in skins. One cannot leave off speculating how these differences may have originated. As they nearly coincide with insular isolation, one might be inclined to connect these two circumstances; but at present we are totally at a loss to say why the males have altered in

this manner, and the females not: I mean, we have no satisfactory idea about the mode and process of the alteration of colour and marking.

"By the above diagram of geographical distribution, it is to be seen that on New Guinea itself occur *Ptilopus rivolii* and *P. bellus*; but they have not, till now, been found together—*P. bellus* only on the Arfak mountains, *P. rivolii* on the coast of New Guinea, opposite Salawati. The Arfak mountains can perhaps be considered equivalent to an insular elevation. On the island of Mysore only *P. speciosus* occurs, closely allied to *P. bellus*; on the island of Jobi only *P. miquelii*; on the island of Mafoor *P. speciosus* and *P. rivolii* together. This is obvious, Mafoor being a small island. But it would be premature to reason about the facts, as perhaps a more accurate knowledge of the fauna of these parts of the globe than we now possess will show us that the real geographical distribution of these four interesting species of Pigeons is different from what we now suppose."

The bird from which the Plate is taken is a good specimen, which was kindly lent to me for the use of this work by Dr. Meyer, Director of the Dresden Museum. It is represented the size of life.

[To be continued.]

GREAT SOWDEN WOOD, SUSSEX.

(FROM A PHOTOGRAPH TAKEN AUGUST 18, 1877.)

ON SUSSEX HERONRIES.

By Mr. G. D. ROWLEY.

It was almost the last victory which the Scots gained over the English (February 27, 1545, at "Ancram Muir"), and Angus was about to charge the shaken ranks of the invaders, when a Heron rose out of the moor. Now, though that Earl (the grandson of old Bell-the-cat) knew a Hawk from a Heronshawe, and was brother-in-law to Henry VIII., he had probably read but little of Homer; or the happy omen of a similar circumstance, since so well rendered by Pope, would have entered his mind. He did not quote it, neither will I; but he shouted, "I would my good Gos-hawk were here: we should all yoke together." (*Cf.* Froude's 'History of England,' vol. iv. p. 397.)

Leaving, however, that wintry day in 1545, and turning to the hot one of August 18, 1877, when the photographer went from Brighton and took the two photographs which have been reproduced, I will say a word on the heronry at Great Sowden Wood, near Brede, the property of Mr. Edward Frewen, of Brickwall, Northiam, Sussex, who kindly gave his permission, and placed his keeper at my service for the purpose.

Mr. Harting puts the existing number of British heronries at more than two hundred, in a useful paper in the 'Zoologist,' 2nd ser. 1872, pp. 3261–3272. Concerning Sussex he enumerates them as follows:—

"One at Windmill Hill, Hurstmonceux (Mr. Curteis); one formerly in

Park Wood, near Brede (Lord George Cavendish), and now in Sowden's Wood, Brede (Mr. Frewen), consisting of about 400 nests upon oak and aspen; and one at Parham.

"Concerning the last-named, the owner was good enough to write to me, in July last, as follows:—'The heronry here consists of 117 nests, up to the 15th of April, mostly made of birch twigs, though they are built on fir trees. After the first batch are able to fly, the old birds repair the nests for a second incubation; and the young birds one or two years old begin to make new nests, which are not nearly so large as the old nests. They rob the Rooks' nests to build their own; and frequent battles ensue between the Herons and the Rooks, who also rob the Herons when they can. The ancestors of these Herons are said to have been brought from Coity Castle, in Wales, by the falconer of Robert Dudley, Earl of Leicester, in Queen Elizabeth's time, to Penshurst, from whence they migrated, about sixty or seventy years ago, to Mitchelgrove, near Worthing; and on the trees being cut there, they came to Parham in 1832.'"

As regards the Parham one, Mr. Knox has described that colony so well in his 'Ornithological Rambles' that nothing more need be said.

In the 'Sussex Archæological Collections,' vol. xxvii. 1877, pp. 110–116, the Rev. F. H. Arnold, LL.B., has an amusing article on the heronries of the county, with a woodcut of the "Heronry and Rookery at Windmill-Hill Place, the seat of H. M. Curteis, Esq." Here both species dwell in harmony.

Of Brede, at Udimore, near Rye, the same gentleman says, "The owner has kindly supplied the following information:—

"'The heronry at Brede is situated in the north-east corner of the Great Sowden's Wood. About twenty years ago some 400 nests could be counted;

but at present there are barely 200 nests. I cannot in any way account for the decrease in their numbers, as the greatest care is taken to preserve them, and no timber or underwood in proximity to the heronry has been cut for a great many years, so as to avoid disturbing them. The trees in which they build are, for the most part, large oaks, under which nothing grows but brambles. The wood is about eighty acres in extent, and lies on the side of a hill facing the north. The Rye and Finchall turnpike-road runs along the top of the wood; and by driving along the road, the birds can be plainly seen on their nests in the spring-time. The Tillingham, well stocked with fish, runs along the north side of the cover; and about half a mile to the south the Brede river flows.

"'Yours faithfully,

"'Brickwall, Northiam, Sussex,
"'December 1876.'"

"'EDWARD FREWEN.'"

Mr. Arnold adds a curious fact:—At Fyvie, near Turriff, Mr. Sim states, "Herons do sometimes have their nests in a rookery; one had its nest two years in succession in the Fyvie rookery, no other Heron's nest being known within six miles."

Rooks and Herons do not always live together in peace. Bewick states (vol. ii. p. 39, note) that "at Dallam Tower, Westmoreland, the seat of Daniel Wilson, Esq.," in 1775, there was a violent contest, which cost many lives and lasted two years. The Herons gained the victory; but it should be observed that they were driven into the fight by their own trees being cut down.

At Sowden Wood one very remarkable fact is stated by Mr. Frewen, in a letter on the subject:—"There is no underwood below the trees, as nothing will grow but brambles, the Herons' droppings being most destructive and poisonous. It is a good find for a fox; I expect they come there for fish &c.

which are dropped." Perhaps also for the young ones, of which thirteen or fourteen were blown out last year.

It would appear that the Heron does not condescend to pick up a fish when lost, in which respect it resembles the Fish-hawk, or Osprey, of America (*Falco haliæetus*). Wilson mentions that one let fall a fine flounder, which served a whole family for dinner (vol. ii. p. 112). I say "American Fish-hawk," because the ornithologists of England and America are divided as to there being one or two species in the respective countries, and I always listen to American naturalists. These Herons drop a great many fish.

The above is a case of foxes eating fish. In a book on the Country between the Danube and Black Sea, by Henry C. Barkley, p. 82, we find :—

"On one occasion R—— and I determined to dig out an earth, with the hope of getting a young fox to tame. First the earth ran winding in for about five yards, where there was a bolt-hole; and about three yards further on was an oven-shaped room, as big as a large hamper, the sides and floor of which were swept quite clean and free from dust. There were several rooms at the sides of the passages, in one of which we found the following provisions, all quite fresh—a leveret, a turtledove, seven roach, and three goose's eggs. We were greatly astonished at the time; and to this day it remains a puzzle to me how the foxes caught the fish, and how they could carry such large eggs. The eggs were unbroken; and the fish had not a mark upon them. We took them all home and eat them. I take it this was the first time a man had taken a dinner from a fox!"

The foxes probably obtained the fish in the same way that the Sowden ones get theirs*.

* Foxes are not the only quadrupeds which assail breeding birds. We find the same done by bears, badgers, wolves, &c.; for Colonel Prjevalsky says of *Ciconia boyciana* (*cf. anteà*, p. 50) :— "A great many nests of the present species are destroyed by Tibet bears (*Ursus thibetanus*), who climb up to the nests and eat the young birds." Also Jacques Cartier, the discoverer of Canada, in his 'Voyages' (1534–1542), states, of the Polar bears (*Ursus maritimus*), that they will swim to an

A few Hawks and Carrion-Crows breed among the Herons; and the Carrion-Crows are always masters. In the winter time the Pigeons associate with the Herons, which go away to feed upon the Winchelsea and Pevensey marshes. From Pevensey to St. Leonards you observe chiefly marshes full of black cattle. The space between the sea and the firm land is locally termed "the Swatchway;" and it is on this Swatchway that the Herons get their living. Here you may see "a sege of Herons," to use the language of old writers (*cf.* Daniel's 'Rural Sports,' vol. iii. p. 314).

About forty-five years ago, George Noakes, the woodman, who has been there sixty years, observed a strange circumstance:—Just where a small stream or drain ran onto the mud or Swatchway, there were congregated eels without number, on which some twenty Herons were feeding; he obtained a rake, and raked up a vast many of the former. This place is now silted up; and to the gradual reduction of the mud I should fancy the decline of this heronry might be traced.

The woodman considers that these Herons chiefly feed on eels; but the Rev. Richard Lubbock, in 'Fauna of Norfolk,' p. 137, says:—"The Heron, in Norfolk, gets half his subsistence from the fry of this fish [*i. e.* the Pike];

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island fourteen leagues distant from the mainland to devour the Razorbills (*Alca torda*). Again, we find in the 'Times' report of the Arctic expedition, October 31, 1876, as follows:—"The Greenland shore, off which the ship lay, was infested with Owls, whose nests the sailors were very quick in discovering. When the spring set in they laid snares for the old ones, and determined to carry home a large consignment of owlets; but when the young were all but fully grown, wolves descended on them in nearly every instance, and eat them. This was very strange, as there were not more than a couple of wolves seen in the neighbourhood of the ship. Robbing the nests was a work of great danger, because the old Owls descended upon the men and darted at their eyes; and it required no ordinary wariness to keep them off."

The badger proves himself a member of the Ursidæ in the same way; for Mr. Frederick Swabey, of Conyton Park, says, in the 'Times,' October 26, 1877, in a letter headed "Anti-badger:"—Badgers "every year take a great many of my domesticated Wild Ducks' eggs. This year they took two of my Wild Ducks off their nests while sitting. Their tracks were very plain."

those which were taken by Falcons at Didlington had always small pike in their maws."

At Sowden Wood, in spring, the birds can be seen from the road standing in rows, like a regiment of soldiers. But it would be impossible to photograph groups of birds on the move; and even the young Heron which may be observed in his nest in the lithograph, would perversely open and shut his mandibles, to the annoyance of those taking his portrait; while he, on his part, wondered why his fond parent failed to disgorge the expected eel from her own into his mouth.

Noakes says the Herons chiefly feed at night, in which he is confirmed by Macgillivray ('British Birds,' vol. iv. p. 448), but adds:—"I do not think they see objects so well in the dusk; for I have known two or three to pass overhead within shot whilst I was quite unconcealed. On another occasion, when I was down amongst the rocks by moonlight, one alighted close beside me (at not a dozen yards distance, I suppose), and did not seem to be aware of me till I frightened it off."

When the Herons at Sowden Wood are sitting, you may pelt them with stones, but they will not rise from the nest.

Noakes, the woodman, says that he has eaten a Heron in a dumpling, all except the legs *, and reports it "beautiful." Now I have done the same,

* Noakes affirms that when the Heron stands in the water the greasiness of the legs attracts the eels. But this is a very curious belief for a Sussex labourer to hold in 1877, because, if we turn to Lloyd's 'Scandinavian Adventures,' vol. ii. p. 388, we find it stated that "the common people in Sweden think that its legs have a peculiar odour, whereby fish are attracted to the spot." Pontopiddan says:—"Its long legs are a great help to it to get provisions. On these legs are a very few fine hairs, which play softly in the water; and that motion entices the fish, who are not aware of the devouring beak." Lloyd quotes this, and observes:—"The real attraction consists probably in the droppings of the bird." This is perhaps the true solution; for there appears to be something in so widely spread a belief; and though Noakes has never read the work of the fine old bishop, yet, being a practical observer, his observation means something.

and found it taste like hare, but do not wish to try the dish again. Our ancestors must, I think, have partaken out of sentiment; and the Jews lost nothing by the Levitical prohibition, as it appears to me.

Nevertheless, in the 'Boke of Kervinge,' printed by Wynkyn de Worde (mentioned by Daniel, in his 'Rural Sports,' vol. iii. p. 316), among other good dishes of which the technical terms are given—such as "Unbrace that Mallard," "Wynge that Partriche," "Thye that Woodcock,"—we have "Dismembre that Heron."

To obtain a heronry is not easy. We find, in the 'Architecture of Birds,' p. 184:—"Belon tells us that 'the Heron is royal meat, on which the French nobility set great value;' and he mentions it as one of the extraordinary feats performed by the 'divine king' Francis I., that he formed two artificial heronries at Fontainebleau—'the very elements themselves,' he adds, 'obeying the commands of the divine king (whom God absolve!); for to force Nature is a working partaking of Divinity.'"

A really wild heronry, not protected, and perhaps the last vestige of a natural fen object of the kind, is mentioned by Pishey Thompson in his 'History of Boston,' p. 676.

He there gives an account of "a large tree, which formerly stood on the western border of the parish of Leake, and nearly adjoining the high road from Leverton." This "was for a long time the resort of a very considerable number of Herons." The tree was "literally covered with their nests; it was taken down about twenty-five years ago" (*i. e.* from 1856).

This is the famous Heronshawe tree of Leake. I went to the spot, and received an account of it from a person who remembers it well, and says it was an ash, and had about twenty-five nests upon it. Fifty-five years ago from March 1877 (*i. e.* in March 1822) an artist took a drawing of the tree; and his sketch was afterwards spun or woven into a tablecloth. It was early in the morning, and the Herons were feeding their young.

The number of nests on this ash is less than those on the celebrated oak of Cressy Hall, Spalding, on which Pennant counted eighty. Trees were scarce in the Lincolnshire fen; so the birds made the most of the one at Leake. Heronshawe Hall is mentioned in Pishey Thompson.

Though British Herons prefer trees when they can get them, we must not forget that these birds build their nests upon the ground at times. In his account of this species (*Ardea cinerea*), Colonel Prjevalsky says (*antea*, p. 49), they "choose for their nesting-places the small, thick, reedy islands of the river Lefa. . . . Here the nests are very numerous, close to each other, all being built of the same shape and very carelessly. Some twigs, without any lining, form the whole structure, which is of a flat shape and not elevated beyond two or three feet above the water-mark. It is difficult to understand how the eggs do not get injured in these nests during a strong wind."

Our common Heron (*Ardea cinerea*) cannot hold his own with the bird of Central America (*Ardea cocoi*, Linn.). Some years ago I received one of the latter by ship, and presented him to the Zoological Society. Birds that have made voyages are usually tame; the sailors soon make them so; but this Heron proved an exception. Being placed in an aviary with an English bird, "a difficulty" arose, and the stranger soon laid the Britisher dead at his feet. After this exploit he lived some years in the gardens of the Society; and I used to see him at times there, where he may be still for aught I know.

At the end of September 1877, outside Brighton, some clap-nets were set by a pond; and a young Heron, having settled on the ground near, was driven into one of them and caught. This was the only instance I ever knew of this bird being so taken.

The Sowden-Wood heronry is illustrated by a woodcut by Mr. Pearson and a lithograph by Mr. Keulemans, both copied from photographs taken for this work.

In the woodcut the general aspect is given as the spectator stands in the Rye-and-Finchall turnpike-road and looks down on the tops of the trees, which are not allowed to be cut. In the left-hand corner, on the opposite hills, may be observed certain hop-gardens, in which no "pickers" have yet arrived. Soon, however, will a quarter of a million* of such persons carry off the hops to be "oasted" (*i. e.* dried by a charcoal fire) at the oasting-house, of which every farm has one, some more. Here they will be put into "pockets;" while he who treads them down comes out a "green man," and the steam and smell can be perceived to a long distance.

In the lithograph, I am bound to say (for pictorial truth should be most sacred, which it frequently is not!), the Herons had to be put in afterwards: though they were there, they could not be photographed. It is observable how late these nests of young Herons were. In a large wood, however, it is not easy to photograph the nests; standing out in a park, they could be better seen.

In conclusion, if an ornithologist were to make out a list of birds prominent in classical or modern superstition, both as respects water and land (such as, notably, the Kingfisher and the Vulture† in the one, and the Petrel or the Magpie in the other), he would perhaps enumerate the Heron in both.

* This number is founded on an estimate in an article published in the 'Times,' Thursday, August 30, 1877, where it is stated that from London alone at least 35,000 pickers start, and that Kent and Sussex employ a quarter of a million. The London, Chatham, and Dover Company takes these people at reduced fares.

† Romulus and Remus.

J.J.Kessler & Ans lith

Hanhart imp

CHLORÆNAS SUBVINACEA. (Lawrence) ♂

CHLORŒNAS SUBVINACEA. *Lawrence.*

By Mr. G. D. ROWLEY.

The following is from 'A Catalogue of the Birds of Costa Rica,' by George N. Lawrence, p. 135 (reprinted from the 'Annals of the Lyceum of Natural History in New York,' vol. ix. April 1868):—

"448. Chlorœnas subvinacea, sp. n.

"*Male.* Head, neck, and under plumage light purplish vinaceous, darker on the abdomen and sides; the throat paler, and of a fulvous tinge; back, wing-coverts, and rump brownish cinnamon; tail of a fine dark brown, slightly purplish, except the two central feathers, which are rather lighter in colour and incline to olivaceous brown; the upper tail-coverts are of the same colour as the central tail-feathers; the quills are dark brown, the primaries blackish on the outer webs, which are narrowly margined with pale cinnamon, the inner webs of the quill-feathers are broadly marked with dull pale cinnamon to near their ends; the under wing-coverts are vinaceous, varied with cinnamon; bill black; feet yellow.

"Length (fresh) 13½ inches, wing 6½, tail 5½, tarsi ¾.

"*Habitat.* Dota. Collected by F. Carmiol, February 26th, 1867. Type in Mus. Smiths. Inst. no. 47575.

"The *female* is a little smaller, 12½ inches in length, and differs in

plumage only in being less vinaceous on the lower part of the hind neck and abdomen, where it is brownish cinnamon.

"*Remarks.* There are four specimens of this species in the collection, all agreeing in plumage. It differs from *C. vinacea* in being generally lighter in colour, the back and rump being cinnamon-brown instead of dull dark vinous; the wings of *C. vinacea* are of an olivaceous cast, and the inner webs of the quills are not of a cinnamon-colour as in the present species.

"*C. nigrirostris*, Scl., is either this or *C. vinacea*, and has the back and wings dark olive-brown."

Mr. Boucard states to me that the specimen from which the Plate is taken, now in my collection, was killed at an altitude of 7000 feet, on the Volcan de Irazu, among a small flock of ten birds distributed on several trees; usually about two or four individuals rest on each tree. The species keeps to the mountains, and feeds on seeds. When acorns appear, as they do in May, this Pigeon is frequently seen in the oak forest; and, Mr. Boucard adds, here it lives.

The date on this skin, which is that of a male, is July 5th, 1877.

J. Smit lith.

TRYGON RUFINUCHUS (Temm.) ♂ & ♀

GEOTRYGON RUFIVENTRIS, *Lawrence.*

By Mr. G. D. ROWLEY.

The following appeared in a reprint from the 'Annals of the Lyceum of Natural History in New York,' vol. xi. February 1875 :—

"IX.—*Description of Four New Species of Birds from Costa Rica.* By George N. Lawrence. (Read December 21, 1874.)"

At p. 90 :—

"3. Geotrygon rufiventris.

"Front and a line under the eye, extending as far as the occiput, light salmon-colour; crown, hind neck, upper part of back, throat, and upper part of breast of a rather dull violet-purple, on the lower part of the breast merging into brownish ash; lower part of back, rump, and upper tail-coverts of a dull bronzy olive-green; tail-feathers brownish black, the ends lighter or ashy brown; abdomen, vent, and sides dull brownish rufous, on the middle of the abdomen is a patch of white feathers just tinged with rufous; under tail-coverts dark brown, largely ending with rufous; wing-coverts, secondaries, and tertiaries olive-brown, primaries brownish black, the shafts of a reddish or hazel-brown; under wing-coverts and axillars deep cinnamon-red; inner webs of primaries at base dull pale cinnamon; bill black; feet in the dried specimen of yellowish flesh-colour.

"The sex is not given.

"Length about 9 inches; wing $5\frac{1}{4}$; tail $3\frac{1}{4}$; bill from front $\frac{3}{4}$, from rictus 1, tarsus $1\frac{3}{8}$.

"*Habitat.* Costa Rica, Talamanca. Type in National Museum.

"*Remarks.* The number of handsome species of this genus discovered in Central America within the last few years is quite remarkable, this making the sixth; it is, however, much more sombre-looking than most of its allies, the colour being darker and more subdued. It is so unlike all others of the genus that no comparisons are required."

Mr. Boucard informs me that the specimens from which the Plate is taken came from Agua Dulce, Panama. The species inhabits the tropical forests, and keeps on the ground, feeding on seeds and perhaps insects. It is rather rare, and difficult to detect.

The natives are very fond of these birds to eat, and have applied the name "paloma del monte" (forest-dove) to them.

The skins are male and female, with date December 1876.

J Smit lith

LEPTOPELIA PAGANI

LEPTOPTILA CASSINI, *Lawrence.*

By Mr. G. D. ROWLEY.

The male bird from which the Plate is taken was shot by Mr. A. Boucard at San Carlos, Costa Rica, February 1877. A curious fact is also stated by by him, namely that he killed it on the nest, which circumstance made him think that it was the female; but he says that he took care to note the sex when dissecting the specimen, and he is quite sure about it. The female was very close to the spot; but no shot was obtained.

Although he killed this bird on the nest, yet the eggs remained uninjured, and were two in number. These have passed into my collection; and very pretty they are. The long diameter is $1\frac{1}{16}$ inch, the short diameter $\frac{7}{8}$ inch, and the shape most elegant; while the colour is a delicate cream.

Mr. Boucard informs me that the nest was built on the fork of a small tree, and, being only about five yards from the ground, was reached with facility. It was composed of small pieces of dry wood.

Mr. Boucard saw several other birds of the same species, but could not obtain more than this specimen. He always observed them in dense forests, on the ground and in pairs, and found them capital to eat.

San Carlos is a large valley which divides the Republic of Costa Rica from that of Nicaragua, and is quite tropical. The rancho where he was living is at the altitude of 500 feet; and the valley itself is only inhabited by

four Costaricenses, or people of Costa Rica, who have made openings in the magnificent virgin forests, and follow the occupation of fattening cattle. The trees found here are mahogany, cedar, and india-rubber, with others; but these are the most conspicuous.

I have had some doubts as to the identity of my skin; it might possibly be *Leptoptila cerviniventris*, Sclater and Salvin; *cf.* P. Z. S. 1868, p. 59, where those ornithologists have a joint article; in it they say, under the head of

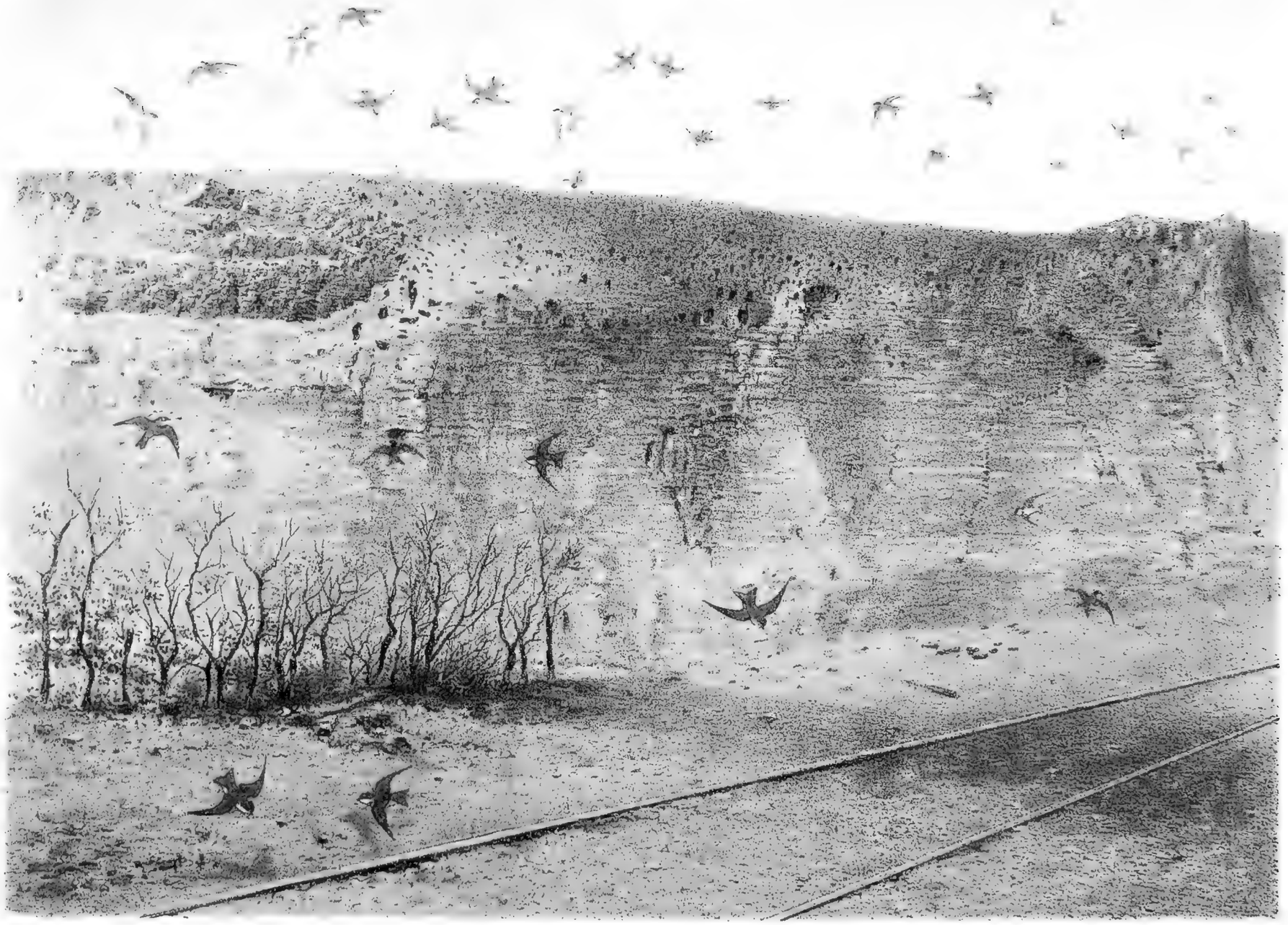
"L. CERVINIVENTRIS, sp. nov.,

"Sim. *L. cassini*, sed pectore dilutiore et vinaceo tincto et ventre summo saturate cervino differt."

The two species appear to run rather close. The authors say, in the above article, that they are acquainted with eight species of the genus *Leptoptila*, which, they state, "may be easily distinguished from all other genera of *Columbidæ* (except *Peristera*) by the peculiar acumination of the outer primary. All of them have the under wing-coverts deep cinnamomeous or chestnut, and the outer tail-feathers more or less terminated with white."

In the 'Nomenclator Avium Neotropicalium' (1873), by the same two ornithologists (pp. 133, 134), we find the eight species have become eleven.

The Plate represents the bird the size of life.



M & N Hanhart imp

THE HOME OF THE SAND MARTIN *(Cotyle riparia.)*

SANDY STATION, GREAT NORTHERN RAILWAY.

27 JUNE 1877.

COTYLE RIPARIA.

(The Sand-Martin.)

By Mr. G. D. ROWLEY.

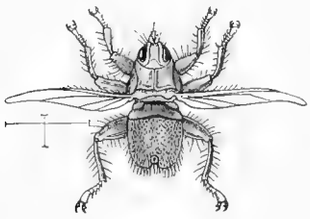
Where should we expect to find the Sand-Martin, if not at Sandy? There are, however, not a great many; the publicity of the place and the want of protection to the birds, together with the constant excavation going on for railway purposes, keep the numbers down.

The lithograph is from a photograph taken on the spot, for this work, on the 27th of June, 1877.

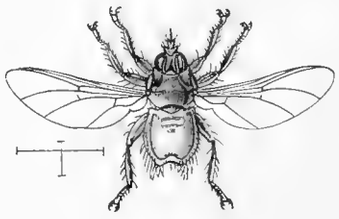
The colony established itself in 1877; and all the holes are fresh. The birds are quite tame, and almost touch the men when digging, or settle upon them. A pair take about a week to make a nest in the sand, which is here about eighteen feet deep. This railway-station has long been famous for Sand-Martins.

When the eggs have been incubated a little while, the fleas abound to such an extent that I have seen them fall out like rain. White, of Selborne, mistook this insect for the common bed-flea (*Pulex irritans*); whereas, according to Mr. Harting's note to his edition of the 'History of Selborne,' p. 200, "it appears even to be distinct from the flea of the Swallow, *Pulex hirundinis* (Stephens), and has been described as *P. bifasciatus* (Curtis)."

The young of the House-Martin (*Hirundo urbica*) abound with what seem to be lice (Anoplura); and Mr. P. J. van Beneden says, in 'Animal Parasites,' p. 121, that Martins "are usually infested by many vermin, among which we find a fly of considerable size, which looks much like a spider—the *Ornithomyia hirundinis*. It moves about among the feathers with astonishing facility, and is not always confined to the same bird; it quits its host to establish itself upon another, and sometimes throws itself upon man to suck his blood. Some years ago these insects penetrated, in the middle of the night, through the open windows, into one of the apartments of the Military Hospital at Louvain; and the next morning the skin of many of the patients, and especially the bed-linen, were covered with stains of blood. The physicians sent me some of these insects, not knowing whence they had come or whether they had been the cause of this annoyance. During the night these *Ornithomyiæ* had quitted their hosts to attack the soldiers."



Stenopteryx hirundinis.



Ornithomyia avicularia *.

The woodcuts represent *Stenopteryx hirundinis* and *Ornithomyia avicularia*—the former drawn from an example in the British Museum, the latter from specimens obtained by me alive at Brighton, in August, taken off the Brown Linnet (*Linota cannabina*, Linn.), and said by the birdcatchers also to frequent the Stonechat and Yellowhammer. The two are very different, as will be seen by the illustrations.

* In the 'Insecta Britannica,' by Walker, is a long description of this fly. It has been described as *O. viridis*, Latreille and Meigen, and *O. fringillina*, Curtis.

The agility and quickness of the latter fly is astonishing: it runs in under the feathers about the shoulders; and although the bird may flutter a good deal, the insect is not disturbed; nor does its presence cause uneasiness, though it is said to make quite a sore place at times, and red spots. When driven out, which it is with difficulty, it resumes its position immediately. Sometimes these flies, of which the body is hard, will slip through the fingers and get into the men's whiskers.

It is to be presumed that when the Swallow and the Linnet migrate they take their respective parasites with them; but this I am unable to state as a fact. They would seem to quit a dead bird very shortly after its life is gone, and to have an immediate apprehension of something wrong when you handle their living host. Both are figured and described in Francis Walker's 'Insecta Britannica' (vol. ii. pp. 287–289, and pl. xx.); also in Curtis's 'British Entomology' (vol. xiii. pl. 585).

I have specimens of these flies found on the Starling, Wheatear, Blackcap, Whitethroat, &c., but have not determined the species in each case. All taken this season.

Two Whitethroats were caught, and put into a cage. One was examined, and a fly came out, but escaped; instead, however, of going in another direction, it immediately made straight for the other Whitethroat, and went under its feathers. This bird was so marked as to be known, and was allowed to depart on a Monday. Next Saturday it was again captured; and on it was seen a fly, supposed (but, of course, only supposed) to be the very individual above mentioned. The bird was certainly the same.

As regards Sand-Martins, it seems strange that an insect-eating species should be infested with external parasites to such an extent; but they appear to do no harm, any more than internal ones, of which Van Beneden mentions a most remarkable instance (pp. 90 & 91):—"Nathusius speaks of a Black Stork which lodged twenty-four *Filariæ lobatæ* in its lungs, sixteen *Syngami tracheales* in the tracheal artery,

besides more than a hundred *Spiropteræ alatæ* within the membranes of the stomach, several hundreds of the *Holostomum excavatum* in the smaller intestine, a hundred of the *Distoma ferox* in the large intestine, twenty-two of the *Distoma hians* in the œsophagus, and a *Distoma echinatum* in the small intestine; yet the bird did not appear to be in the least inconvenienced."

Mr. John Wolley (in the 'Ootheca Wolleyana,' edited by Alfred Newton, M.A. &c., p. 19) relates an amusing adventure with the fleas of the Golden Eagle, though he does not determine the species. He jumps into a nest of that bird, and says:—"Resting on my hands and knees, I felt, as I thought, a lot of flies crawling on my hands. On closer inspection, I saw they were fleas, and my arms and legs were swarming with them. I beat a retreat.... With the help of flint and steel a fire was made with moss and heather; and I stripped to the skin. After an hour or two's hard picking and smoking, the clothes were handed over to me, one by one, as I sat at some distance, and I extracted a few score more, but still put many around me."

In one or two cases, at Sandy, the Sand-Martins had been obliged to yield their habitations to Starlings; and a similar instance is mentioned in the 'Zoologist,' 3rd ser. July 1877, p. 301, by Mr. C. Matthew Prior (Bedford):—"I was greatly surprised one day, in passing a sand-pit, to find that Starlings had taken possession of all the Sand-Martin's holes. On coming again a month later, most of the birds had young ones. It was very amusing to see the way in which they entered the hole: on getting about 150 yards from the entrance, they sailed gracefully into it, giving a few hurried flaps with their wings on gaining the aperture."

It is curious that a Robin should seize a Sand-Martin's nest; but so we find in Mr. Dresser's 'Birds of Europe' (part xxxii. September 1874, *Cotyle riparia*, p. 6), on the authority of Mr. Cecil Smith, who has a quarry

on his property, and says :—" When the earth was being taken off, a pair of Robins were found to have taken possession of one of the Sand-Martin's holes, and had already laid three eggs in it."

Mr. Dresser also states that the Sparrow will sometimes hold and occupy a gallery*.

The bird under examination is a true miner; and if we examine its bill, we see how well adapted it is for the work. Insects, such as sand-wasps (*Sphecidæ*, Leach) and some bees, excavate galleries in hard sand—the former with caliper-like mandibles; but the process is different. The bird's mode of mining has been so often described that it is needless to repeat it.

The range of the Sand-Martin is fully given in Mr. Dresser's 'Birds of Europe;' and Mr. Sharpe's table of distribution of African *Hirundinidæ* may be consulted with advantage (P. Z S. 1870, p. 320). The same writer says also (p. 297) :—" Our well-known Sand-Martin only extends into North-eastern Africa. Dr. von Heuglin states that it is rather rare in N.E. Africa and Arabia."

One thing is much to be wished, that in our country all classes of people would protect such beautiful and harmless colonies as those of this charming and useful little Swallow. Pallas says that "on the high banks of the Irtish their nests are in some places so numerous that when disturbed they came out in vast flocks, and filled the air like flies." Why should we not have such scenes as this? Kindness to poor little birds ought to be a part of all religions, and is†.

* It does not appear that the nest of the Sand-Martin ever became a popular sign; the "Martin's Nest" at Thornhill Bridge, Normanton, mentioned in Larwood and Hotten's 'Sign-boards,' p. 178, was probably the House-Martin's.

† Mr. L. Lloyd, in 'Game-birds and Wild-fowl of Sweden and Norway,' p. 175, mentions an amusing instance of the way in which religion protects the Partridge in Sweden :—" On the last Sunday in Lent the Governor's order, prohibiting the capture or shooting of Partridges from November to August, was notified from all the pulpits within the diocese of Gotland. Scarcely was

The maxim "Be merciful, because you have need of mercy," is one thing; but I would rather put it on this ground, "Be merciful, because you feel your Divine origin." So Father Felician to Evangeline, in Longfellow's story—

"O daughter! thy God thus speaketh within thee!"

Before leaving the subject of Sandy station and its birds, I may say I have rarely seen any place presenting so many interesting features. Here you may dig up bones of extinct animals, Roman pots, coins, &c. pretty freely. One day, having to wait some time for a train, I said, "Let us spend the interval in excavation;" having, therefore, obtained a spade and man from a cottage, we soon turned up a Roman coin, which I now have. While looking at the Sand-Martins' nests, the diggers brought me a human skull, which they had just found; and I gave them a trifle to bury it again. Not a single stone occurs in this fine bed, except perhaps a black pebble or so at the bottom.

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the reading of the above announcement concluded in B——— church, when a fine cock Partridge, as if aware of the powerful protection just accorded him, boldly entered the sacred edifice, and, marching up the middle aisle, stationed himself for a couple of minutes in front of the pulpit. Here this unwonted church-goer was, for the time, carefully taken in charge, and afterwards restored to liberty, it being contrary to the law just promulgated to detain him a prisoner."

THE BIRDS

OF

MONGOLIA, THE TANGUT COUNTRY,

AND THE

SOLITUDES OF NORTHERN TIBET.

By Lieut.-Col. N. PRJEVALSKY.

[Continued from p. 53.]

Order VI. GRALLÆ (*continued*).

232. Totanus ochropus, L. *Ulit travnic.*

Occurs throughout Mongolia, except the Ala-shan mountains, and seems to arrive there about the middle of April, when it can usually be seen, either singly or in pairs, on the shores of rivers or on marshes, but does not stop to breed, although a few specimens have been noticed in the Hoang-ho valley in the month of July. In Kan-su we saw it once in the end of September, and never at Koko-nor, perhaps on account of our having been there only late in autumn and early in spring.

T. ochropus is rather common in spring in Ussuri from about the 20th of April, when we met with a few birds at Lake Hanka. The autumnal migration takes place in August.

233. Totanus glareola.

Common in S.E. Mongolia about the end of April, when migrating, and is plentiful in summer in the Hoang-ho valley. We did not find it in Kan-su and Koko-nor, but several times observed it in Gobi, about small rain-puddles.

Is extremely common about Lake Hanka during the spring migration, which commences in the latter part of April and lasts until the middle of May. The autumnal migration takes place in August; and although *T. glareola* has been found breeding on the Ussuri, it never came under my observation in summer anywhere about Hanka.

234. Totanus calidris, L. *Ulit nastojashchey.*

Breeds sparingly in the Hoang-ho valley and about the shores of small rivers in S.E. Mongolia, whither it migrates in the end of March, about which time it was also numerous at Koko-nor, and in August, during migration, about the rain-puddles in Gobi. We did not find it in the Ussuri country.

235. Totanus fuscus, L. *Ulit temney.*

We met with this species in S.E. Mongolia during the spring migration, in the end of March. At Lake Hanka it arrives early in March, but is not common until the beginning of April (when it for some time keeps in small flocks), and does not stop here to breed.

236. Totanus glottis, L. *Ulit bolshoy.*

Is an occasional visitor to the Hoang-ho, and a migrant through Gobi about the end of August. We did not observe it anywhere else in Mongolia.

It appears in limited numbers at Lake Hanka late in April; and single

ones are to be met with throughout the summer there, as well as on the Ussuri. In August it becomes again more abundant; and in September and the early part of October it was not scarce on the coasts of the Japanese Sea.

237. Tringoides hypoleucos, L. *Beregovnic serey.*

Sometimes it breeds at the rivers of S.E. Mongolia, is more common on the Hoang-ho, but does not occur in Ala-shan. In Kan-su and Halha it was met with only on its autumnal migration. It is extremely abundant in the Ussuri country, and arrives at Lake Hanka in the middle of April, leaving again in September.

238. Recurvirostra avocetta, Bonn. *Shilocluvka.*

This is a tolerably common spring migrant to S.E. Mongolia, about the end of March, when it principally keeps to the shores of saltwater lakes, in small flocks of from five to fifteen individuals; and not being pursued, it becomes tame.

We found it breeding on the Yellow River, and noticed that the first birds arrived in spring in Koko-nor on the 17th of March, where they were not scarce throughout the month.

It does not occur in the Ussuri country.

239. Himantopus candidus, Bonn. *Hudulochnic acatka.*

H. candidus breeds on the Hoang-ho only about small lakes and in marshes. Some birds were observed on the 23rd of April, although others might have been there before that date.

The bend of the Hoang-ho most likely forms the northern limit of this bird's distribution, as it has not been recorded either from Lake Baikal or from the Amur.

240. Tringa temminckii, Leisl. *Pesochnic Temmincka.*

During the spring migration, which commences about the middle of April, this species is tolerably common in S.E. Mongolia; and in the summer, in July, we met with it in the Hoang-ho valley, where it probably breeds. In Gobi a few migrating individuals were observed during the month of August; they kept mostly to the small rain-pools. It does not occur in Kan-su; nor did we find it at Koko-nor; but its absence in the latter place might be accounted for by our being there only late in autumn and early in spring.

241. Tringa subminuta, Midd.

T. subminuta inhabits the whole of S.E. Mongolia, with the exception of the Ala-shan. We did not observe it at all in Kan-su and about Koko-nor.

242. Tringa subarcuata, L. *Pesochnic crivonosoy.*

A few birds were obtained in the Hoang-ho valley in summer; it most likely breeds there.

In the Ussuri country, one was seen by me near Lake Hanka.

243. Gallinago scolopacina, Bp. *Becas barashec.*

Is rather a rare breeding bird in the Hoang-ho valley, and probably also in S.E. Mongolia, where great numbers were seen on migration. This commences very late, namely about the 10th of April, and lasts until the beginning or middle of May.

On account of the scarcity of marshes, *G. scolopacina* inhabits the shores of lakes. When there are morning frosts (which last until the end of April, and occasionally even until the beginning of May), the shores of

the lakes being slightly frozen over, these birds depart into the deserts, or hide themselves between the clumps of moss in the marshes, and wait until the sun has melted the thin ice, when they again return to the lakes.

We saw this species only once in Kan-su, in September. At Koko-nor the first migrants appeared on the 23rd of March, and were very abundant there in the end of that month. In crossing the Gobi desert we did not meet them, as they most likely migrate, like so many other birds, along the eastern edge of Gobi.

At Lake Hanka they appear early in April, and are very numerous about the middle of that month. Few stop, however, to breed there, most likely on account of the scarcity of suitable localities in the marshes, which are usually overgrown with high grass.

It is remarkable that during the principal migration I several times noticed, about Lake Hanka, small flocks of from five to ten individuals flying northwards, about 200 yards high.

244. Gallinago solitaria, Hodgs.

We met with *G. solitaria* on the unfrozen brooks in the mountains of S.E. Mongolia, in Northern Tibet, about Burchan Budda at an actual height of 12,000 feet, and also in Kan-su and about Koko-nor. It was scarce in all the above places, and was usually found singly in the most solitary localities, commonly on dry shores of mountain-brooks, but never on clayey ones.

Its spring migration occurs at Koko-nor between the 27th of February and about the middle of March.

In the Ussuri country I met with it on the brooks free from ice near Japanese Sea.

245. Gallinago heterocerca, Cab.

Is only scarce in S.E. Mongolia, during migration about the beginning

of May, and has not been seen in the Hoang-ho valley, where the following species breeds numerously; but as it is very difficult to distinguish it from the latter when on the wing, we cannot state the above with certainty.

In Gobi we several times observed it during migration; but perhaps it might have been *G. megala*. It is doubtful. Neither occurs in Kan-su and about Koko-nor.

It breeds in tolerable numbers on the Ussuri, but is still more plentiful during migration, about the 10th of April and in the end of August.

In the latter half of April the birds choose their nesting-localities in the thinly overgrown marshes, and their peculiar courting commences. Rising into the air, similar to our *G. scolopacina*, and describing large circles above the spot where the female is sitting, it suddenly dashes downwards with great noise (which is most likely produced by the tail-feathers, like that made by our species, and somewhat resembles the noise of a broken rocket). As the bird approaches the ground the noise increases, until it has got within a hundred yards, when it suddenly stops the sound and quietly flies on, uttering a note something like "*tiric, tiric, tiric.*" Courtship lasts until the middle of June, and is mostly heard or seen in the mornings and evenings, but occasionally in the daytime, and even at night in clear weather.

246. Gallinago megala, Swinh.

G. stenura, Radde, Reisen im Süden von Ost-Sibirien, ii. pl. xiii.

Breeds abundantly on the marshes and lakes in the Hoang-ho valley. We also noticed some of the present and preceding species in the western portion of the Urot country, where they probably were breeding.

At Lake Hanka *G. megala* appears later than *G. heterocerca*, namely in the end of April; but the principal migration takes place about the middle of May. It stops to breed there only in very limited numbers, but becomes again numerous in August during migration. In spring it keeps to the burnt marshes, and in autumn to the damp steppes.

247. Scolopax rusticola, L. *Valdshnepp.*

Was observed by us only in the Muni-ul mountains, in the middle of April 1872, when we several times met with them at dusk. They were all flying northwards. They breed in the Ussuri country; and, according to the statements of the sportsmen, they are very numerous there during migration, especially at the mouth of the Ussuri and about Vladivostoc.

248. Rhynchæa bengalensis, L. *Pastuskoc zolotoy.*

We met with a female for the first time on the 5th of May, on a small marsh in S.E. Mongolia, not far from the Kalgan-Kiachta road, and afterwards found it breeding at Lake Tsaidemin-nor.

As far as I know, this species chooses for its habitat damp marshes, but avoids very thick reeds. It only takes to wing in case of necessity, usually moving for not more than a hundred yards; and its flight is heavy.

It does not occur in Kan-su, Koko-nor, and the Ussuri country.

249. Rallus indicus, Blyth? *Pastushek vodianoy.*

It is very probable that this species, which inhabits the whole of Eastern Asia and is so closely allied to the European *R. aquaticus,* was obtained by us (in November 1872) in Tsaidam, on the unfrozen wells amidst some marshes, where it was wintering. The bird shot by us was very much knocked about, and therefore not preserved; a second one we did not succeed in killing, but later on observed it in the Hoang-ho valley in the beginning of May.

At Lake Hanka it arrives in the end of April, and also breeds there in limited numbers.

250. Ortygometra pygmæa, Naum. *Kurotchka vodianaya.*

Is rather a common breeding bird in Ordos, on the marshy lake Tsaidemin-nor, but does not occur in Kan-su or Koko-nor.

In August 1873 we saw one (an old female) in Gobi, near a small well. On account of the want of marshes, it was flying about, together with some Sandpipers, over the muddy ground, and on the approach of danger hid itself in the plants that were growing there. How could this bird, with such a weak flight, get into the centre of this desert? Most likely it had got there by mistake.

It breeds tolerably abundantly in the Ussuri country.

251. Gallinula chloropus, L. *Camishnitza zelenonogaya.*

Breeds at Lake Tsaidemin-nor, in company with the preceding species. In July the young could not fly, and were only about half as large as the old birds.

We did not observe this species in Kan-su and Koko-nor; nor does it occur in the Ussuri country.

252. Fulica atra, L. *Lisuha chernaya.*

We met with this species at Dalai-nor during migration, on the 1st of April, 1871, and found it breeding on the marshy lakes in the Hoang-ho valley. Not being pursued at all by man, it is very tame. They were very often swimming about at a distance of about a hundred yards from our tent.

It does not inhabit Kan-su, Koko-nor, and Halha.

At Lake Hanka these birds arrive early in April, and breed numerously on the lakes overgrown with reeds, which abound there.

Order VII. NATATORES.

253. Anser cinereus, Meyer, var. rubrirostris, Swinh. *Gus gumennic.*

We found *A. cinereus* breeding in S.E. Mongolia and in the Hoang-ho valley, where we discovered nearly fledged young on the Tsaidemin-nor, as also adult birds—the males moulting so completely that they could not fly, but tried to escape from our dog by running, when they performed all sorts of tricks, making short turnings or suddenly stopping and running backward, in order to mislead the dog; and in the most hopeless cases they tried to hide themselves in the uneven ground.

In spring these Geese arrive in S.E. Mongolia about the middle of March, or perhaps earlier, and in Tsaidam about the 18th of February. At Koko-nor they were rather common in the latter part of March; and in the middle of October we also noticed there several migrating pairs. In the Hoang-ho valley the autumnal migration commences in the end of August: and in Kan-su it did not come under our observation; for we only noticed six water-birds there, one of which (*Anser indicus*) stops to breed about the sources af the river Tetunga.

Their migration to the basin of Lake Hanka takes place in the middle of March, where they also remain to make their nest, but are not very numerous in autumn, when all the other species of Geese are abundant.

It is not so shy and wild as its congeners, and usually keeps in small flocks.

254. Anser segetum, Gmel. *Gus pashemoy.*

A male obtained by us at Dalai-nor does not differ in any respect from European birds. But Mr. Swinhoe says (P. Z. S. Lond. 1871, p. 417) that

the East-Asiatic specimens are a race (var. *serrirostris*) which, with the exception of China, are to be met with to the east of Lake Baikal. It is very likely that this variety inhabits also Mongolia; but I am sorry to say we have not a specimen in our collection to solve the question.

It is the most numerous representative of this family in S.E. Mongolia, whither it migrates from the beginning of March to the end of April; whilst the autumnal migration takes place from the end of August until the middle of September.

In Northern China, near Kalgan, they appear in the end of February, and inhabit, together with other water-birds, the flooded fields. On a clear morning early in March, flock after flock can be seen migrating towards Mongolia; but finding it cold there, these restless flocks come back again towards the evening, and wait until the weather gets warmer.

It does not breed in Mongolia, and did not come under our observation either at Koko-nor, in Tsaidam, or at Lake Hanka; but large migrating flocks were noticed at Possiet Bay.

255. Anser grandis, Pall.?

I think we saw *Anser grandis* in rather large numbers on Dalai-nor in spring 1871, and on the flooded fields of the Hoang-ho valley in April of the following year, although we did not succeed in obtaining a single specimen; but, by the large size and the peculiar bass voice, we could easily distinguish these birds from *A. segetum*.

On Lake Hanka the present species is very common during migration in spring (*A. grandis*, Pall. nec Midd.) from the middle of March until the middle of April, where they usually keep in small flocks of from three to seven specimens, and only very rarely are they to be seen in company with other Geese; they are also wilder. Very few pairs stop to breed in the Hanka basin; and even those retire to the most desolate parts.

256. Anser indicus, Lath. *Gus indeyskey.*

Gould, Cent. of Birds, pl. lxxx.
Anser skorniakowi, Sev. Vert. i gor. raspr. Turk. Jev. pl. x. fig. 4.

We found this beautiful Goose at Lake Koko-nor, where the first migrants appeared on the 5th of March; and in the course of the whole month small flocks of from five to twelve in number are to be seen frequently. Also at the sources of the river Tetunga we saw some *A. indicus,* which were breeding there; and a female which we killed on the 6th of April was already laying.

The voice of the present species is different from that of *A. cinereus,* which two only are found at Koko-nor. In spring the male chases the female on the wing, and occasionally makes peculiar darts, resembling those of our common Raven; and when the female is shot, the male usually flies long about its dead mate, until it shares the same fate.

This Goose is also very curious; and I several times shot it by performing the following manœuvre:—As soon as I noticed a pair flying I at once lay down on the ground and commenced waving my hat at them. The Geese came usually quite close to me then. Altogether it is very tame; but when pursued much by men it gets very shy.

As far as we can judge from our observations, the northern limit of the distribution of this bird is formed by the Koko-nor basin and the river Tetunga; and the same localities are probably also the eastern boundary, as this species does not occur in China proper.

257. Anser cygnoides, Pall.

Temm. & Schleg. Faun. Jap. pl. xxxi.

We met with a few birds at Dalai-nor in April, and in the Hoang-ho valley and at Lake Tsaidemin-nor in summer, young as well as adult birds; the latter were moulting. In crossing the Gobi desert at the end of August

we repeatedly observed migrating flocks. In Tsaidam and at Koko-nor it does not occur.

It is very abundant during migration, especially about the beginning of April, at Lake Hanka, where it usually assembles in flocks from twenty to forty in number. When on the wing they often fly in a pattern, like Storks and Ducks. It is the most common breeding species of the whole genus on the marshes of Lake-Hanka basin, and rears usually from five to six young, but rarely three or four. Early in June I found some young ones, not exceeding a Duck in size, which, as usual, were accompanied by their parents. It very often happens, also, that two or three families join together; and when approached by any one, the old birds make use of all sorts of tricks in order to take off attention from their brood, which latter try to escape by hiding in the reeds, or when on an open lake dive as well as any young Ducks. This species, also, is very inquisitive; and on perceiving a dog or a sportsman, if there are not more than two birds, they usually come within range.

258. Cygnus musicus*, Bechst. *Lebed clicun.*

Is only a migrating bird in S.E. Mongolia, at Koko-nor, but may perhaps stop to breed in the reedy marshes of Tsaidam, where the first migrants were observed to arrive on the 14th of February, although they appeared only in the middle of March in S.E. Mongolia. The principal migration through Koko-nor takes place also in March.

* [In Mr. E. Delmar Morgan's translation of Colonel Prjevalsky's Travels (a work which should be read in conjunction with this article), vol. ii. p. 4, we find, in the northern part of Ala-shan, an account of an immense lake-bed of sedimentary salt, called by the Mongols "Djaratai-dabas." The salt is from two to six feet thick. He adds that "the sparkling surface of Djaratai-dabas appears like water in the distance, and resembles ice when you are near it. So deceptive is its appearance that a flock of Swans, apparently attracted by the sight of water in the desert, descended before our very eyes almost to the surface of the false lake, but discovering their mistake rose again in the air with affrighted cry, and continued their flight."—Editor of the O. M.]

It is the first bird to arrive in spring at Lake Hanka, as a rule either late in February or early in March, whilst the principal migration occurs about a month later. Only a few pairs remain to breed, in the marshes overgrown with reeds.

259. Cygnus bewickii, Yarr. *Lebed maley.*

Together with the preceding species it was noticed at Dalai-nor in spring; but it was also seen in the Hoang-ho valley, on Lake Urgun-nor. In Ala-shan we also occasionally saw migrating flocks in October, which were flying very high over a desert. At Koko-nor some flocks were seen, which probably belonged to *C. bewickii*; and a few pairs evidently stopped to breed there.

260. Cygnus olor, Gmel.? *Lebed shipun.*

This species is mentioned with a ? on account of our not being able to secure a single specimen, although we met with it at Dalai-nor, as well as the two preceding ones; the present bird very much differs from *C. musicus* by its voice.

On the 11th of April, on a small lake not far from Dolon-nor, we found a Swan's nest containing one egg, which, according to its shape and colour, belonged to the present species. It is an egg with a roughly grained but tolerably smooth dirty-greenish shell: large diameter 3″·78, small diameter 2″·68.

Besides, in S.E. Mongolia, I think we saw *C. olor* migrating over the Koko-nor basin early in March.

At Lake Hanka they appear much later than *C. musicus*, namely in the beginning of April, and in larger flocks. They breed in similar localities as the preceding Swan.

261. Tadorna cornuta, Gmel. *Utka peganca.*

Inhabits all the saltwater lakes of Mongolia, and arrives in the south-eastern parts of this country, in small flocks of from ten to twenty, late in March. Very soon after their arrival they disperse in pairs, and probably breed in holes on the ground. During the breeding-season the males frequently fight, commonly making use of their wings and bills; the conqueror expresses his satisfaction by nodding and bowing towards the female.

At Koko-nor the first migrants appeared about the 14th of March, but were rather scarce until the end of that month.

In Mongolia *T. cornuta* is not at all shy.

262. Casarca rutila, Pall. *Turpan.*

Lama shubu, Mongols.

The Mongols consider this bird sacred. It is very common in the country, and is found breeding about the lakes, rivers, and even at the mountain-brooks; whilst in Kan-su it has only been observed during the spring migration, at the sources of the river Tetunga, in limited numbers, but is abundant in spring and autumn at Koko-nor.

The earliest birds were noticed in Tsaidam on the 10th of February, and in S.E. Mongolia early in March; but in the Hoang-ho valley they even stop to winter, although in only limited numbers.

During migration these Ducks assemble in large flocks of over a hundred, but never mix with any other kind. Each pair keeps very strictly to themselves; and probably such a bond is formed for life. During the breeding-season the males very often fight, and attack even drakes of other species of Ducks. They build in holes or clefts in the ground, and sometimes even in the fireplaces of villages deserted by the Mongols; and in the latter places the female birds, whilst hatching, get almost quite black with soot. The

male apparently does not assist the female in hatching; but as soon as the young are hatched, it most vigilantly watches them. The earliest young we saw on the Suma-had mountains, on the 4th of June.

In Mongolia this bird is tame; but at Lake Baikal, where it has been much pursued, it is very shy.

263. Mareca penelope, L. *Utka svias.*

During migration we found these Ducks in rather limited numbers at Koko-nor, where they arrived about the 21st of March.

At Lake Hanka they appear late in March or early in spring, and only a few remain to breed.

264. Dafila acuta, L. *Utka shilohvost.*

Is very common throughout Mongolia during migration—which takes place in the end of March and the beginning of April, and late in August.

Very large numbers of the present species were observed by us in spring at Dalai-nor, where most likely part of them remain to breed. It is also abundant on the lakes of the Hoang-ho valley. In Tsaidam the earliest birds were seen on the 18th of February, and at Koko-nor in the first days of March; but towards the end of that month they had quite disappeared. At Lake Hanka they arrive early in March; but the principal migration takes place in the end of that month, about which time these Ducks are extremely abundant and usually mixed together with other kinds in large flocks, although only very few remain to breed.

265. Anas boschas, L. *Utka kriakba.*

Is the most common of the family in S.E. Mongolia, where it breeds in all suitable localities, but most numerously in the Hoang-ho valley; and

although we were at the latter place in the end of July, many young birds were still unable to fly.

In Tsaidam it stops for the cold season on the unfrozen streams and marshes. The migration there took place about the 13th of February.

At Koko-nor, where only very few migrants pass, we did not see a single flock of *Anas boschas* consisting of twenty or thirty in number, although it occurs there.

In Ussuri country *Anas boschas* is the commonest species, and is the most numerous Duck not only during the breeding-season but also during migration. About Lake Hanka the earliest migrants appear early in March; but the principal migration takes place in the latter part of that month and early in April, and at this time the numbers are astonishingly great.

For whole days, but principally in the mornings and evenings, one can see everywhere large flocks of Ducks flying in a northerly direction. They stop in the middle of the day, for a short time only, in order to feed and rest as quickly as possible, and then again resume their flight. Storms or cold weather force them to interrupt their journeys, in which case they usually settle down in some locality to wait for fairer weather.

We got the same results from our observations on Dalai-nor and in Mongolia, where, during the cold and stormy weather, enormous flocks of Geese and Ducks assemble; but on the appearance of the first clear day every lake becomes quite desolate, until the arrival of fresh birds.

In Mongolia, as also about Lake Hanka, the wild Ducks leave in flocks consisting of the present species, or also in company with others; and on several occasions we observed flocks of drakes only.

In Ussuri country it begins breeding about the middle of April; but during that time we have here very often fires over large districts covered by grass. These fires sometimes last all May, and even as late as the middle of June. They destroy a great number of Ducks' nests, which explains the late broods met with so often in Ussuri country and about Lake Hanka, where we saw young in down late in June or even in the early part of July;

but in such cases the broods consisted very seldom of more than from three to five specimens. These small numbers again show that it is a second brood, the first having probably perished during a fire.

In Ussuri country large flocks of Ducks assemble in August, doing great damage to the cornfields, whither they resort for feeding at night.

The autumnal migration at Hanka takes place in September and October, a few birds remaining for the winter on the shores of the Japanese Sea.

266. Anas zonorhyncha, Swinh.

Anas pœcilorhyncha, Temm., nec Lath
Temm. & Schleg. Faun. Jap. pl. lxxxii.

Tolerably common in S.E. Mongolia and the Hoang-ho valley, where we also found it breeding. The first migrants appeared at Dalai-nor about the 1st of April, although a few may have arrived even earlier. We did not observe this species in Kan-su, Koko-nor, or Tsaidam.

At Lake Hanka it is scarce, and only occasionally appears during migration early in April; but whether it remains there to breed, or not, I do not know.

Mr. Swinhoe's opinion (P. Z. S. 1871, p. 417) is quite correct, that the present Duck forms a separate species, and is not the result of the interbreeding of *A. boschas* and *A. pœcilorhyncha*, as was supposed by Temminck.

267. Querquedula circia, L. *Utka chiroc.*

Like the preceding, this Duck is common in S.E. Mongolia, and was observed by us there on the 11th of April. It breeds in the marshes and near lakes in the Hoang-ho valley, but does not occur at Koko-nor.

At Lake Hanka it appears later than any other, namely in the end of

April and beginning of May. During migration it is not numerous at Hanka, and is at least ten times as scarce as the following species, although young birds are rather abundant there.

268. Querquedula crecca, L. *Utka chiranka.*

During migration, in March, *Q. crecca* is extremely abundant in S.E. Mongolia. At Lake Dalai-nor we fell in with large flocks, composed of the present species and *Eunetta glocitans*, but did not find it breeding anywhere in Mongolia, though in winter some individuals were observed at Tsaidam, where the migration commenced on the 15th of February. At Koko-nor it was the commonest of all Ducks in the month of March.

At Lake Hanka, *Q. crecca* appears already early in March, but principally at the end of the month, in such large numbers that, with the exception of *A. boschas*, it is the most numerously represented species there. Only very few remain to breed, as the extensive marshes do not offer them suitable nesting-places.

269. Eunetta falcata, Pall. *Utka kosatchca.*

In March and April it is common at Dalai-nor, and has been noticed by us also in the Hoang-ho valley, where it also breeds sometimes, but apparently does not occur at Koko-nor.

At Lake Hanka it appears early in March; but the principal migration takes place late in that month or early in April, when this Duck is very common, and usually forms flocks with other kinds, but very rarely alone. Its voice is a tolerably loud and piercing whistle.

It breeds numerously at Lake Hanka, but, like its congener, usually late.

270. Eunetta glocitans, Pall. *Utka cloctun.*

Temm. & Schleg. Faun. Jap. pl. lxxxii.

During migration, in the end of March and the beginning of April, we met with it in large numbers at Dalai-nor, but did not find it further west, although it can easily be distinguished from the other Ducks by its voice. It also occurs about Lake Baikal, whither it most likely migrates from China proper, probably crossing the desert in a direct line, or else following its edge.

At Lake Hanka it is one of the most plentiful Ducks, and arrives there in very large flocks from the 8th to the 15th of March.

When migrating, these Ducks fly very low, following the plains which abound with lakes; and as soon as one is perceived that is not frozen, especially in cold and stormy weather, they at once settle down on it. The presence of such a flock is always known at a good distance, as the drakes keep calling even when on the wing.

The abundance of this species on Lake Hanka continues during all the time of its migration—*i. e.* all the latter half of March and the first week of April; but after that time their numbers decrease quickly, and in the middle of May there is not a single one to be seen.

271. Chaulelasmus streperus, L. *Utka poluha.*

We only fell in with a few migrating individuals in S.E. Mongolia early in April, and but one single bird at Lake Hanka towards the end of the same month.

272. Spatula clypeata, L. *Utka socsun.*

A few birds were seen on Lake Dalai-nor, where the earliest migrants were noticed on the 30th of March; but some few may have come even

earlier. In the Hoang-ho valley, on Lake Tsaidemin-nor, towards the end of July, we killed a male bird, which was moulting very quickly. At Koko-nor these Ducks appeared on the 14th of March, and were common throughout that month.

It migrates to Lake Hanka early in March, and becomes most abundant towards the end of that month, leaving the locality about that time in flocks, together with other species of this genus; and only a few pairs remain to breed.

273. Fulix cristata, L. *Niroc chernet.*

Is not scarce during the spring migration in Mongolia and at Koko-nor. At the latter place *Fulix cristata* appeared on the 5th of March, and perhaps even earlier still, and, together with *Bucephala clangula,* inhabited the river Buhain-gol; but towards the end of the month most of them had left.

At Lake Hanka the migration takes place between the 20th of March and the middle of April; and only a few pairs remain to breed.

274. Aythya ferina, L. *Niroc crasnogolovoy.*

We once met with some migrating pairs at the northern bend of the Hoang-ho at the end of April 1872, and, another time, at Koko-nor in March. It does not inhabit Lake Hanka.

275. Bucephalus clangula, L. *Niroc gogol.*

Tolerably common at the Dalai-nor at the end of March and beginning of April, on those parts of the lake which are free from ice; and when shot at they rise, but very soon settle down again.

At Koko-nor they arrive about the 4th of March, and get rather

numerous towards the middle of that month, but are only singly distributed in Kan-su, at the sources of the Tetunga.

We found them wintering at Lake Hanka, on the open parts of the river Sungatch, in small numbers; but in spring, late in March and early in April, they are very plentiful, but always in small flocks of from five to twenty birds, and never mixed with other species.

The autumnal migration from Ussuri country occurs in September and October; and in the latter month we often saw flocks of these Ducks on the Japanese Sea; and in December some wintering ones came under our observation at the port of St. Olga.

276. Mergus merganser, L. *Crahal bolshoy.*

During the spring migration in March and April we noticed some specimens at Dalai-nor, on the 14th of February at Tsaidam, early in March at Koko-nor, on the Buhain-gol, and in April in Kan-su, on Buguk-gol.

On its autumnal migration this species was observed only on the river Tola, near Urgey, in the first half of September.

At Lake Hanka it arrives early in March. The principal migration, however, takes place at the end of that month and early in April; and by May not a single specimen is to be seen there. When migrating they usually form small flocks together with other species.

In its habits it is very shy, and therefore difficult to shoot.

277. Mergus serrator, L. *Crahal dlinnohvostoy.*

Is scarcer even than the preceding species, having been observed by us in Mongolia only on Lake Dalai-nor.

In Kan-su, also, only one young one migrating has been obtained; and

on Lake Hanka it is also the scarcest species of the whole genus, passing there only during migration early in April, and a few individuals stopping till the end of that month on the Sungatch.

278. Mergus albellus, L. *Crahal lutock.*

We met with some birds at the end of March and beginning of April on Dalai-nor, where it is commoner than the two preceding species.

At Lake Hanka it is very numerous towards the end of March, but does not form large flocks, as we usually saw small numbers only, which consisted of Smews and Teals. They leave Lake Hanka early in April, and quite disappear at the end of this month.

279. Podiceps cristatus, L. *Niretz hohlatey.*

A single migrating bird was met with in April near the lower Dolon-nor; and some, I think, were noticed on Lake Urgan-nor, in the Hoang-ho valley. To Lake Hanka it migrates at the end of March, and breeds in small numbers on the solitary ponds.

280. Podiceps auritus, L.

I think we saw this bird in April at Dalai-nor, and in the spring of the following year in the Hoang-ho valley, but did not succeed in obtaining a specimen. The present species is very rare in Mongolia, as is the preceding one.

281. Larus niveus, Pall. *Chaika sizaya.*

Larus canus, var. *major,* Middend. Sib. Reise, ii. part i. pl. xxiv. fig. 4.

We found *L. niveus* in April in the Hoang-ho valley and in S.E. Mongolia,

several times also in the Ala-shan plains, whither they probably go in search of lizards, as we often found in their stomachs the remains of these reptiles. We did not find it either in Koko-nor or Halha.

282. Larus occidentalis, Aud. *Chaika sapadnaya.*

Extremely common during migration in S.E. Mongolia about the end of March; and we repeatedly met with them about that time at Dalai-nor, where they probably breed. We did not see any on the Hoang-ho valley in summer, but came across a small flock in September about Din-hu. It does not occur in any other locality traversed by us.

283. Larus ichthyaëtus, Pall. *Chaika ribolov.*

Obtained only at Koko-nor, where the earliest migrants appeared on the 5th of March, and became very abundant about the 15th of the same month. They very often occupied themselves in large flocks, together with *Graculus carbo,* in taking fish out of Lake Buhain-gol; and as soon as a fish was caught a fight was certain to ensue. The voice of these birds is very loud, and highly disagreeable.

In China proper, as well as on the Amur and all over Eastern Siberia, these Gulls do not occur; and therefore not only the northern, but also the eastern boundary of their distribution is formed by the Koko-nor.

284. Chroicocephalus brunneicephalus, Jerd.

Henderson & Hume, Lahore to Yarkand, pl. xxxii.

During the spring migration, which commences about the middle of March and continues until the middle of April, we often met with these birds

on Lake Dalai-nor; whilst on the other lakes of Mongolia they appeared to be rather scarce.

Many were in their winter plumage even as late as March; *i. e.* they had at that time a white head. They breed plentifully on the lakes of the Hoang-ho valley. At Koko-nor the earliest migrants appeared on the 5th of March; and afterwards, from the 20th of the same month, they were abundant, but not so numerous as the preceding species.

In Ussuri country the closely allied species of *Chroicocephalus ridibundus* is very abundant. It commences to arrive at Lake Hanka about the middle of March; but the principal migration takes place early in April. These Gulls can be seen, high up in the clouds, flying in a northerly direction in small flocks, or even singly. On the coasts of the Japanese Sea I often met with *C. ridibundus* in October and November, and saw a few wintering birds in December at St. Olga.

285. Sterna anglica, Mont. *Kratchka chernonosaya.*

Inhabits Mongolia, Ordos, and Ala-shan, and breeds in the two latter localities—*i. e.* in the Hoang-ho valley on Lake Urgun-nor, and in Southern Ala-shan on a small marsh, Bayan-bulik. It does not occur in the Ussuri country, and has not been observed in China proper.

[To be continued.]

PART XIII.

"I come from haunts of coot and hern;
I make a sudden sally,
And sparkle out among the fern,
To bicker down a valley."

TENNYSON: *The Brook.*

Smit lith. Hewitt imp.

PTILOPUS MUSSCHENBROEKI, (*von Rosenberg*).

ON THE GENUS PTILOPUS.

(PTILONOPUS, Swains.).

By Mr. G. D. ROWLEY.

[Continued from p. 64.]

(Plate XCV.)

PTILOPUS MUSSCHENBROEKI, Von Rosenberg.

Ptilopus musschenbroekii, Rosenb. in litt.
Ptilopus viridis, stirps *geelvinkiana,* Schleg. Nederl. Tijdschr. Dierk. iv. p. 23 (1871).
Ptilopus viridis geelvinkianus, Schleg. Mus. P.-B. Col. p. 23 (1873).
Ptilopus musschenbroekii, Salvadori, Ann. Mus. Civ. Gen. ix. p. 195 (1876).

The following is a translation of a notice of this bird (Schlegel, Nederl. Tijdschr. Dierk. iv. p. 23, sub *Ptilopus viridis,* stirps *geelvinkiana*) :—

"M. von Rosenberg sent us, under the name of *Ptilopus musschenbroekii,* a fine series of a *Ptilopus* observed by this naturalist and traveller on several islands of the great Geelvink Bay—viz. on Mafoor, Meosnum, and Soëk (Mysore). This bird recalls perfectly *P. viridis,* observed on the Ceram group, including Buru, Amboina, and the subgroup of Goram. There are, in fact, no other differences than the following :—The whitish grey colour of the head is darker, and washed with green ; the patch of the throat is of a more vivid red and purple colour, lighter and less shading into brownish ; the whitish grey on the wing above extends to the first scapularies ; finally, not

only does each of the large wing-coverts close to the back present a grey patch, but there is also a similar one on each of the tertiaries.

"We confess that these characters did not appear to us important enough to separate this bird from *P. viridis* under a specific name; it is therefore, in our view, only a local race of this species."

Schlegel, Mus. P.-B. Col. 1873, p. 23, sub *Ptilopus viridis geelvinkianus* :—

"Very similar to *Ptilopus viridis*; but the grey of the head is darker and washed with green; the patch of the throat is more vivid, the red lighter and shading less into brownish; the whitish grey on the wing above and on the tertiaries is more extended; the grey of the apical part of the tail is not bordered with yellow, and passes more or less into green; finally, it is somewhat smaller in size.

"Wing 4″ to 4″ 2‴; tail 2″ 2‴ to 2″ 3‴."

Dr. Meyer sends me the following remarks :—

"There are four nearly related species of *Ptilopus*, which represent each other in different localities, viz.:—*P. pectoralis* in New Guinea and some neighbouring islands to the west and north-west; *P. musschenbroekii* on the islands of the Geelvink Bay; *P. viridis* on Ceram, Buru, and some islands in the neighbourhood; and *P. eugeniæ* on the Solomon Islands.

"It does not appear at all probable to me that *P. pectoralis* also occurs on Mafoor and Mysore, as stated by Von Rosenberg (Schleg. Mus. P.-B. Col. 1873, p. 24), and that *P. musschenbroekii* also occurs on New Guinea itself, as stated by the same traveller (*l. c.* p. 23). Should this be really the case, these two species could not be looked upon as representing each other, which I strongly believe they do. I got *P. musschenbroekii* only on Mafoor and Mysore, and *P. pectoralis* only on New Guinea itself—viz. near Rubi, Passim, and Andei, which last locality is also given to *P. musschenbroekii* by Von Rosenberg.

"As to the sexual coloration of the last-named two species, I have to

make a few remarks. Schlegel (Nederl. Tijdschr. Dierk. iv. p. 24, 1871) says that the females of the four species enumerated above offer the same coloration as the males. But of *P. musschenbroeki*, according to the Leiden Catalogue (Mus. P.-B. Col. 1873, p. 23), there were only the males in the hands of Prof. Schlegel; and the female specimen which I possess, from Mafoor, has neither grey on the wing nor red on the throat, and appears to be an adult. Further, of the two female specimens of *P. pectoralis* which I possess, from Passim and Rubi, neither shows a trace of red on the throat, as all males do (the younger less than the adult); but they have the grey on the tertiaries. I therefore do not share in Schlegel's view that the females of these four species are all like the males, but restrict this opinion for the moment to *P. pectoralis* and *P. musschenbroekii*, having no personal experience as to the two others."

Prof. Schlegel only separates *Ptilopus musschenbroeki* from *P. viridis* as *P. viridis geelvinkianus*, therefore giving no full specific value to it. Salvadori first did this, in his 'Prodromus Ornithologiæ Papuasiæ et Moluccarum;' and it appears, according to his remarks, that Dr. Meyer also does so, and, in my opinion, correctly.

Mr. S. C. T. van Musschenbroek, after whom Von Rosenberg named this fine species from the islands of the Geelvink Bay, has been for many years a Dutch official in the East, and is a gentleman of high scientific attainments. He served for years on the island of Java in different official positions, and last at Buitengorz, near Batavia, as Assistant Resident. From there he advanced as Resident (Préfet) to Ternate, the chief place of the Moluccas, near Kalmahan, and a good starting-point to New Guinea. The Dutch Government planned an expedition to New Guinea under his care; but the war in Atchin, on Sumatra, prevented it. Mr. van Musschenbroek then became Resident at Menado, in North Celebes—that is to say, Govermental Chief of the Minahassa, the countries round the Tomini Bay (Gorontalo),

the Sangi Islands, &c.; and at this moment he is in Europe, and occupied in writing a book on Celebes in general.

Mr. van Musschenbroek was always remarkably ready to sustain and help every scientific traveller in the Dutch possessions—he himself being a very good zoologist, botanist, and linguist, and therefore knowing the wants of such travellers by his own experience. The Leiden Museum possesses a good many of his collections made in the East; and Mr. von Rosenberg, indeed, could not do better than attach his name to a bird of the rich Papuan fauna.

As this bird has been named after Mr. Musschenbroek, a woodcut of his residence (a large house in the town of Menado, situated on the right, in the Chinese quarter) is here given, with an account of the attack upon it. It may also be interesting, as this place is so often mentioned in these articles. It is from a fine photograph of the spot. The Chinese "kampong," or quarter, contains about 1000 Chinese; the rest of the population is about 3000.

"On Thursday, the 26th of August 1875, the chief place of the Minahassa, in the north of Celebes, Menado, was attacked by a band of mutineers.

"In the morning, at 8 o'clock, there arrived from the west three native prauws in the roadstead of Menado, and forty-eight men came ashore, all in white clothes, with red girdles and turbans, and armed with lances and swords.

"After having said a short prayer, the band entered the village, the whole time dancing and shouting. All this did not much awaken the attention of the inhabitants, as it is common in Menado that the rajahs belonging to the district should pay a visit to the Resident in this style. But soon the intention of the visitors became apparent; for they killed and wounded several persons in the market. They then tried to surprise the small fort which Menado possesses, but were driven back by the soldiers

THE CHINESE KAMPONG, OR QUARTER, IN MENADO, CELEBES.

(THE DUTCH RESIDENT'S HOUSE IS ON THE RIGHT.)

with shots, and now proceeded to the Resident's house, which some years since was left without military protection.

"The Resident, Mr. van Musschenbroek, was not at home, but in the Government Office. About thirty men entered the house, and destroyed every thing in their way. The doors, hastily closed, did not keep them back a long time; and no doubt they would have killed Mrs. van Musschenbroek and her children, had not this lady contrived to keep them a short while aloof by her calmness and firmness. Soon fourteen soldiers from the fort arrived. The band now turned against these, but were driven back and took to their heels to reach the prauws, two of which had been taken in the meanwhile by a Dutch captain. Now the inhabitants of Menado began to pursue the rebels, and also captured the last prauw. Twenty of the forty-eight men were killed, and all the others made prisoners.

"The trial of the survivors proved that the whole band belonged to Bool, in the south of the Minahassa, nearer to Gorontalo, and that they intended to kill the Resident—not Mr. van Musschenbroek, who then had not yet been a long time in Menado, but his predecessor, Mr. van der Crab. They said that a larger force was *en route*; and the Government of Menado therefore did every thing to protect itself and the country. But nothing happened; and later Mr. van Musschenbroek visited Bool, to punish the natives there, and then to make friends with them."

The above little account, from a Java paper, shows that even a place like Menado has its dangers; and what with earthquakes, storms, snakes, fevers, and sickness of all kinds, the life of a naturalist is not without great risk in those regions.

The Plate is taken from a fine male in my own collection, and is of the size of life.

J Smit lith. Hanhart imp

MACHÆRIRHYNCHUS NIGRIPECTUS, (*Schlegel.*) ♂.

MACHÆRIRHYNCHUS NIGRIPECTUS (*Schlegel*).

(Black-breasted Flycatcher.)

By Mr. G. D. ROWLEY.

[Continued from vol. ii. p. 59.]

(Plate XCVII.)

When I published the Plate of this interesting species in the second volume, I was unable to determine the sex—a thing always with me much regretted. The male has now fallen into my hands; and I am able to state that the one already figured, first by me and then by Mr. Gould (in his 'Birds of New Guinea,' part iv.), is a female, as is also the second example in Mr. Gould's plate, which he obtained from Dr. Meyer.

By comparison of the fresh illustration which accompanies this, the difference of the sexes may be remarked.

With reference to the translations which I have caused to be made, and which follow below, I may observe that I doubt if Prof. Salvadori is right in saying that the adult female has a large black area on the breast like the male. The females have a black shield on the chest, it is true; but this is neither as black nor as large as in the male, nor has it any gloss. Besides the other differences, the yellow of the underparts in the males is much deeper and brighter than in the females; it is even deeper than in

M. albifrons, except the deep-yellow patch on the throat behind the white chin in *M. albifrons*.

The following translations refer to this bird.

T. Salvadori, "Intorno al Genere *Machærorhynchus*, Gould," Nota estr. dagli Atti della Reale Accad. delle Sc. di Torino, vol. x. pp. 369–379 (Jan. 24, 1875).

Page 378 :—

"Sp. 4. MACHÆRORHYNCHUS NIGRIPECTUS, Schleg.

"*Macheirhynchus nigripectus*, Schleg. Nederl. Tijdschr. v. d. Dierk. iv. p. 43 (1871).
"*Macheirhamphus nigripectus*, Schleg. *op. cit.* p. 58 (1871).

"Fronte grisea, gula flava, macula pectorali lata nigra.

"*Mas.* Fronte grisea; pileo, cervice et supracaudalibus nigris; uropygii plumis apice flavo, fasciam uropygialem flavam constituentibus: loris nigris; fascia superciliari, lateribus capitis, gula cum gastræo reliquo, macula lata pectorali nigra excepta, flavis; alis nigro-fuscis; tectricibus mediis et majoribus et rectricibus tertiariis late albo-marginatis, primariis exterioribus et secundariis ultimis limbo tenui externo albido; subalaribus albis; tibiis nigris; cauda nigra apice albo, rectricibus duabus extimis utrinque etiam margine externo albo; iride, rostro pedibusque nigris.

"*Fœm.* Pileo fusco-cinereo; dorso et uropygio cineraceo, olivaceo-tincto; fronte sordide grisea; loris et auricularibus fuscis; fascia superciliari, genis et gastræo toto ut in mari pictis; alis fascis, tectricibus alarum mediis et majoribus apice tantum albis, remigibus primariis et secundariis sordide griseo-limbatis, tertiariis albo-marginatis; cauda nigro-fusca, apice albo, rectricibus extimis duabus utrinque margine externo etiam albo; rostro pedibusque nigris; iride nigra.

"Long. tot. 0·130 millim.; al. 0·057, caud. 0·052, rostri 0·013, tarsi 0·017.

"*Hab.* Nova Guinea, peninsula septentrionalis (*Von Rosenberg*); Atam (*D'Albertis*).

"This species is at once to be distinguished from the others by the large black patch in the middle of the breast and by the yellow throat, this being of the same colour as the underparts; besides, the yellow is deeper than in the other species.

"The female differs from the male chiefly by the upper parts being of

a dark grey colour, with a very slight olivaceous tint on the back, by not having the yellow band on the uropygium, and by the dark ear-feathers.

"Schlegel has only described the female; the male was not known till now. I have examined four specimens of this species (three males and one female), collected by D'Albertis near Atam, on the Arfak Mountains."

Salvadori, Ann. del Mus. Civ. di St. Nat. di Genova, x. p. 135 (1877):—

"MACHÆRORHYNCHUS NIGRIPECTUS, Schleg.

"*Macheirhynchus nigripectus,* Schleg. Nederl. Tijdschr. Dierk. iv. p. 43 (♀) (1871).

"*Macheirhamphus nigripectus,* Schleg. *op. cit.* p. 58 (1871).

"*Machærorhynchus nigripectus,* Salvad. Atti R. Ac. Sc. Tor. x. p. 378 (♂ et ♀) (1875); id. Ann. Mus. Civ. Gen. vii. p. 768 (1875).

"*Machærirhynchus nigripectus,* Dawson Rowley, P. Z. S. 1876, p. 414; Gould, Birds of New Guinea, iv. pl. x. (1877).

"Schlegel has only described the female, which has the upper parts of a dark ash-colour. I have also described the male, which has these parts of a dark, somewhat glossy black colour. Gould, lastly, has given two figures of this species, saying that he believes that they represent male and female; but in reality these are the same, and only represent *the not quite adult female,* with the upper parts ashy and with some small black patches on the middle of the breast: the adult female has on the middle of the breast a large black area, as has the male. Gould, who has done me the honour of quoting me, appears not to have paid attention to the sexual differences which I pointed out!"

J J Kolemans lith

Hanhart imp

DOMICELLA COCCINEA *Latham*

DOMICELLA COCCINEA (*Latham*).

By Mr. G. D. ROWLEY.

Domicella coccinea, Finsch, Pap. ii. p. 800 (1868).
Lorius coccineus, Schlegel, Mus. P.-B., Psitt. p. 128 (1864); id. Mus. P.-B. Psitt. Rev. p. 58 (1874).
Lorius histrio, Brüggemann, Abh. d. naturw. Ver. Bremen, v. p. 41 (1876).

Though this bird has been figured before, yet such a fine species deserves an illustration corresponding to its beauty, which I hope has now been effected.

The full synonymy is given in Dr. Finsch's 'Papageien,' vol. ii. p. 800; I have not repeated it here.

The following translations refer to this species.

Brüggemann, "Beiträge zur Orn. von Celeb. und Sangir" (Contributions to the Ornithology of Celebes and Sangir), in Abh. d. naturw. Ver. Bremen, v. p. 41 (1876):—

"Fifteen specimens, two through Von Rosenberg. Two specimens, in the collection of Dr. Fischer, do not bear the mark 'Sangir;' and it is therefore to be supposed that these two birds were shot on Celebes itself. The others are all from Sangir.

"Male and female are alike. The last one has somewhat smaller measurements; the wings are, in the average, 10 millims. shorter. The blue varies considerably as to its extent; and in one female there is only one feather

on the head blue. It is quite erroneous to consider the specimens with less blue to be younger birds; on the contrary, it is in the highest degree probable that these are very old individuals.

"Very remarkable is the coloration of two males, which I take, without hesitation, as young birds. The black of the back and of the wings is more extended; the small upper wing-coverts have black patches on their tips; the red feathers of the underparts are irregularly spotted with dirty violet; the band of the breast is also of the last colour. The whole upper part of the head and the neck are violet-blue; on the front and in the neck the tips of the feathers already begin to change into red. *Vice versâ*, the upper part of the back is carmine-red, and changes into violet. Uropygium dark carmine-red (brownish red in the old ones). Bill of a light brownish horn-colour (yellow in the old ones).

"It appears that blue juvenile dresses occur in all red species of *Lorius* (*Eos* group). They are known already for *L. ruber* (as *L. squamatus*), *L. cyanogenys*, and *L. riciniatus*. But that at the same time the blue of the old bird is represented by red in the young ones, is, as far as I am aware, not yet observed; and it is a fact which can be placed as an analogous one side by side with that mentioned above under the head of *Tanygnathus luzoniensis*."

Under the head of *Tanygnathus luzoniensus* (L.), Brüggemann says (p. 38):—

"From the series in my hands (six specimens), which contains different stages, according to age, it is to be seen that the blue on the head increases in intensity and extent with age; while the same colour fades away more and more on the uropygium (the feathers being worn out by use), and at last disappears entirely. This remarkable fact can only be understood in this way—that we possess in the juvenile dress a stage of development of the species."

Dr. Finsch says (Papag. ii. p. 800) :—

"Domicella coccinea (Latham). *Der blaubrüstige Breitschwanzlori.*

"*Variety.* Wings green.

"*Diagnosis.* Carmine red. Breast, mantle, lower back of the neck, stripe across the middle of the crown of the head, and on each side a stripe from the eyes up to the region of the ear fine blue; tail, spot on the thigh, and shoulders violet-black. . . . .

"According to a former note in the Leiden Museum, Halmahera would be the fatherland of this splendid species. Dr. Forsten sent specimens from there, but which were evidently bought. Neither Dr. Bernstein nor Wallace saw this bird on Halmahera. But Wallace collected it on the small island-group of the Sanghir Islands (Siao and Sanguir), about five geographical miles north from Celebes; and this situation is to be considered the sole certain locality to the present time. Professor Schlegel doubts it, because he did not find a single specimen of *D. coccinea* in a large collection of bird-skins which the Leiden Museum received in the year 1864 from there. He supposes that the real habitat will be found to be more to the east, perhaps on the group of Karekelang. But for me the reason that the Dutch travellers did not find the bird on the Sanghir Islands is not a sufficient one for considering Wallace's notice erroneous. According to a communication which I received in a letter from Mr. von Rosenberg, this bird inhabits the Talaut Islands, in the north of Sanghir.

"Von Rosenberg formerly enumerated this species only from Halmahera; but this island was not visited by himself. Dr. Bernstein has already called this notice a totally erroneous one.

"I prefer the somewhat later name of Latham (*coccineus*) to that of Gmelin (*indicus*), because names which have a geographical signification ought to be right, or they totally mislead.

"The 'Indian Lory, var. A,' of Latham, described in the 'General History,' I consider to be a variety of this species, notwithstanding the

green colour of the wings is totally different. Latham saw the bird only once living."

Measurements (p. 810) :—" Wings 5″ 10‴ to 6″ 2‴, tail 4″ 4‴ to 4″ 7‴."

Schlegel, Mus. P.-B., Psitt. 1864, p. 128 :—

" Lorius coccineus, Stephens.

" Middle of the crown of the head, region of the ears, lower part of the back of the neck, mantle, and breast cobalt-blue; feathers of the shoulder, feet, and abdomen blackish, more or less cobalt-blue; wing-coverts and secondaries red, these last terminated with black. Wing a little more than 6″, tail 4″ 4‴.

" Inhabits the Sanghir Islands, between Celebes* and Mindanao.

" Collected by Forsten and Wallace."

The same, Psitt. Rev. 1874, p. 58 :—

" Collected by Hoedt and Duyvenbode on Siao."

Dr. Meyer remarks :—

" *Domicella coccinea*, from the Sanghi Islands, to the north of Celebes, must be considered an outlying Moluccan form, no allied species occurring on the Philippine Islands or on Celebes. It is true the bird has been recorded several times as also living on the last-named islands; and, no doubt, it has been shot near Manado, in the north of the Minahassa. I myself got

* [The name Celebes has long been a puzzle to me. It is said to be derived from " sula," an island, and " besi," iron, just as we have the Sula Islands east of Celebes. Some writers, knowing the above, make it " Selebes " (but it is always better to retain the received spelling; so I have kept to " Celebes ")—the iron island. Its strange and remarkable shape must strike every observer.—Editor of O. M.]

several specimens in the plantations and forests near that town; nevertheless it is not a Celebesian species. It is a fact which I witnessed several times myself during my half-year's stay in that delightful part of Celebes, that, I may say, any number of these handsome birds were brought alive from the Sangi Islands to Manado by native sailors, traders, &c., for the purpose of sale. The Sangi Islands are under the Government of Manado; and the chief trade of their inhabitants consists of cocoa-nuts, mats, hampers, &c., and goes to Manado. Therefore communication, by small native prahus, is always going on; and there seldom arrives a boat without bringing some living birds or the like *.

"Every one must be fond of the genus *Domicella* (*Eos*) in captivity. They are not lazy or grumbling, like the Cockatoos, but active and agile, graceful and fondling, always ready to play, and inviting their master to occupy himself with them. As, therefore, on Celebes itself no 'Lory' (as the natives call them) occurs, and as the Sangi 'Lory' is the nearest (Ternate, with its *Domicella riciniata*, being further off), one can understand why masses of them are introduced. Many of them, no doubt, escape, and live in freedom (but I suppose they do not thrive very well, because one can seldom find them); and, according to my experience, most of the specimens of *Domicella coccinea* procured from Celebes show that they have been in captivity, their tail-feathers, for instance, not being in a perfect state, and so on. Nevertheless it will not be wonderful if at some future time *Domicella coccinea* should be considered a bird which has occupied Celebes; and as the proof that it is not indigenous will be lost, I wish to record the fact that it is introduced by men from the Sangi Islands.

"Another not quite similar fact of the recent extension of the geographical range of a bird was asserted by myself in the case of *Tanygnathus megalorhynchus* (Bodd.), a widely spread bird, from the Sangi Islands to New Guinea, but which does not occur on Celebes, where we have *Tanygnathus*

* I even saw a pair of *Domicella coccinea* on the island of Cebu (Philippine Islands), whither it had been brought by a Sangi man.

mulleri (Temm.)*; but quite in the neighbourhood of Manado are some small islands, not more than an hour's row (or less) distant from the mainland, and there occurs *Tanygnathus megalorhynchus*. I shot it myself there, but could not succeed in finding a specimen on Celebes itself on the near opposite shore. I suppose that if these birds on Mantrau (this is the name of one of the small islands to the west of Manado) are not a colony which established itself there, originating from one or two (impregnated female, or a pair) escaped from captivity from Celebes, they must have come over from the Sangi Islands, where they abound. This would be a case of extension of geographical range by natural circumstance. I have no doubt that *Tanygnathus megalorhynchus* also will, after a time, be permanently established in Celebes.

"To recur to *Domicella coccinea*, we had for a long time a living specimen, brought over by a friend from Siao. It accompanied us to Gorontalo, to Macassar, and almost as far as Manilla, dying on the passage from Singapore to Manilla. It was quite tame, not liking me very much, but being fond of my wife and always near her; it would bite every one except her.

"Most of the species of this genus, and some of the genus *Trichoglossus*, have a very agreeable scent about them, like pine-apple and hyacinths. I remember that, on my voyage to New Guinea, having hung up during the night, in my small cabin on board the ship, a specimen of *Domicella cyanogenys* (Bp.), to skin it the next morning, the whole room was scented deliciously after it.

"These Lories learn to speak, but not so easily and well as the Cockatoos and, for instance, the *Eclectus*. They prefer to scream and cry, and do not repeat those words or sentences which they learn as distinctly as other Parrots. They are very delicate, and cannot stand cold or

* Brüggemann calls this bird *Tanygnathus sumatranus* (Raffl.); but I agree with my friend Dr. Finsch that it is not advisable to retain a geographical name if it is not a right one. The species does not occur in Sumatra.

draughts; and therefore they are rarer with us in Europe. Most die on the passage; I succeeded in bringing one specimen over to London in the year 1872 (together with a new species of *Loriculus*, see P. Z. S. 1872, p. 789), which perhaps still lives in the Zoological Society's Gardens.

"*Domicella coccinea* inhabits Siao and the island of Great Sangi, from which two localities I procured the bird. How far it is spread over the smaller islands of the group I cannot say. The island Tagulanda is a somewhat larger one, between Siao and Celebes; it would be interesting to know whether it also occurs there, or not.

"The nearest allies of *Domicella coccinea* are *D. riciniata* (Bechst.), from Halmahera, Batjan, and the neighbouring islands, and *D. cyanogenys* (Bp.), from Mysore and Mafoor, besides some other, less-known species.

"Natives of those islands sometimes tell curious stories about the animals and birds of their countries. Thus I have noted down in my diary one about *D. coccinea* and *D. riciniata*, related to me by one of my best hunters, who was very familiar with the Sangi Islands and Ternate. He said that these two species have this in common, that there exist two different kinds of birds of each: viz., if the female has but one egg there appears a large bird; if it has two, the birds remain small. He did not speak of young and old ones, but of two different kinds. He was quite convinced of the truth of his story, because the way in which the natives get the birds is only this—that they rob the nests of the young ones and rear them.

"I abstain from investigating what may or may not be the truth of this story, or what was meant by it."

The Plate represents a female in my own collection.

ON THE GENUS CITTURA*.

By Mr. G. D. ROWLEY.

(Plates XCIX., C.)

Mr. G. R. Gray, in his 'Hand-list,' 1869, pt. i. p. 89, says:—"296. Cittura, Reich. 1851."

The genus *Cittura*, however, is not Reichenbach's †, but Kaup's ‡. Kaup described the genus in his 'Natürliches System,' Darmstadt, 1848, 8vo, Familie der Eisvögel, p. 8. Reichenbach says (1851), in his 'Handbuch der speciellen Ornithologie,' *Alcedineæ*, p. 38:—"*Cittura*, Kaup." Therefore "*Cittura*, Reich.," is a mistake.

Gray took his date from Reichenbach, who cites Kaup without a year.

Mr. Sharpe, in his 'Alcedinidæ,' p. xx, writes thus:—"*Cittura*, Kaup, Fam. *Eisv.* p. 8 (1848). Type *C. cyanotis*."

J. Kaup says, in "Die Familie der Eisvögel (*Alcedinidæ*)," in 'Verhandlungen des naturhistorischen Vereins für das Grossherzogthum Hessen und Umgebung,' 2. Heft, Darmstadt, 1848, p. 68, "*Dacelo cyanotis*, Temm., is the type of my subgenus *Cittura*, with flattened Flycatcher-like bill and Magpie-like tail."

* Th. κίττα, a Jay, and οὐρά, a tail—*i. e.* having a tail long and graduated, like that of a Jay.

† Dr. H. G. L. Reichenbach was Director of the Dresden Museum. He is still living in Dresden, and was born in 1793, at Leipzig. He is a zoologist as well as a botanist, and has written a great number of works.

‡ Dr. J. J. Kaup was Administrator of the Darmstadt Museum, and died some years ago. He was born in 1803, at Darmstadt, and has written a long series of zoological and palæontological works; they fill more than two pages (pp. 620, 621) in the 'Catalogue of Scientific Papers' published by the Royal Society of London, vol. iii. (1869).

There is nothing more unsatisfactory to an ornithologist than to have to describe and figure a bird of unknown sex; yet in many cases, as in unique specimens quite new, it is impossible to do otherwise.

In my opinion Mr. Sharpe did good work in his 'Monograph of the Alcedinidæ.' To bring together so large and beautiful a group, and not only put them before us by description, but also by portraiture, was a very meritorious undertaking. Of necessity, with some of the birds, the facts which the monographer could state were few, little being known; and so it was with the genus *Cittura*, with its two species. It struck me, therefore, that Dr. Meyer's experience might aid in an attempt to glean somewhat closer as regards these two interesting forms.

I have here figured two females, both in my collection—one of *Cittura cyanotis*, and the other of *C. sanghirensis*. To figure the males would be a work of supererogation, as it would only be repeating Mr. Sharpe's two fine illustrations. The sexes, however, were not differentiated by that Alcedinidist; they are now.

Mr. Wallace puts the metropolis of the *Alcedinidæ* in the eastern half of the Malay archipelago, from Celebes to New Guinea (*cf.* 'Geographical Distribution of Animals,' vol. ii. p. 315).

CITTURA CYANOTIS (Temm.).

Cittura cyanotis, Sharpe, Monogr. Alc. pl. 119, p. 301 (1868–1871).
Cittura cyanotis, Walden, B. of Celeb. Tr. Z. S. viii. p. 44 (1872).
Dacelo cyanotis, Schlegel, Mus. P.-B. Alc. p. 14 (1874).
Cittura cyanotis, Salvadori, Ann. Mus. Civ. Gen. vii. p. 654 (1875).
Cyanotis cyanotis, Brüggemann, Beitr. Abh. N. v. Bremen, v. p. 54 (1876).

CITTURA SANGHIRENSIS (Sharpe).

Cittura sanghirensis, Sharpe, P. Z. S. 1868, pl. xxvii. p. 270, and Monog. Alc. pl. 118, p. 299 (1868–71).
Dacelo sanghirensis, Schlegel, Mus. P.-B. Alc. p. 14 (1874).
Cittura sanghirensis, Salvadori, Ann. Mus. Civ. Gen. ix. p. 53 (1876).

J.Smit lith. Hanhart imp.

CITTURA CYANOTIS, (*Temm.*), ♀

MENADO, WITH ITS BAY, AND THE MOUNTAINS OF THE MINAHASSA.

(FROM A PHOTOGRAPH.)

CITTURA CYANOTIS.

This species belongs to that four-armed island, Celebes, with its suggestive form and triple gulf, and particularly to the northern part of it, Minahassa (which Mr. Wallace calls a "sweet native name")*. He describes it as quite a garden, full of fine coffee-plantations and rice-fields, with capital roads. In the 'Malay Archipelago,' vol. i. p. 387, is a map of Minahassa, with Menado (the chief town) and the lake Tondano, near which *Cittura cyanotis* occurs.

Dr. Meyer sends me the following notes as descriptions of these woodcuts:—

"The first is a view of Manado †, the chief town (if it can be called a town) of the Minahassa, on the bay of Manado and on a part of the mountains of the country—the part through which one generally enters the 'bovenlanden' [*i. e.* the 'highlands']. The view is taken from a little to the north of Manado, and it looks to the south. The more marked houses or streets are not to be distinguished, they being partly covered by the trees. To the right, near the sea-shore, is a group of cocoanut-trees, one of the finest adornments of the tropical landscape ‡. To the left of this group stands the bridge. Rarely do steamers come quite near it; in the greater part of the year the winds blow so hard from the sea that the Manado road cannot be used at all. The ships anchor near Kema, on the east shore of North Celebes; and one goes on horseback from Kema to Manado in some hours. The lower mountain in the background, to the left, is the 'Empung' ('empung' means 'God'); the higher, to the right, is called the

* "Minahassa" is compounded of *asa*, "one" (often pronounced *esa*); with *maha* the signification becomes "to make one" (or "to be joined"); and *maha-assa* is contracted into *mahassa*. Putting *in* into the word, the signification becomes "made one;" it is equivalent to "a league or confederation;" and thus *mahassa* becomes *minahassa*. (It should have the double *ss*.)

† It is often written "Menado;" but "Manado" is more correct.

‡ It is known that the cocoanut-tree only thrives well near the sea-shore, and does not grow high up the mountains.

'Lokon,' and it is about 5000 feet high. This chain can be reached from Manado within a few hours; and yet in this neighbourhood the seasons differ considerably. Both mountains are volcanoes, as most of the mountains of the Minahassa are (the volcano-chain coming from the east, from the Moluccas, and continuing over the Sangi Islands to the Philippines); but the last noteworthy eruption here took place in the year 1832.

"I mentioned before that the river of Manado comes from the lake of Tondano. The view shows this outlet; it is taken from the side of the lake, looking down the river—*i. e.* to the north. The large lake of Tondano is at about 2000 feet altitude; and the country around it belongs to the finest in the Minahassa. In particular, the south point of the lake (a place called Kakas, where no European resides) is a garden of rose-bushes and coffee-trees, the climate being cool and agreeable in consequence of the high level above the sea and the neighbourhood of the lake. The only drawback is the rain: water pours down nearly all the year; perhaps only two months are without rain. I here took a longer sojourn, having chosen the place as headquarters for my highland trips. The shores of the river of Tondano are densely covered with tropical plants: among others, large tree ferns (to the left) and bamboo (to the right) can easily be recognized. About one hour from Tondano, near Tonsea lama (a small village), the river forms a fine cataract about 100 feet in height, which many persons consider to be the finest in the Dutch possessions; but I rather prefer the waterfall in the neighbourhood of Maros, in South Celebes, which is not so high, but is broader, and appears always to have a larger volume of water. The Minahassa possesses many lakes; that of Tondano is the largest, and contains many fish, but not of many species."

Dr. Meyer tells me that the name which the natives of the Minahassa—that is to say, the "Alifuros" (not the Mahometan Malays, from the coast) of the interior—give to *Cittura cyanotis* is "Kikis talun," *talun* meaning

TONDANO, CELEBES.

"forest." Like *Dacelo princeps*, this Kingfisher is only found in the forest, not near the rivers of the coast or the sea-shore.

One thing strikes me in the genus *Cittura*, though not peculiar to it (for the same is observable in *Melidora*, *Dacelo*, &c.); and that is the enormous strength at the base of the upper mandible.

This reminds me of a specimen of a British Kingfisher (*Alcedo ispida*) which I examined on the 5th of August, 1877. The circumstances of the bird's death were unusual. It had a small jack (*Esox lucius*), 4½ inches long, wedged into its mouth, head foremost. For a Kingfisher to be choked by a small fish is not rare (various instances have been recorded); but in this case the shock of the bird going one way and the fish the other (viz. the flying impetus and the swimming one) was so great that the skull and one of the mandibles of the Kingfisher were fractured. It was a bird of the year; both mandibles were wholly black; perhaps, therefore, the more solid skull of an old bird might have had a better chance.

It is probable, then, that great strength at the base of the upper mandible may be a valuable factor in the structure of the genus *Cittura*, though, at the same time, I am well aware of the difference of food and habits of the various genera of the Alcedinidæ from those of our solitary fish-loving species.

Without following the subject too far, I may say that Mr. Sharpe (quoting Mr. Wallace), in his 'Monograph of the Alcedinidæ,' p. xlv, says of the genus *Tanysiptera*:—"They rest on branches three to five feet from the ground, and dart down upon their prey, often with such force as to stick their bill into the ground, as shown by its being often covered with mud."

This habit must require considerable strength in that organ.

Mr. Dresser has some remarks on this subject ('Birds of Europe,' part xlv., *Alcedo ispida*). Quoting Dr. Kütter (J. f. O. 1866, p. 38), he says

that, in digging, "the bird appears from choice to use the *upper mandible only*;" and "the upper mandible is fixed fast to the skull, whereas the weaker under" one is "attached to the skull only by joints and sinews."

The whole is too long to give in full.

Dr. Meyer remarks:—

"I observe in my field-notes from Celebes the following remarks on *Cittura cyanotis*:—

"'Mr. Wallace says that this species is a rare one; but I did not find it so, and could procure as many as I liked.

"'Male and female are differently coloured, and easily to be distinguished by the colours of the wing-coverts: they are fine blue in the male, black or black with a light bluish tinge in the female. The colour of the eyes is rosy red. Bill and feet dark red; claws brownish black. I found in the stomach insects, beetles, crustacea, worms, &c.

"'The bird mostly sits, apparently dreaming and nearly always alone, on the branches of trees. Its cry is, five or six times, one after another, *kebekek*. I only got it in the Minahassa, *i. e.* in the north of Celebes, not more to the south. *Cittura sanghirensis* is certainly a different species, larger, and coloured otherwise on the neck and breast. In the whole time which I spent in the Minahassa, from December of the year 1870 till July of 1871, I never got a specimen, among the large number of individuals, which had a similar coloration as the Sangi bird. The young, also, were *living* in my possession, and they already showed the characteristic sexual difference in their colours.'

"According to these notes, there can, in my opinion, be no doubt as to the sexual difference in *C. cyanotis*; but nearly all authors who have written about the species either are not aware of this difference, or attribute another sense to it. *C. sanghirensis*, from the Sangi Islands, offers a similar sexual

difference, which likewise has not yet been clearly recognized by the various authors. But before proving this assertion, I wish to state these differences in these two closely allied yet conspicuously distinct species.

"*Cittura cyanotis*, from North Celebes.—The male has the sides of the head deep blue, and *no* white spots on the superciliary feathers; it has deep-blue wing-coverts. The female always has white superciliary spots, and the sides of the head and the wing-coverts black or bluish black. Already the young, with bills still black, show these sexual differences in a marked manner.

"*Cittura sanghirensis*, from Siao and Great Sangi (both Sangi-Island groups).—Both male and female have white superciliary spots; the male has the sides of the head and the wing-coverts blue, the female black or blackish. As in *C. cyanotis*, already the young birds with black bills show these sexual differences.

"Authors do not agree about these points, as the following quotations will show. First, as to *C. cyanotis*.

"Prof. Schlegel (Mus. P.-B. Alc. 1863, p. 22) enumerates male, female, and young, without mentioning the differences. In his 'Vogels van Nederlandsch Indië,' *Alcedinidæ*, 1864, p. 19, this author says that the young males are coloured like the old birds, but with duller tints, and that the young females appear to get the blue of the wing-coverts later than the males. But, as my specimens prove, already the quite young birds show the differences stated above. A male is figured by Prof. Schlegel on plate vi. (fig. 1), and a young bird (fig. 2), without mentioning its sex; but it is a young male.

"In 1874 the same author (Mus. P.-B. Alc. p. 14) enumerates seven more specimens of different sexes and ages, and recurs to the coloration, under the head of *C. sanghirensis*, saying that the white superciliary spots only occur in the adult of *C. cyanotis*. But it is the female which shows this character, and as well the young as the adult.

"Mr. Sharpe, in his excellent Monograph (1868–71), figures on pl. 119 a male, without stating its sex. He does not mention at all (p. 301) sexual or other differences in the coloration. But under the head of *C. sanghirensis* (p. 300), some remarks are added by Dr. Finsch, who describes the female of *C. cyanotis* (without knowing it to be the female) and a male of *C. sanghirensis*, and comes to the conclusion that they are one and the same species, the differences being caused by age. Mr. Sharpe therefore concludes that *C. sanghirensis* also occurs on Celebes. This is not the case; but the *female* of *C. cyanotis* agrees with *C. sanghirensis* in having white superciliary spots.

"Lord Walden, in the year 1872 (Tr. Z. S. viii. p. 44), says:—'It is not improbable that the differences whereon Mr. Sharpe founded his *C. sanghirensis* will prove to be common to the Celebean bird in certain phases of plumage.' This sentence is not quite intelligible to me. Perhaps the author meant that the two species are different, but that they have some characters in common; *all* the differences whereon Mr. Sharpe founded his *C. sanghirensis* are never common to both species.

"Count Salvadori (Ann. Mus. Civ. Gen. vii. 1875, p. 654) first said that it did not appear improbable to him that the white superciliary spots are a sexual character; but he agrees with Prof. Schlegel, that by this character the two species cannot be distinguished. This is partly true, as the female of *C. cyanotis* bears the white spots, and male *and* female of *C. sanghirensis*; but the male of *C cyanotis* can be distinguished at once from *C. sanghirensis* by the want of the spots.

"Mr. Brüggemann, in 1876 (Abh. naturw. Ver. Bremen, v. p. 54), speaks of two different stages, according to the season, relying upon the view of Mr. van Duyvenbode, a native of the country; but one need only to have been in the East to have experienced that no great stress can be laid upon such views. The two stages which Mr. Brüggemann describes correspond to the sexual differences.

"From this summary it will appear that the sexual differences of

C. cyanotis are not yet clearly recognized, and that the female has never been figured.

"Now as to *C. sanghirensis*:—

"This species was first figured by Mr. Sharpe (P. Z. S. 1868, pl. xxvii.). This author says (p. 272) that the figure has been drawn from the type specimen in his collection, and coloured from a very fine example in the Leyden Museum. As the same typical specimen was afterwards figured in Mr. Sharpe's 'Monograph' (pl. 118), these two figures ought to agree; but they appear to me not quite to do so, the first having the sides of the head and the wing-coverts blackish, the latter blue. Can the Leiden specimen be a female? Mr. Sharpe's typical specimen decidedly is a male; but no reference has been made to any sexual differences.

"Neither does Prof. Schlegel, in the year 1874 (Mus. P.-B. Alc. p. 14), consider sexual differences, notwithstanding he enumerates five males and three females.

"Nor does Count Salvadori, in 1876 (Ann. Mus. Civ. Gen. ix. p. 53), enumerating three specimens with blue wing-coverts and two with black ones.

"Therefore, also, the sexual differences in *C. sanghirensis* have not yet been noticed, as far as I am aware; and as at all events an authenticated female specimen has not as yet been figured, we may look upon Mr. Rowley's Plate, which represents such a one, with satisfaction.

"At all events, the two species are very 'good' ones, in the same sense that all insular variations are, or even more so. Which of the two may have been the parental form cannot be said in the present state of our knowledge; but perhaps other allied ones are still to be discovered somewhere on Borneo or the neighbourhood, and will clear up this question.

"Prof. Schlegel and Count Salvadori knew only the habitat of the Great Sangi for *C. sanghirensis*. I also got this species from Siao, in the south of Great Sangi, north of Celebes; and it is perhaps of value to remark that the

Siao specimens quite agree with the Great-Sangi ones, and show no tendency at all to approach the Celebean species.

"Another fact is perhaps worth especial mention: it is this, that a character in one species (viz. the white superciliary spots in *C. sanghirensis*) belongs to both sexes, in the other (in *C. cyanotis*) only to the female. Also the fact as to its genesis remains to be ascertained by any one who wishes to know in which way the variation of species proceeds; but we cannot at this time enter deeper into the subject."

The following translations refer to these species.

Schlegel, Mus. P.-B. Alc. 1864, p. 22:—

"DACELO CYANOTIS, Temm. Pl. Col. 262.

"Wing 3″ 8‴ to 4″ 2‴, tail 3″ to 3″ 6‴, bill 13‴ to 14‴. Bill large, flattened above, reddish. Head and tail reddish yellow above. A superciliary stripe and cheeks of a pale rosy colour. A very broad postocular stripe and wing-coverts dark cobalt-blue, in the young blackish. The other upper parts of a yellowish-brown colour; the underparts white, turning to reddish yellow.

"Observed on the island of Celebes.

"Collected by Forsten."

Schlegel, Mus. P.-B. Alc. 1874, p. 14:—

"Collected by Von Rosenberg and Van Duyvenbode."

"DACELO SANGHIRENSIS, Schlegel.

"*Cittura sanghirensis*, Sharpe.

We owe this discovery to M. Hoedt. I had distributed, in the year

1866, duplicates, under the name of *Dacelo sanghirensis*, some of which came into the British Museum and to Mr. Sharpe. It reminds one nearly perfectly of *Dacelo cyanotis*, but has the front and a spot at the base of the lower mandible continued to the eye black, all the colours of the plumage much more vivid, and the bird of a somewhat larger size. Wing 3″ 9‴ to 4″ 2‴, tail 3″ 9‴. He adds that the character drawn from the white spots, which ornament the black superciliary stripe, is also to be found in the adult of *Dacelo cyanotis*.

"This bird has only been observed on the island of Great Sanghir, in the north of Celebes.

"Collected by Hoedt and Van Duyvenbode."

Brüggemann, Abh. naturw. Ver. Bremen, v. p. 54 (1876):—

"CITTURA CYANOTIS (Temm.).

"This species occurs in two different dresses, which are rather similarly gaudy. It seems probable to me that also here a change in the coloration takes place, according to the season; for we meet specimens in the dress No. 1, which are apparently older than others in the dress No. 2, possessing evidently more slender bills. Besides, Sharpe got the communication, through Duyvenbode, that *C. cyanotis* varies very much according to the season.

"*Dress No.* 1 Superciliary stripe rusty yellow. Region of the ear and small wing-coverts dark blue.

"*Dress No.* 2. Superciliary stripe clean white. Region of the ear and small wing-coverts deep black. In the dress of transition the white tips of the feathers become smaller, and the blue on the wings appears.

Younger bird. Bill much shorter and more obtuse, blackish red. Bears perfectly the dress No. 1."

Schlegel, 'De Vogels van Nederlandsch Indië,' Haarlem (Krusemann), 1864, 4to, p. 18:—

"DACELO CYANOTIS. (Plate 6. figs. 1 & 2.)

"This species is readily recognizable by its lance-shaped feathers on the head, by its rather short and flat bill, and by the colours of its plumage.

"Its length is about 9″, wing 3″ 8‴ to 4″ 2‴, tail 3″ 6‴, bill 13‴ to 14‴.

"The bill is red, rather short, broader than high, and above provided with a flattened ridge, which protrudes only a little. The feet appear to possess, in life, a yellowish-brown colour. The upper part of the head and the tail-feathers are yellowish rusty. A stripe on each side of the head, cheeks, and throat yellowish rosy-coloured, but lighter on the throat. Behind the eye a broad dark-blue stripe, which continues (but much narrower) above the eye to the nose, and also under the eye. Wing-coverts of the same colour. Neck, mantle, feathers of the shoulder, and back yellowish brown, changing into a rusty colour upon the upper tail-coverts and into ochre-yellowish white on the outer web of the shoulder-feathers. The wing-feathers are blackish brown, turning to blue on the secondaries. Underparts, below the throat and under wing-coverts greyish white, turning to rusty yellow.

"The not yet adult males show a plumage differing only by somewhat duller tints from the old ones; but the bill is for the greater part blackish. The young females appear to get their full dress, especially the blue of the wing-coverts, later than the males.

"This bird is found in the northern part of Celebes, and belongs to the rare species."

As regards the birds figured in the two Plates, *C. cyanotis* was collected in March 1871 by Dr. Meyer, in the neighbourhood of Manado, in the

Minahassa. There are, some miles from the town, several small rivers, where he often shot the species in the forest.

The Sangi bird, *C. sanghirensis*, is from Great Sangi, and was collected in 1875 by one of his hunters, who remained in his service when he returned to Europe in 1873. His name is Kamis; he accompanied Bernstein, Wallace, and Von Rosenberg on some of their journeys, and later went with Dr. Meyer. Kamis is a native of Ternate, and is described as a most trustworthy, capital fellow—the best man Dr. Meyer had in his employ.

Small shot is used to kill the birds; and they are not difficult to find in the forest, near rivers or small waters.

THE BIRDS

OF

MONGOLIA, THE TANGUT COUNTRY,

AND THE

SOLITUDES OF NORTHERN TIBET.

By Lieut.-Col. N. PRJEVALSKY.

[Continued from p. 110.]

Order VI. GRALLÆ (*continued*).

286. Hydrochelidon nigra, L. *Kratchka chernaya.*

We found it breeding on the marshy Tsaidemin-nor lake. The young were not fledged towards the end of July. Some stragglers were also noticed by us in Northern Ala-shan, but in no other locality visited by us except the Lake-Hanka basin, where these birds breed in abundance.

287. Hydrochelidon indica, Steph. *Kratchka beloshekaya.*

Gray, Illustr. Ind. Zool. i. pl. lxx. fig. 2.

We met with it only in the Hoang-ho valley, where it was breeding abundantly at the Tsaidemin-nor lake.

288. Graculus carbo. *Baclan bolshoy.*

During the vernal migration, late in March, we saw large numbers of these birds on Lake Dalai-nor, where they probably remain to breed, and about the end of April in the Hoang-ho valley, from which they disappear for the summer. At Koko-nor the earliest migrants appeared on the 12th of March, and were very plentiful later on in the month, especially on the Buhain-gol; but towards the end of March their numbers diminished considerably, as only a few pairs breed here, on account of the want of high overhanging rocks.

At Lake Hanka they arrive early in March, and are very numerous about the middle of that month on the Sungatch. For whole days their loud hoarse voice and the fluttering of their wings are to be heard. After feeding they perch on some overhanging willows; and often whole flocks can be seen at night roosting on dead trees.

Not being pursued by man, these birds get very tame in Mongolia and the Ussuri country, but are not very easily shot, as they can carry a heavy charge; and even when mortally wounded they very often escape by diving.

About the beginning of April almost all these birds leave Hanka for the north; a few probably remain, but do not breed. On the coasts of the Japanese Sea they have young on the rocky shores, and sometimes even stay there for the winter.

289. Pelecanus crispus, L.? *Pelican kudriavey.*

Most likely it was *Pelecanus crispus* that Père David discovered. We saw it on the Dalai-nor and in the Hoang-ho valley: in the former place we found only one, on the 29th of March; and in the latter, two in summer and one in spring.

We did not come across any Pelicans in any other locality which we visited.

Geographical Distribution of the Species in the Localities explored during the Expedition.

Note.—These statements must only be accepted as approximative and incomplete, as our observations did not extend in any locality through a whole year.

Symbols.
- s = *sedens* = resident.
- n = *nidulans* = breeding, *i. e.* migrating to breed.
- h = *hiemans* = wintering, *i. e.* migrating to winter.
- t = *transvolans* = migrating.
- e = *erraticus* = occasional visitor.
- : = common.
- . = not common but not very rare.

LOCALITIES.							
Halha (lat. equal to Urga).	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	North Tibet.
Kiachta-Kalgan road and Ala-shan and Urga road.	From Lake Dalai-nor to the north; bend of the Hoang-ho, and Hara-narin-ul.	Hoang-ho valley.	Desert, and Ala-shan mountains.	Mountains.	Lake, South Koko-nor mountains as far as the sources of Te-tung.	Western portion of the marshy plains.	Burchan-bud to the river Mur-us.
Months in which the birds were observed.							
November, December ... 1870. August ..... 1873.	March, April, May, June, November, December } 1871. March, April ..... 1872.	July, August ..... 1871.	September, October ... 1871. May, June (early) ..... 1872. June, July ..... 1873.	Late June, July, August, Sept., early October .. } 1872 April, May ..... 1873.	Late October ..... 1872. March ..... 1873.	November..... 1872. February ..... 1873.	December ..... 1872. January ..... 1873.

List of the Species, with their Geographical Distribution.

Names of Species.	Halha (lat. same as Urga).	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	N. Tibet.
1. Gypaëtus barbatus, *L.*	s.	s.	e.	s.	s:	s:	e.	s:
2. Vultur monachus, *L.*	s.	s.	e.	s:	s.	s:	e.	s:
3. Gyps himalayensis, *Hume*	...	...	...	...	s:	s:	e.	e.
4. Archibuteo hemilasius, *Temm. & Schleg.*	h.	h: n.	n.	t.	n.?	h:	h.	
5. Aquila chrysaëtos, *L.*	...	s:	...	n. s?				
6. —— imperialis, *Bechst.*	...	s.	...	...	...	h.		
7. —— bifasciata, *Gray*	n.?	n: s?	...	n. s?	n. s?	h:	...	h. s?
8. —— clanga, *Pall.*	...	n.						
9. Circaëtus gallicus, *Gmel.*	...	n.						
10. Pandion haliaëtus, *L.*	...	...	t.	...	t.			
11. Haliaëtus albicilla, *L.*	...	t. n?	...	...	..	?t.		
12. —— macei, *Cuv.*	?t.	...	n:	t.	t.	t. n?		
13. Falco hendersoni, *Hume*	s.	s.	...	...	...	h: s?	...	h. s?
14. Hypotriorchis subbuteo, *L.*	n.?	n.						
15. —— æsalon, *L.*	...	h: n?	n.	n.?	n.	...	t.	
16. Tinnunculus japonicus, *Schleg.*	n.	s:	s:	s.	s·	s.	...	h. s?
17. Erythropus amurensis, *Radde*	...	n.	...	n.	n.			
18. Milvus melanotis, *Temm. & Schleg.*	n:	n:	n:	n:	n:	t: n?		
19. Astur palumbarius, *L.*	...	n.?	...	n.?				
20. Accipiter nisus, *L.*	...	n.?	...	...	n.			
21. Circus spilonotus, *Kaup*	n.?	n. h	n: h.	t.	t.	t.	h:	
22. Strigiceps cyaneus, *L.*	...	h.	...	n.	...	...	h:	
23. Athene plumipes, *Swinh.*	s:	s.	s:	s:	s.	s.	...	s.
24. Bubo maximus, *Sibb.*	...	...	?	...	s.			
25. Caprimulgus jotaca, *Temm. & Schl.*	...	n:	...	...	n.			
26. —— *plumipes*, n. sp.	...	...	n.?					
27. Cypselus apus, *L.*	t: n?	n:	t:	n:	n.?			
28. —— pacificus, *Lath.*	t. n?	n:	...	n:	n:			
29. Chætura caudacuta, *Lath.*	...	t.	t.					
30. Hirundo gutturalis, *Scop.*	n:	n:	n:	n.				
31. Cecropis daurica, *L.*	?	n:	n.	n:	n:			
32. Cotyle riparia, *L.*	t. n?	n:	n.	n:				
33. —— rupestris, *Scop.*	...	n:	...	n.	n:			
34. Chelidon cashmirensis, *Gould*	...	t. n?	...	n:	n:			
35. Upupa epops, *L.*	t: n?	n:	n:	n:	n.			
36. Sitta villosa, *J. Verr.*	..	...	...	s:	s:			
37. —— sinensis, *J. Verr.*	...	s.						
38. —— amurensis, *Swinh.**								
39. Certhia familiaris, *L.*	...	...	...	...	s.			
40. Tichodroma muraria, *L.*	...	s.	...	s.	s:	...	...	s.

* Found only on the N.W. slope of Gubey-key, *i. e.* not actually in Mongolia.

Table of the Geographical Distribution (*continued*).

Names of Species.	Halha (lat. same as Urga).	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	N. Tibet.
41. Troglodytes fumigatus, *Temm.*	...	n.	...	...	n.			
42 { Rhopophilus pekinensis, *Swinh.*	...	s:	s.?	s.				
42 { —— ——, *var. β. major*, nob.	...	...	...	...	...	...	s:	
43. Calamodyta orientalis, *Schleg.*	...	...	n:	n.				
44. Arundinax aëdon, *Pall.*	t.							
45. Dumeticola affinis, *Hodgs.*	...	...	...	...	n.			
46. Locustella certhiola, *Pall.*	t. n?	...	n:	n.	n.?			
47. Sylvia curruca, *Lath.*	t.	n:	n:	n:				
48. —— aralensis, *Eversm.*	...	...	...	n: s?				
49. Phillopneuste plumbeitarsa, *Sw.*	...	...	...	...	n:			
50. —— xanthodryas, *Swinh.*	...	...	...	...	n:			
51. —— borealis, *Blas.*	...	n:	...	t.				
52. —— fuscata, *Blyth*	...	n:	t:	t.				
53. Abrornis armandii, *Milne-Edw.*	...	n.						
54. —— affinis, *Hodgs.*	...	...	...	...	n:			
55. Reguloides proregulus, *Pall.*	...	n.?						
56. —— superciliosus, *Gmel.*	t.	n:						
57. Regulus himalayensis, *Blyth*	...	...	...	...	n.			
58. Ruticilla aurorea, *Pall.*	...	n:	...	?	?			
59. —— rufiventris, *Vieill.*	...	n.	...	n.	t. n?			
60. —— frontalis, *Vig.*	...	...	...	...	n:			
61. —— schisticeps, *Hodgs.*	...	...	...	...	n:			
62. —— hodgsoni, *Moore*	...	...	...	...	n:			
63. —— *alaschanica*, n. sp.	...	...	...	n:	t.			
64. —— fuliginosa, *Vig.*	...	...	...	...	n.			
65. —— erythrogastra, *Güld.*	...	?	...	...	n.			
66. Chæmarrhornis leucocephala, *Vig.*	...	...	...	...	n:			
67. Larvivora cyane, *Pall.*	...	t.	...	t.				
68. Nemura cyanura, *Pall.*	...	...	...	t.	n:			
69. Hodgsonius phœnicuroides, *Hdgs*	...	...	...	...	n.			
70. Cyanecula cærulecula, *Pall.*	t.	...	t.					
71. Calliope kamtschatkensis, *Gmel.*	...	t.	...	...	n:			
72. —— *tschebaiewi*, n. sp.	...	...	...	...	n.			
73. Grandala cœlicolor, *Hodgs.*	...	...	...	...	n:			
74. Saxicola œnanthe, *L.*	n:	n.	?	n.				
75. —— morio, *Ehr.*	?	n:	...	n.	?			
76. —— atrogularis, *Blyth*	n.	...	n.	n:				
77. —— isabellina, *Rüpp.*	n.	n:	n.	n.	n.			
78. Pratincola indica, *Blyth*	...	...	...	...	n.			
79. Accentor nipalensis, *Hodgs.*	...	...	...	...	n:			
80. —— montanellus, *Pall.*	...	...	...	t:				
81. —— fulvescens, *Sev.*	n. h.	n. s?	...	n: s?	...	...	h. s?	h. s?

Table of the Geographical Distribution (*continued*).

Names of Species.	Halha (lat. same as Urga).	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	N. Tibet.
82. Accentor multistriatus, *David*	...	...	...	...	n.			
83. —— rubeculoides, *Moore*	..	...	...	...	n:			
84. Parus minor, *Temm. & Schleg*...	...	...	...	...	s:			
85. *Pœcile affinis*, n. sp.	...	? s:	? s.	s:	s:			
86. —— *superciliosa*, n. sp.	..	...	...	...	s:			
87. *Lophophanes dichroides*, n. sp...	...	...	...	...	s.			
88. —— rubidiventris, *Blyth*?.....	...	...	...	...	s.			
89. Orites caudatus, *L.*	...	s:	...	...	?			
90. Suthora webbiana, *Gray*.....	...	...	s:					
91. Panurus biarmicus, *L.*	...	...	s.	...	...	...	s:	
92. Leptopœcile sophiæ, *Sev.*	...	...	...	...	s:	s:	?	s.
93. Motacilla luzoniensis, *Scop.* ...	...	n.	...	n.	n:			
94. —— dukhunensis, *Sykes*	...	...	...	...	...	n.		
95. —— ocularis, *Swinh.*	t: n?	n:	n:	t: n?				
96. Budytes cinereo-capilla, *Sav.* ...	t.	n.	n:	n.				
97. —— citreola, *Pall.*	t:	n:	t.	...	t.			
98. Calobates melanope, *Pall.*	t.	n.	...	...	t.			
99. Anthus spinoletta, *L.*	t.	t.	t.	t.	...	t:	h.	
100. —— pratensis, *L.*	...	t.						
101. —— rosaceus, *Hodgs*.....	...	n.	...	...	n:			
102. Pipastes agilis, *Sykes*	...	n.?	...	t.	n.			
103. Agrodroma campestris, *Bechst.*	...	n:	n:	n.				
104. Corydalla richardii, *Vieill.*	n.	? n.	...	...	n.			
105. Turdus naumanni, *Temm.*	...	t.	t.	...	...	t.		
106. —— fuscatus, *Pall.*.....	...	t.						
107. —— auritus, *J. Verr*.....	...	...	...	...	n.			
108. —— ruficollis, *Pall.*	...	t:	...	t:	t:	t.	t.	
109. —— pallens, *Pall.*	...	t.	t.	t:				
110. Merula gouldii, *J. Verr.*	...	...	...	...	n:			
111. —— *kessleri*, n. sp.....	...	...	...	...	n:			
112. Oreocincla varia, *Pall.*	...	...	...	t.				
113. Monticola saxatilis, *L.*	...	n:	...	n.				
114. Hydrobata cashmirensis, *Gould*	...	...	...	...	n: s?	...	...	h. s?
115. —— sordida, *Gould*	...	...	...	...	n. s?	...	...	h. s?
116. Pterorhinus davidi, *Swinh*.....	..	s:	s.	s:	s:			
117. Trochalopteron ellioti, *J. Verr*..	...	...	...	...	s:			
118. Oriolus chinensis, *L.*	...	...	...	n.?				
119. Erythrosterna leucura, *Gmel*....	...	n:	t.					
120. Hemichelidon sibirica, *Gmel.* ...	...	n.	..	t.				
121. Ampelis garrula, *L.*	...	t.						
122. Collyrrio sphenocercus, *Cab.* ...	? t.	t. n?	? n.	?	? t.			
123. —— pallidirostris, *Cass*.....	...	...	n.	n.				
124. —— tephronotus, *Vig.*	...	...	...	...	n.			

Table of the Geographical Distribution (*continued*).

Names of Species.	Halha (lat. same as Urga.)	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	N. Tibet.
125. Lanius phœnicurus, *Pall.*	t . n?	n.	n:	n.	n.			
126. —— arenarius, *Blyth*	...	...	n.	n.				
127. Garrulus brandtii, *Eversm.*	...	...	...	...	s .			
128. Podoces hendersoni, *Hume*	s :	...	s .	s :	...	...	s :	
129. —— humilis, *Hume*	...	...	...	...	s :	s :	...	s :
130. Pica media, *Blyth*	...	s :	s :	s .	?			
131. —— bottanensis, *Deless.*	...	...	...	...	s :	...	s .	
132. Cyanopolius cyanus, *Pall.*	...	s .	...	...	s :			
133. Corvus corax, *L.*	s :	s :	s .	s .	s :	s :	s :	s :
134. —— orientalis, *Eversm.*	s .	s :	s .	s .	s :	s . ?		
135. Frugilegus pastinator, *Gould*	...	n .	n.	n.	n :			
136. Lycos dauricus, *Pall.*	n . s ?	n :	...	n . s ?	n : s ?			
137. Pyrrhocorax alpinus, *Vieill.*	...	...	...	...	s :			
138. Fregilus graculus, *L.*	s :	s :	...	s .	s :	s .	...	s :
139. Temenuchus dauricus, *Pall.*	...	n . ?						
140. Sturnus vulgaris, *L.*	...	...	...	...	...	t .		
141. —— cineraceus, *Temm.*	...	t .						
142. Fringilla montifringilla, *L.*	...	t .						
143. Chlorospiza sinica, *L.*	...	n .	...	...	n :			
144. Pyrgita petronia, *L.*	s :	s :	...	s .	s :	s .	...	s .
145. Montifringilla adamsi, *Moore*	...	...	...	...	n :	...	...	h .
146. Fringillauda nemoricola, *Hodgs.*	...	...	...	..	n :			
147. *Onychospiza taczanowskii*, n. sp.	...	...	...	...	...	s :	...	s .
148. Pyrgilauda davidiana, *J. Verr.*	s :	s :						
149. —— ruficollis, *Blanf.*	...	...	...	...	...	s :	...	s :
150. Passer montanus, *L.*	s .	s :	s :	s :	s :	s .	s .	
151. —— ammodendri, *Sev.*	...	...	s :	s :				
152. Mycerobas carnipes, *Hodgs.*	...	...	...	n : s ?	n : s ?	n . s ?		
153. Pyrrhula erithacus, *Blyth*	...	...	...	...	s .			
154. Carpodacus erythrinus, *Pall.*	...	n .	...	n :	n :			
155. —— rubicilla, *Güld.*	...	...	...	...	...	...	h :	h . s ?
156. —— *rubicilloides*, n. sp.	...	...	...	...	n :	...	...	?
157. —— davidianus, *Milne-Edw.*	...	n :	t . ?	n :	n :			
158. *Carpodacus dubius*, n. sp.	...	...	...	n :	n :			
159. Erythrospiza mongolica, *Swinh.*	s .	...	s .	s .	...	s .	s :	
160. —— obsoleta, *Licht.*	...	n . s ?						
161. Uragus sibiricus, *Pall.*	...	t . n ?						
162. *Pyrrhospiza longirostris*, n. sp.	...	...	...	...	n .			
163. Linota brevirostris, *Gould*	...	...	...	...	n :	...	t :	h : s ?
164. Acanthis linaria, *L.*	h : s ?	?						
165. Euspiza aureola, *Pall.*	n .	t : n ?	n .					
166. Emberiza spodocephala, *Pall.*	...	t :	...	t .				
167. —— pityornis, *Pall.*	...	t .	...	...	n .			

Table of the Geographical Distribution (*continued*).

Names of Species.	Haliha (lat. same as Urga).	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	N. Tibet.
168. Emberiza ciopsis, *Bp.*	...	n : s?	...	n . s?				
169. —— godlewskii, *Tacz.*	...	n . s?	...	n : s?	n : s?			
170. —— pusilla, *Pall.*	...	t :	t .	t .				
171. Cynchramus schœniclus, *L.*	...	n .	n .					
172. —— polaris, *Midd.*	n .	n . h .	n . h .	n . h .	...	...	s .	
173. *Urocynchramus pylzowi*, n. sp.	...	...	...	...	n .			
174. Plectrophanes lapponicus, *L.*	h :	h :	h :					
175. Otocoris albigula, *Bp.*	s : h :	s : h :	?	s . h :				
176. —— *nigrifrons*, n. sp.	...	...	...	...	s .	s .	s .	s :
177. Alauda arvensis, *L.*	n :	n :	n : h .	...	n :	n :	t . n?	
178. Galerida leautungensis, *Swinh.*	...	s .	s :	s :				
179. Alaudula cheleënsis, *Swinh.*	s :	s :	s :	s :	?			
180. —— *kukunoorensis*, n. sp.	...	...	...	...	? s .	s .	s .	
181. Melanocorypha mongolica, *Pall.*	s :	s :	s .	...	...	s .		
182. —— maxima, *Gould*	...	...	...	...	...	s :	...	s :
183. Picus mandarinus, *Gould*	...	s .	...	...	s .			
184. —— leuconotus, *Bechst.**								
185. Dryocopus martius, *L.*	...	s .	...	...	s .			
186. Cuculus canorinus, *Müll.*	...	n :	...	n .	n :			
187. Columba rupestris, *Pall.*	s :	s :	s :	s :	s :	s :		
188. —— leuconota, *Vig.*	...	...	...	...	n : s?			
189. Turtur rupicolus, *Pall.*	...	n .	n :					
190. —— vitticollis, *Temm.*	...	...	...	n .	n .			
191. —— humilis, *Temm.*	...	...	...	n .				
192. Syrrhaptes paradoxus, *Pall.*	s :	s :	s :	s :	...	s .	s .	
193. —— thibetanus, *Gould*	...	...	...	...	...	s :	...	s :
194. Phasianus torquatus, *Gmel.*	...	s :	s :					
195. —— *vlangalii*, n. sp.	...	...	...	...	...	...	s :	
196. —— *strauchi*, n. sp.	...	...	...	...	s :			
197. Crossoptilon auritum, *Pall.*	...	...	...	s :	s :			
198. Ithaginis geoffroyi, *J. Verr.*	...	...	...	...	s .			
199. Perdix barbata, *J. Verr.*	s :	s :	s .	s .	s :	s .	s :	s .
200. —— *sifanica*, n. sp.	...	...	...	...	s :	?		
201. Coturnix communis, *Bonn.*?	...	t .						
202. —— japonica, *Schleg.*	...	n : h .	n : h .	t .	n :	n .		
203. Caccabis chukar, *Gray*	s .	s :	...	s .	s .			
204. —— *magna*, n. sp.	...	...	...	...	...	s :	...	s .
205. Tetraogallus thibetanus, *Gould*	...	...	...	...	s :	s .	...	s .
206. Tetraophasis obscurus, *J. Verr.*	...	...	...	...	s :			
207. *Tetrastes sewerzowi*, n. sp.	...	...	...	...	s :			
208. Otis tarda, *L.*?	t .	h :						

* Found only north of Gu-bey-key.

Table of the Geographical Distribution (*continued*).

Names of Species.	Halha (lat. same as Urga).	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	N. Tibet.
209. Otis macqueeni, *Gray?*	...	...	n. ?					
210. Vanellus cristatus, *Meyer*	t.	n:	n:	t.	...	t. n?	t. n?	
211. Chettusia inornata, *Schleg.*	...	t. n?	n:					
212. Charadrius fulvus, *Gmel.*	...	t:	t.	t.				
213. Eudromias veredus, *Gould*	...	n.						
214. Ægialites curonicus, *Besck.*	...	n.	n.	n.				
215. —— cantianus, *Lath.*	t.	t. n?	...	n.	...	t: n?		
216. Glareola orientalis, *Leach*	...	...	n:					
217. Grus cinerea, *Bechst.*	t.	t:	...	t:	t:	t.		
218. —— *nigricollis*, n. sp.	...	...	...	...	...	n.		
219. —— leucauchen, *Temm.*	...	t. n?						
220. —— monacha, *Temm.*	...	t:						
221. —— leucogeranus, *Pall.*	...	...	...	...	...	t.		
222. Anthropoides virgo, *L.*	n? .	n:	n.	n.	...	t.		
223. Ardea cinerea, *L.*	t.	t: n?	n:	...	t.			
224. Herodias alba, *L.*	...	t.	n:	t.	?	t. n?	t. n?	
225. Botaurus stellaris, *L.*	...	...	n:					
226. Ciconia boyciana, *Swinh.?* *								
227. —— nigra, *L.*	t.	t. n?	t.	...	t. n?			
228. Platalea major, *Temm.*	...	t. n?	n.					
229. Ibidorhyncha struthersii, *Vig.*	...	...	...	...	n.	n. ?		
230. Numenius major, *Temm.*	t.	t:	n.	...	...	t: n?		
231. Limosa melanuroides, *Gould*	...	t:	t:	...	...	t.		
232. Totanus ochropus, *L.*	t.	t. n?	n. ?	...	t.			
233. —— glareola, *L.*	t:	t:	n. ?					
234. —— calidris, *L.*	t:	n.	n.	...	...	t:		
235. —— fuscus, *L.*	...	t.						
236. —— glottis, *L.*	t.	...	n. ?					
237. Tringoides hypoleucos, *L.*	t.	n.	n:	...	t.			
238. Recurvirostra avocetta, *L.*	...	t:	n.	...	...	t:		
239. Himantopus candidus, *Bonn.*	...	...	n:					
240. Tringa temminckii, *Leisl.*	t:	t: n?	n. ?					
241. —— subminuta, *Midd.*	t:	t: n?	n: ?					
242. —— subarquata, *L.*	...	...	n. ?					
243. Gallinago scolopacina, *Bp.*	...	t:	n.	t.	t.	t:		
244. —— solitaria, *Hodgs.*	...	h.	...	...	t.	t:	...	h.
245. —— heterocerca, *Cab.*	? t.	t. n?	? n.					
246. —— megala, *Swinh.*	? t.	n. ?	n:					
247. Scolopax rusticola, *L.*	...	t.						
248. Rhynchæa bengalensis, *L.*	...	t.	n.					
249. Rallus indicus, *Blyth?*	...	...	t.	...	...	...	h.	

* Found only north of Gu-bey-key.

Table of the Geographical Distribution (*continued*).

Names of Species.	Halha (lat. same as Urga.)	S.E. Mongolia.	Ordos.	Ala-shan.	Kan-su.	Koko-nor.	Tsaidam.	N. Tibet.
250. Ortygometra pygmæa, *Naum.*	t.	...	n.					
251. Gallinula chloropus, *L.*	...	...	n.					
252. Fulica atra, *L.*	...	t. n?	n:					
253. Anser cinereus, *Meyer*, var. rubrirostris, *Swinh.*	...	n.	n.	...	...	t. n?	t. n?	
254. —— segetum, *Gmel.*	t:	t:	t:	t:				
255. —— grandis, *Pall.*?	...	t.	t.					
256. —— indicus, *Lath.*	...	...	...	...	n.	n:		
257. —— cygnoides, *Pall.*	t:	t. n?	n.					
258. Cygnus musicus, *Bechst.*	...	t:	...	...	...	t:	t. n?	
259. —— bewickii, *Yarr.*	...	t.	n.?	t.	...	?t: n?		
260. —— olor, *Gmel.*?	...	t: n?	...	...	...	? t.		
261. Tadorna cornuta, *Gmel.*	t. n?	n:	n:	...	...	n.		
262. Casarca rutila, *Pall.*	n.	n:	n: h.	n.	t.	n:	t: n?	
263. Mareca penelope, *L.*	...	...	...	...	...	t.		
264. Dafila acuta, *L.*	t.	t: n?	n:	t.	...	t:	t.	
265. Anas boschas, *L.*	t: n.	n:	n:	n.	t.	n:	h. n.	
266. —— pœciloryncha, *Temm. nec Lath.*	...	n:	n:					
267. Querquedula circia, *L.*	t.	t: n.	n:					
268. —— crecca, *L.*	t.	t:	t:	t.	...	t:	t: h.	
269. Eunetta falcata, *Pall.*	...	t:	t. n?					
270. —— glocitans, *Pall.*	...	t:						
271. Chaulelasmus streperus, *L.*	...	t.						
272. Spatula clypeata, *L.*	...	t.	n.?	...	...	t: n?		
273. Fulix cristata, *L.*	...	?	t.	t.	...	t:		
274. Aythya ferina, *L.*	...	...	t.	...	...	t.		
275. Bucephala clangula, *L.*	...	t:	t.	...	t.	t:		
276. Mergus merganser, *L.*	t.	t.	...	...	t.	t:		
277. —— serrator, *L.*	...	t.	...	...	t.			
278. Mergellus albellus, *L.*	...	t:						
279. Podiceps cristatus, *L.*	...	t.	? n.					
280. —— auritus, *L.*?	...	t.	t.					
281. Larus niveus, *Pall.*	...	t.	t.					
282. —— occidentalis, *Aud.*	...	t: n?	t.					
283. —— ichthyaëtus, *Pall.*	...	...	...	...	...	n:		
284. Chroicocephalus brunneicephalus, *Jerd.*	? t.	t: n?	n:	...	...	n:		
285. Sterna anglica, *Mont.*	...	t.	n:	n:				
286. Hydrochelidon nigra, *L.*	...	...	n:	e.				
287. —— indica, *Steph.*	...	...	n:					
288. Graculus carbo, *L.*	...	t: n?	t.	...	...	t: n?		
289. Pelecanus crispus, *L.*	...	t.	t.					

List of the Birds during Spring Migration.

Note.—The date given is the day on which the first specimen was noticed. The mark * means that the species may have passed even earlier. All dates are Old Style.

FEBRUARY 1873.

	Tsaidam.		Tsaidam.
Feb. 10...	*Casarca rutila.*	Feb. 17...	*Vanellus cristatus.*
„ 13...	*Anas boschas.*	„ 18	*Dafila acuta.* *Herodias alba.* *Anser cinereus*, var. *rubrirostris.*
„ 14	*Turdus ruficollis.* *Mergus merganser.* *Cygnus musicus.*	„ 28...	*Anthropoides virgo.*
„ 15...	*Querquedula crecca.*		

MARCH.

	1871. Mountains north of Pekin and S.E. Mongolia, as far as Dalai-nor.	1872. S.E. Mongolia, Kalgan to Hoang-ho.	1873. Lake Koko-nor.
March 1...	.....	.....	*Accentor rubeculoides.*
„ 4...	*Ciconia nigra*.....	.....	*Bucephala clangula**.
„ 5...	.....	.....	*Fulix cristata**. *Larus ichthyaëtus.* *Chroicocephalus brunneicephalus.* *Anser indicus.*
„ 6...	.....	*Anser segetum.*	*Milvus melanotis.*
„ 7...	.....	*Casarca rutila.*	
„ 9...	*Querquedula crecca*	.....	
„ 10...	.....	*Cygnus musicus.*	
„ 11...	*Upupa epops.*		
„ 12...	.....	*Milvus melanotis* ..... *Vanellus cristatus* ..... *Larus occidentalis*.....	*Graculus carbo.*
„ 13...	*Ciconia boyciana?*	*Saxicola morio.*	
„ 14	*Bucephala clangula**..... *Vanellus cristatus** ..... *Cygnus musicus**	.....	*Tadorna cornuta.* *Spatula clypeata.*

List of the Birds during Spring Migration (*continued*).

	March (*continued*).		
	1871. Mountains north of Pekin and S.E. Mongolia, as far as Dalai-nor.	1872. S.E. Mongolia, Kalgan to Hoang-ho.	1873. Lake Koko-nor.
March 15	*Grus leucauchen* *Grus monacha* *Motacilla ocularis* *Dafila acuta* * *Eunetta glocitans* *Eunetta falcata* * *Chroicocephalus brunneicephalus* *Larus occidentalis* *Anser segetum* *	*Saxicola isabellina*	*Aythya ferina.* *Numenius major.*
,, 16	*Chettusia inornata.* *Anser cinereus*, var. *rubrirostris.*		
,, 17			*Grus cinerea.* *Recurvirostra avocetta.*
,, 19		*Upupa epops.*	
,, 20		*Motacilla ocularis*	*Mareca penelope.*
,, 21		*Ruticilla aurorea.*	
,, 22			*Haliaëtus macei.* *Ægialites cantianus.* *Limosa melanuroides.* *Totanus calidris.*
,, 23	*Graculus carbo*		*Motacilla dukhunensis.* *Gallinago scolopacina.* *Graculus carbo.*
,, 24	*Saxicola isabellina.* *Anthus pratensis.*		
,, 25	*Saxicola morio.*		
,, 26	*Tadorna cornuta* *Numenius major*	*Anthus spilonetta* *Ardea cinerea*	*Ardea cinerea.*
,, 27		*Grus cinerea.* *Anthropoides virgo.* *Tadorna cornuta.* *Ægialites cantianus.* *Recurvirostra avocetta.* *Chroicocephalus brunneicephalus* *. *Cygnus bewickii* *.	

List of the Birds during Spring Migration (*continued*).

March (*continued*).			
	1871. Mountains north of Pekin and S.E. Mongolia, as far as Dalai-nor.	1872. S.E. Mongolia, Kalgan to Hoang-ho.	1873. Lake Koko-nor.
March 28...	*Ægialites cantianus*	*Collyrio sphenocercus?*	
„ 29	*Totanus fuscus* ..... *Pelecanus crispus?*.....	.....	*Coturnix japonica.*
„ 30	*Fringilla montifringilla*... *Spatula clypeata* *..... *Recurvirostra avocetta* ...	*Totanus calidris*.....	*Grus nigricollis.*

APRIL.			
	1871. S.E. Mongolia, from Dalai-nor to Kalgan.	1872. Muni-ul mountains and the Hoang-ho valley.	1873. Kan-su.
April 1	*Anas pœcilorhyncha* ..... *Grus cinerea* ..... *Platalea major* ..... *Fulica atra*.....	*Chettusia inornata*.....	*Saxicola isabellina.*
„ 2...	*Mergus serrator* *.		
„ 3	*Chaulelasmus streperus* ... *Podiceps auritus?*	*Ciconia nigra.*	
„ 4	*Anthus spilonetta* ..... *Anser cygnoides* *	.....	*Ruticilla rufiventris.*
„ 5...	.....	.....	*Pratincola indica.* *Urocynchramus pylzowi.*
„ 7...	*Lanius sphenocercus*	*Larus niveus*	*Ciconia nigra.*
„ 8...	.....	.....	*Ruticilla frontalis.*
„ 9	*Ægialites curonicus* ..... *Limosa melanuroides*..... *Gallinago scolopacina*	*Cotyle rupestris.* *Saxicola œnanthe.* *Chaulelasmus streperus* *.	
„ 10...	.....	*Turdus ruficollis*	*Anthus rosaceus.*
„ 11	*Querquedula circia* *..... *Budytes citreola*.....	*Carpodacus davidianus*	*Budytes citreola.*

List of the Birds during Spring Migration (*continued*).

April (*continued*).

	1871. S.E. Mongolia, from Dalai-nor to Kalgan.	1872. Muni-ul mountains and the Hoang-ho valley.	1873. Kan-su.
April 12...	.....	*Cypselus pacificus* ..... *Reguloides superciliosus*..	*Pandion haliaëtus.* *Ruticilla erythrogastra.* *Chœmarrhornis leucocephala.* *Emberiza pityornis.*
,, 13...	*Podiceps cristatus* *	.....	*Merula kessleri.*
,, 14...	*Totanus ochropus*	.....	*Accentor nipalensis.*
,, 16...	.....	.....	*Upupa epops.*
,, 17	*Anthropoides virgo* *. *Tringa temminckii.* *Herodias alba* *.		
,, 18...	*Totanus glareola.*		
,, 20...	.....	.....	*Chelidon cashmiriensis.* *Grandala cœlicolor.* *Troglodytes fumigatus* *.
,, 21...	*Hirundo gutturalis*.....	*Emberiza pusilla.*	
,, 22...	*Cotyle riparia*.....	*Calobates melanope.*	
,, 23...	*Agrodroma campestris* ...	*Hirundo gutturalis.* *Agrodroma campestris.* *Budytes citreola.*	
,, 24...	.....	*Budytes cinereo-capilla* * *Charadrius fulvus* ..... *Tringa temminckii* * ..... *Graculus carbo* * ..... *Sterna anglica* *	*Carpodacus dubius* *.
,, 26...	.....	.....	*Cotyle rupestris.* *Nemura cyanura.* *Calobates melanope.*
,, 27...	.....	*Cotyle riparia.*	
,, 28...	.....	*Chætura caudacuta.* *Lanius phœnicurus.*	

List of Birds during Spring Migration (*continued*).

MAY.			
	1871. S.E. Mongolia, from Kalgan to the Hoang-ho.	1872. Valley of the Hoang-ho and Northern Ala-shan.	1873. Kan-su mountains.
May 2 ...	.....	*Cypselus apus.*	
,, 3 ...	*Chætura caudacuta*	*Sylvia curruca.*	
,, 4 ...	*Gallinago heterocerca* * ...	*Chelidon cashmiriensis* * ... *Erythrosterna leucura*	*Corydallus richardii.* *Cuculus canorinus.*
,, 5 ...	*Rhynchæa bengalensis*	*Monticola saxatilis* *.	
,, 6 ...	*Euspiza aureola*.....	*Calliope kamtschatkensis* *.	
,, 7 ...	*Charadrius fulvus.*		
,, 8 ...	.....	*Cyanecula cærulecula.*	
,, 9 ...	*Turdus pallens.*		
,, 10	*Cypselus pacificus* * ..... *Larvivora cyane* * ..... *Cuculus canorinus*	*Cecropis daurica.*	
,, 13	*Cypselus apus.* *Emberiza spodocephala.*		
,, 14 ...	....	.....	*Cypselus pacificus.* *Cecropis daurica.*
,, 15 ...	.....	....	*Caprimulgus jotaca.*
,, 17 ...	... .	*Emberiza spodocephala.*	

List of the Birds during Autumn Migration.

Note.—The period of migration is reckoned at the time when the principal migration took place.

AUGUST.			
	1871. Ordos; the Hoang-ho valley.	1872. Kan-su mountains.	1873. Road from Ala-shan to Urga, through Gobi.
Aug. 10 to Aug. 20	*Limosa melanuroides*	*Cypselus pacificus* *Chelidon lagopoda*	*Cypselus pacificus.* *Cyanecula cærulecula.* *Reguloides superciliosus.* *Totanus ochropus.* *Totanus glareola.* *Totanus calidris.* *Budytes citreola.*
Aug. 20 to Sept. 1	*Cypselus apus* *Cotyle riparia* *Cyanecula cærulecula* *Carpodacus davidianus* *Ciconia nigra* *Numenius major* *Budytes citreola*	*Calobates melanope* *Montifringilla adamsi* *Cuculus canorinus* *Tringoides hypoleucos*	*Cypselus apus.* *Upupa epops.* *Cotyle riparia.* *Circus spilonotus.* *Motacilla ocularis.* *Calobate melanope.* *Anthus spinoletta.* *Dafila acuta.* *Casarca rutila.* *Querquedula crecca.* *Grus cinerea.* *Tringoides hypoleucos.* *Totanus glottis.* *Gallinago heterocerca?* *Anser cygnoides.* *Anser cinereus*, var. *rubrirostris.* *Ægialites cantianus.* *Otis tarda.*

List of the Birds during Autumn Migration (*continued*).

SEPTEMBER.

	1871. Ala-shan (desert and mountains).	1872. Kan-su mountains.	1873. Northern Halha.
Sept. 1 to Sept. 10	*Upupa epops* ..... *Larvivora cyane*..... *Hemichelidon sibirica* ... *Euspiza aureola*..... *Emberiza pusilla* ..... *Anthropoides virgo* ..... *Graculus carbo* ..... *Anser cinereus*, var. *rubrirostris*..... *Anser segetum* ..... *Corydalla richardii* ..... *Charadrius fulvus*	*Upupa epops* ..... *Accentor nipalensis* ..... *Fringillauda nemoricola* ..	*Hirundo gutturalis.* *Mergus merganser.* *Ciconia nigra.* *Anser segetum.*
Sept. 10 to Sept. 20	*Turdus pallens* ..... *Grus cinerea* ..... *Frugilegus pastinator* ...	*Cecropis daurica* ..... *Archibuteo hemilasius* ... *Ruticilla fuliginosa* ..... *Grus cinerea* ..... *Troglodytes fumigatus* ...	*Strigiceps cyaneus?* *Turdus naumanni.* *Monedula daurica.*
Sept. 20 to Oct. 1	*Accentor montanellus* ... *Turdus ruficollis* ..... *Vanellus cristatus* ..... *Herodias alba* ..... *Ruticilla alaschanica*.....	*Circus spilonotus.* *Strigiceps cyaneus.* *Haliaëtus macei.* *Chæmarrhornis leucocephala.* *Lanius sphenocercus?* *Turdus ruficollis.*	

OCTOBER.

	1871. Ala-shan and Ala-shan mountains.	1872. Kan-su mountains and Lake Koko-nor.
Oct. 1 to Oct. 10	*Monticola saxatilis* *Carpodacus dubius*	*Ruticilla alashanica.* *Ruticilla erythrogastra.* *Urocynchramus pylzowi.* *Bucephala clangula.* *Mergus serrator.* *Grus leucogeranus.* *Ciconia nigra.*

List of the Birds during Autumn Migration (*continued*).

	October (*continued*).	
	1871. Ala-shan and Ala-shan mountains.	1872. Kan-su mountains and Lake Koko-nor.
Oct. 10 to Oct. 20	.....	*Anser cinereus*, var. *rubrirostris*. *Anas boschas*. *Querquedula crecca*. *Fuligula cristata*. *Casarca rutila*. *Larus ichthyaëtus*. *Larus niveus*. *Haliaëtus macei*. *Totanus calidris*. *Vanellus cristatus*.

[We have now finished the task of setting the ornithological results of Colonel Prjevalsky's travels before our readers; and we must thank Mr. Craemers for the efficient way in which he has translated his author.

According to 'Nature' (Jan. 17th, 1878, p. 234), this Russian officer has penetrated to Lake Lob-Nor, in the very centre of Asia, and "he reports that it is impossible to conceive the enormous number of migratory birds which, on their journey from southern countries to the north (or *vice versâ*), select Lake Lob-Nor as a halting-place."

It is much to be wished that these fresh and interesting discoveries should be, in the interests of our science, made available to Englishmen.

Editor of the O. M.]

DESCRIPTION OF TWO SPECIES OF BIRDS FROM THE MALAY ARCHIPELAGO.

By A. B. MEYER, M.D., C.M.Z.S.,

Director of the Royal Zoological Museum of Dresden.

ZEOCEPHUS ROWLEYI, n. sp.

Schistaceo-cyaneus, subtus pallidior, albescens.

Upper parts bluish, brighter on the back; wing-feathers blackish grey, margins of the outer webs greyish blue, of the inner whitish. Underparts light pale blue, somewhat whitish on the belly; wing-feathers beneath grey, margins of the outer webs and under wing-coverts white. Rectrices bluish grey above, outer webs blue, of the same colour as the back; beneath grey. Bill blackish, under mandible paler. Bristles very long, some reaching the tip of the bill. Feet and claws greyish.

Total length 180 millims., bill 13, wing 96, tail 92, tarsus 21.

Hab. Great Sangi, Sangi Islands.

The Dresden Museum possesses one specimen of this apparently new species, which may perhaps belong to the genus *Philentoma*, Eyton, or another genus allied to *Monarcha* or *Myiagra*. The bill is rather short for a *Zeocephus*, and rather broad for a typical *Philentoma*. The species appears to agree in coloration with *Zeocephus cyanescens*, Sharpe, from the

island of Palawan, Philippines (see Trans. Linn. Soc. ser. 2, Zoology, vol. i. p. 328, plate 48. fig. 2, 1877); but it is smaller, the underparts are lighter, and there is no black on the lores, the front, the chin, and the base of the mandible.

Zeocephus rowleyi also reminds one somewhat of *Hypothymis puella* (Wall.), from Celebes, and it may, *perhaps*, be regarded as representing this species on the Sangi Islands. But I will not discuss this question now.

The specimen belongs to a collection of birds which one of the hunters in my service made on the Sangi Islands. I hope soon to be able to give a list of this collection, as it raises the number of the species known to inhabit this island-group considerably, viz. to about 70; whereas, till now, it was not much more than half that number—at least, from trustworthy sources.

The specimen is marked "male;" but I, of course, cannot guarantee the correctness of the sex. The exact locality is Tabukan, on the island of Great Sangi, which lies between Siao and Celebes, to the south, and Mindanao (Philippines), to the north.

I cannot say any thing certain about the coloration of the bill, the feet, and the eyes in life; the colours above mentioned are those which the dried skin presents; but I suppose that these parts are blue, as is the case with *Hypothymis puella* (Wall.), *Zeocephus cyanescens*, Sharpe, and allied species.

I take the liberty of calling this pretty species after the Editor of this Journal, in acknowledgment of the services which he renders to science by editing his 'Ornithological Miscellany.'

SURNICULUS MUSSCHENBROEKI, n. sp.

S. lugubri (Horsf.) similis, sed major.

Black, with greenish-blue metallic gloss on wings, mantle, and tail. Head, neck, back, uropygium, and underparts black, but velvety, not

glossy. Underside of the wing-feathers brownish, white spots on the basal third of the inner webs forming a band. Tail of *Dicrurus*-like shape; short outer rectrices spotted, and partly banded with white. On the thighs a thick plumage of splendidly white feathers with greyish base. (One white feather on the neck appears not to constitute a specific character*.) Bill black. Feet blackish above, light below.

Total length 265 millims., wing 140, tail 155, bill 19, tarsus 16.

Hab. Batjan, Moluccas.

The single specimen which the Dresden Museum possesses was procured by one of the hunters in my service, on the island of Batjan. It is marked "female."

No species of the genus *Surniculus* was till recently known to occur more to the east than Borneo, where the wide-spreading *S. lugubris* (Horsf.) resides, which ranges from India, through Ceylon and Malacca, Java, and Sumatra, to Borneo (see Schlegel, Mus. P.-B. *Cuculi*, 1864, p. 28, and Salvadori, Ann. Mus. Civ. Gen. 1874, v. p. 63). Sharpe has described a new species of *Surniculus* from Malamaui, in the south of Mindanao (see Trans. Linn. Soc. ser. 2, Zoology, vol. i. 1877, p. 320), viz. *S. velutinus*; and it is therefore not to be wondered at that we find the genus represented in the Moluccas, which (viz. Halmahéra) are not very far from Mindanao.

Surniculus velutinus appears to agree a good deal with *S. musschenbroeki*; but the former is much (about 3 inches) smaller. *S. musschenbroeki* is also remarkably larger than *S. lugubris*, the size of the wings of which species Salvadori (*l. c.*) gives as 120 millims. (140 in *S. musschenbroeki*), of the tail as 10 millims. (15·5 in *S. musschenbroeki*); Schlegel (*l. c.*) states that the wings and tail vary between 4″ 4‴ and 5″ 2‴, and 4″ 3‴ and 4″ 11‴, respectively.

* Some specimens of *Surniculus lugubris* (Horsf.) also show a white neck-feather, which rises to a real specific character in *Caliechthrus leucolophus* (Müll.), from New Guinea, with its white crown and neck.

in *S. lugubris*. From this species *S. musschenbroeki*, besides, differs in the same characters as *S. velutinus* does—viz. the velvety black, not glossy, plumage of the upper and underparts.

I call this species after my friend Mr. van Musschenbroek, the late Resident of Ternate (Moluccas), and, no doubt, in every respect the best acquainted with the Halmahera group. His rich collections from those islands are yet undescribed; but it is to be hoped that he will soon favour the scientific world with at least a catalogue of his zoological specimens, as this is just the thing we want now—complete lists of local faunas.

I am personally indebted to Mr. van Musschenbroek for his kind reception on Ternate, when I returned from New Guinea, in the year 1873, badly ill with intermittent fever; and I shall never forget his kindness then bestowed upon me.

January 1878.

PART XIV.

"To-night she's mew'd up."

Romeo and Juliet, Act. iii. sc. 4.

POLIOHIERAX INSIGNIS.

By ARTHUR, Marquis of TWEEDDALE, F.R.S.

(Plate CIII.)

Polihierax insignis, Walden, P. Z. S. 1871, p. 627; Ibis, 1872, pp. 467* & 471.
Lithofalco feildeni, Hume, Pr. A. S. B. 1872, pp. 70 & 71.
Poliohierax insignis, Walden, Sharpe, Cat. *Accipitres*, Brit. Mus. 1874, p. 370.
Polihierax feildeni, Hume, Str. F. 1875, pp. 14, 19, & 269.
Polihierax insignis, Walden, Sclater, Str. F. 1875, p. 417.
Poliohierax insignis, Walden, Blyth, Birds of Burma, 1875, p. 59. no. 14.

The subject of the accompanying Plate was first discovered by my friend the late Major Lloyd, Assistant Commissioner at Tongoo, in British Burma. Examples of both sexes were sent by him to me in the month of August 1871. As I was unfortunately prevented from exhibiting them myself at the next scientific meeting of the Zoological Society, on the 7th of November, I intrusted them to Mr. Sclater, with a short description and a proposed title—the designation adopted above. Mr. Sclater exhibited the specimens, read my notes on them, and before the meeting announced the title I proposed. In due course these facts were recorded in the 'Proceedings' of the Zoological Society (*l. c.*).

In the month of May 1872 Mr. Hume, having received specimens of the

* In the British-Museum Catalogue (vol. i. *Accipitres*), page 200 is quoted in error.

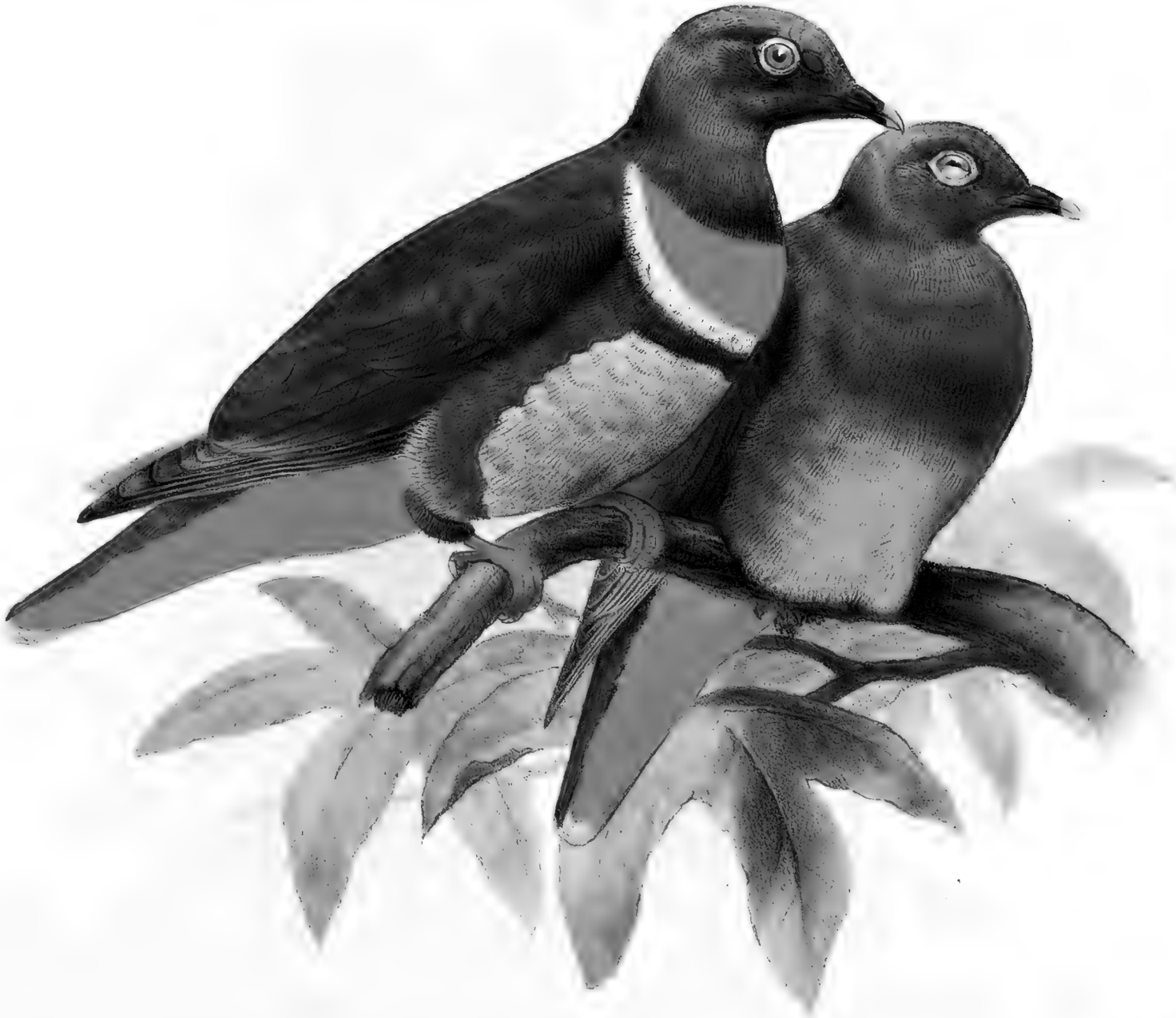
same bird from Captain Feilden, described them as belonging to an unknown species, and bestowed the title of *Lithofalco feildeni*.

To Captain Feilden we are indebted for valuable remarks on the various phases of plumage this Falcon assumes, and for a full description of its habits (*l. c.*).

Mr. Oates has also added to our knowledge of the species.

From a zoo-geographical point of view, the occurrence of this bird in Burma is of the highest interest. It belongs to a genus the type and only other member of which occurs in Africa, *P. semitorquatus* (Smith).

At present, *P. insignis* is only known as an inhabitant of North Burma.



J Smit lith.

PTILOPUS SPECIOSUS, Gray. Nob.

ON THE GENUS PTILOPUS.

(PTILONOPUS, Swains.).

By Mr. G. D. ROWLEY.

[Continued from p. 117.]

PTILOPUS SPECIOSUS (Von Rosenberg)
AND
PTILONOPUS BELLUS (Sclater).

(Plate CIV.)

Ptilopus speciosus, Schlegel, Nederl. Tijdschr. v. d. Dierk. iv. p. 23 (1871); Meyer, Sitzungsb. d. k. Akad. Wien, lxx. p. 128 (1874); Rosenberg, Reistochten, p. 143, pl. xiv. fig. 1 (1875); Salvadori, "Prodr. Col." Ann. Mus. Civ. Gen. ix. p. 197 (1876).

At the risk of tiring my readers, after having already figured several Pigeons, I cannot refrain from taking one more; for the richness of the Malay archipelago in this beautiful group appears to be inexhaustible, and *P. speciosus* equals and perhaps exceeds every other by the extraordinary arrangement of its lovely colours.

This bird is from the islands of Geelvink Bay, in the north of New Guinea. It had already been discovered by Von Rosenberg, on the island of Mafoor, in the year 1869; nevertheless it is still rare in collections, and the male has been only imperfectly figured.

Professor Schlegel first described the species, in 1871; and the following is a translation of the description in his 'Observations Zoologiques:'—

"This species is the most beautiful of the genus. It has been discovered on the island of Mafoor" [as was stated by Dr. Meyer, *anteà*, part xii. p. 64, under the head of P. MIQUELI*], "and also on the island of Soëk, where it appears to represent both *P. rivoli* and *P. miqueli* from the islands of Meosnoum and Jobie,—though *P. speciosus* is smaller than either and is distinguished in a remarkable manner by the fine and vivid citron-yellow which occupies more than the upper half of the large white band of the breast-feathers, further because the large red patch on the breast and belly is much lighter than in the other species and offers, instead of a dark purple-red or violet, a fine purple-lilac, also because its head, green and bronzed on the sides, does not present any other trace of red than a dark violet patch on the lores; finally it is known by the total want of blackish patches on the scapularies. The abdomen and the under tail-coverts are both of a fine citron-yellow.

"The female is coloured exactly like the females of *Ptilopus rivolii* and *P. rosenbergii*†, from which it is distinguished by its small size; the yellow on the abdomen and the under tail-coverts is less pure than in the male; and the green of the belly is varied with yellow up to the breast.

"M. von Rosenberg has sent us a very fine series of this species, which has the following measurements—wing 3″ 11‴ to 4″ 3‴, tail 2″ 1‴ to 2″ 3‴, bill from the front 6‴ to 6½‴."

The same author, in the year 1873, before he knew of Signor d'Albertis's discovery of *Ptilopus bellus* (Sclater) on the Arfak mountains (*cf.* P. Z. S.

* By this name Prof. Schlegel designates *Ptilopus prasinorrhous* (G. R. Gray); *P. rivolii* (Prévost), according to Salvadori (Prod. Col.), only occurs on Buru.

† The author, no doubt, means *Ptilopus miqueli*.

1873, p. 696, pl. lvii.), in the Catalogue of the Leyden Museum (Mus. P.-B. *Columbæ*, p. 27) writes :—

"General tint green, slightly bronzed on the sides of the head. Least primaries with a large apical patch of a green-greyish white colour. Under tail-coverts and abdomen citron-yellow. Male adult easily known by the following characters—breast and abdomen of a fine purple-lilac, a large fine citron-yellow band on the breast, passing below into white, and a dark violet patch on the lores."

Herr von Rosenberg only gives the following note in his 'Reistochten,' published in the year 1875, p. 143 :—

"*Male.* Green; the halfmoon-formed breast-shield lively citron-yellow, with a broad white band below; in the middle of breast and on the belly a light-purple-lilac patch; on the lores a little dark-violet patch; abdomen and under tail-coverts pale citron-yellow.

"*Length.* Wings 3″ 11‴ to 4″ 3‴, tail 2″ 1‴ to 2″ 3‴.

"*Habitat.* Mafoor and Schouten Eilanden."

In the letterpress of his interesting work the traveller says, in the chapter on Mafoor, p. 37 :—

"Among the two Parrot-Pigeons, the one of which I named *Ptilopus speciosus*, the other *P. musschenbroekii*, the former is conspicuous by its grey colour. It is related to *P. rivoli*, but has a golden-yellow shield on the breast. *P. musschenbroekii* is unlike *P. viridis* from Amboina. According to Prof. Schlegel, in Nederl. Tijdschr. v. d. Dierk. iv. p. 23, *P. musschenbroekii* is only a variety of *P. viridis* *. Both species, which I again found on Soëk, together with my *Lamprotornis magnus*, are less common."

* Later (Mus. P.-B. *Columbæ*, 1873, p. 23), Prof. Schlegel called the species *Ptilopus viridis geelvinkianus*, showing that he considers it, if not a species, something more than a variety.

In his chapter on the Schouten Eilanden, Von Rosenberg says (p. 47):—

"To the series of species which this group has in common with Mefoor, belong all species of Pigeons and Parrots which I mentioned as occurring on this island—as *Loris cyanonegia**, *Ptilopus musschenbroekii* and *P. speciosus*, *Lamprotornis magnus*, &c."

The figure of *Ptilopus speciosus* which Herr von Rosenberg published ('Reistochten naar de Geelvinkbai op Nieuw-Guinea,' plate xv. fig. 1) is one third of the natural size, and does not give a sufficient idea of this extraordinary species; therefore I have had it figured to correspond with Mr. Sclater's bird from the Arfak mountains, to which it is closely allied (*Ptilopus bellus*, P. Z. S. 1873, plate lvii.), by the same artist.

I have specimens of both the male and female of this species now before me. In the male I observe, behind the red on the head, a characteristic dark bluish green tint†, which the plate does not show, and which is not mentioned in the description; perhaps the specimen I now examine may be in finer plumage.

I also figure the female of *Ptilopus speciosus*. The difference of the females of the five closely allied species, *P. speciosus*, *P. bellus*, *P. rivoli*, *P. prasinorrhous*, and *P. miqueli*, is small, but not, therefore, less interesting. It is an often repeated circumstance that the females of different species are much alike, while the males are not: among others, I may mention several Birds of Paradise which show this in a striking manner. The females of the other four species are not yet figured, as far as I know; and the female of *P. bellus* is not yet described. I may therefore mention that it is quite green, more or less bronzed on the upper parts; the head is darker than

* The author means *Eos cyanogenys*, Bp.

† *P. miqueli* does not present a darker green behind the red cap, as does *P. bellus* and *P. prasinorrhous*.

the body, and of a somewhat blue-green, the same shade of green as on the head of the male (just as is the case with the female of *P. prasinorrhous*: *cf.* Schlegel, Nederl. Tijdschr. Dierk. iv. p. 22); and the belly and under tail-coverts are variegated with pale citron-yellow, the edges of the feathers being marked with that colour.

As to the affinities of *Ptilopus speciosus*, cf. anteà, part xii pp. 62, 63 (Dr. Meyer's remarks). I also reproduce Dr. Meyer's contribution to his fifth paper on the ornithology of New Guinea and the islands of Geelvink Bay, in the Sitzungsb. d. k. Akad. of Vienna, lxx. (1874) p. 128. He there says, under the head of *Ptilopus rivoli*, Flor. Prév. :—

"*P. rivoli* and *P. prasinorrhous*, and the allied forms, present an interest as to geographical distribution in this sense, that two such closely allied ones as *P. bellus*, Scl., and *P. rivoli* occur together in New Guinea, and both *P. speciosus*, Rosenb., and *P. rivoli* in company on the small island of Mafoor—a remarkable fact; whereas on the island of Mysore only *P. speciosus*, Rosenb., appears, and on the other island, Jobi, only *P. miqueli*, Rosenb., has yet been found (according to Schlegel, after Von Rosenberg)—a fact which my own researches affirm.

"But whereas *P. speciosus* and *P. rivoli* indeed live together on the small island of Mafoor, *P. bellus*, Scl., only has been found up to this time on the Arfak mountains (D'Albertis and myself), and *P. rivoli* on the west coast of New Guinea. It would be interesting to make out whether *P. rivoli* is represented by *P. bellus* on the Arfak mountains, or whether they occur together there (an analogous case to *P. speciosus* and *P. rivoli* on Mafoor)."

Dr. Meyer further informs me, in a letter, that he is not able to detect the slightest difference between the specimens of *P. speciosus* from Mafoor and those from Mysore; but he says that some of them from both localities differ in the extent of the bronze-green tint on the head: there are examples in which it occupies the whole head and spreads more or less to the back,

and even specimens where nearly the whole of the green of the bird is slightly bronzed. Dr. Meyer supposes these differences to be nothing but individual variations, depending on some unknown cause, and that they have no reference to age or sex.

As to the appearance of the handsome adornment of the underparts, the same gentleman tells me that his specimens teach that already the young males show traces of the violet, yellow, and white colours, the violet of the belly appearing first here and there, and gradually forming a patch, and only in the quite adult bird occupying nearly the whole abdomen; the yellow at first does not form a band, but is only a patch in the middle; and the white gradually develops itself below the yellow.

Dr. Meyer finally says that the yellow of the thoracic band in some specimens of *P. speciosus* appears to be deeper than in *P. bellus*.

Mr. Sclater (P. Z. S. 1873, p. 696) remarks, under the head of *Ptilopus bellus*:—

"This fine Pigeon belongs to the group of *P. rivolii*, *P. prasinorrhous*, and its allies. It seems to resemble *P. speciosus* of Schlegel (Ned. Tijdsch. Dierk. iv. p. 23) in having the upper part of the thoracic band yellow, but differs much from that species in having the whole crown of the head of a fine rosy red, like the patch in the middle of the abdomen."

In the composition of this article, I have to thank Dr. Meyer for much valuable assistance.

I conclude my remarks on the handsomest Pigeon in existence (*P. speciosus*), with *P. bellus*, by expressing a hope that some traveller, urged

by love of birds, may explore completely these marvellous regions, and clear up, by a series of patient notes and numerous specimens, our misty ideas as to the causes of these variations, and may also inform us concerning the breeding, nestling-plumage, and other particulars.

The specimens of *P. speciosus* figured are a male and female in my own collection; and the descriptions of *P. bellus* are also from a male and female belonging to me.

A NOTE ON THE GENUS ARTAMUS AND ITS GEOGRAPHICAL DISTRIBUTION.

By R. BOWDLER SHARPE, M.A., F.L.S., F.Z.S., &c.

The recent discovery of some fine *Artami* has directed considerable attention to the genus; and I accede with pleasure to the request of my friend Mr. Dawson Rowley to jot down a few notes on the Wood-Swallows for the 'Ornithological Miscellany.' It would be supposed that in the case of a genus of which the members are by no means rare, as a rule, we should be in a position to speak very positively on the subject of the species; but such is by no means the case, and there are several points in regard to the Australian *Artami* to which I particularly invite the attention of Mr. Ramsay and other workers at the antipodes.

In Mr. G. R. Gray's 'Handlist' we find 22 species included in the genus *Artamus* alone, and in the *Artamidæ* are placed four genera, as follows:—

1065. Artamus.

a. Subgenus Artamus, with 16 species.

Of these I consider the following to be synonymous:—4269. *A. leucorhynchus*, L.; 4273. *A. leucogaster*, Valenc.; 4279. *A. leucopygialis*, Gould; and 4282. *A. papuensis*, Temm. *A. arnouxi*, Bp., I cannot make out from the

miserable description, "entièrement grise." *A. albiventris*, Gould, is doubtfully distinct from *A. cinereus*, from which *A. melanops*, Gould, will be also with difficulty separated. To the number must be added the lately discovered *A. maximus*, Meyer, and *A. insignis*, Sclater.

1066. *b.* ——— ?

The only species placed in this unnamed section is *A. minor*, which is, in my opinion, a small but true *Artamus*.

1067. *c.* ——— ?

Whether Mr. Wallace, whom I follow, is right in putting the *Artamidæ* where he does, is a question to be settled later on (*cf.* Ibis, 1874, p. 412); but I think there is no doubt at all that Mr. Gray was wrong in placing such a bird as *Leptopterus chabert* in the *Artamidæ* at all. This is the sole species he assigns to his unnamed section no. 1067; and why he did not call it *Leptopterus*, Bp., of which *L. chabert* is the type, I am at a loss to conjecture. A glance at the wings of this and the succeeding species will show that they are more truly Laniine than Artamine in their affinities (*cf.* Sharpe, Cat. B. iii. p. 282).

1068. *d.* ——— ?

The usual name for the next two species is *Artamia*; but Mr. Gray seems to show that a change is necessary. If, as is generally allowed now, *Oriolia bernieri* is the young of *Artamia viridis*, the former generic name must be employed, and the species called *Oriolia viridis*. Of the second species, *A. rufa* (L.), I make a *Vanga* (*cf.* P. Z. S. 1871, p. 319).

1069. *e.* Cyanolanius, Bp.

C. bicolor is no *Artamus*, but goes along with the other birds above mentioned.

1070. *f.* Anais, Lesson.

A. clemenciæ, from Borneo, is the type; and I know nothing of the species; nor does Count Salvadori (Ucc. Born. p. 142), to whom the Marquis of Tweeddale suggests that it may be a manufactured bird.

1071. Oriolia, Isid. Geoffr.

This genus is kept distinct, though the species is the young of *Artamia viridis* (vide anteà). In justice to Mr. Gray it must be remembered that he had not seen an example.

1072. Pseudochelidon, Hartl.

I think Mr. Gray has found out the right position of this genus, which is not far removed from *Artamus*.

1073. Analcipus, Swains.

As I have endeavoured to show in my 'Catalogue of Birds' (iii. p. 188), this genus, containing the Blood-coloured Orioles, is not really separable from *Oriolus*.

With these few preliminary remarks, I propose to give a short note on the species of *Artamus* known to me, as represented in the British Museum. The following species are unknown to me, or have been wrongly placed in the genus *Artamus*:—

Artamus leucorhynchus.

La Pie-grièche de Manille, Briss. Orn. ii. p. 180, pl. xviii. fig. 2 (1760).

Lanius leucorhynchus, Linn. Mantissa, p. 524 (1771, *ex* Brisson); Gm. S. N. i. p. 305 (1788).

La Pie-grièche dominiquaine des Philippines, Sonnerat, Voy. N. Guin. p. 54 (1776).

Lanius philippinus, Scop. Del. Flor. et Faun. Insubr. ii. p. 85 (1786, *ex* Sonnerat).
Lanius dominicanus, Gm. S. N. i. p. 307 (1788, *ex* Sonnerat).

A species said to be from Manilla, concerning which *vide infrà*.

ARTAMUS ARNOUXI.

Artamus arnouxi, Bp. C. R. xxxviii. p. 538 (1854); Gray, List B. Trop. Isl. Pacific Ocean, p. 23 (1858); id. Handl. B. i. p. 289. no. 4284 (1869).

All that is known of this species is the statement that it is "entièrement grise," and that it was brought by Dr. Arnoux to the Paris Museum along with a second species from New Caledonia; but whether *A. arnouxi* is from the latter island we are not informed.

ARTAMUS, sp.

Artamus leucorhynchus, Hartl. & Finsch, P. Z. S. 1868, p. 116, and 1872, p. 99.

Hab. Pelew Islands.

The question of the Pelew-Islands *Artamus* is discussed further on, under the heading of *A. leucogaster*.

ARTAMUS CUCULLATUS, Nicholson, P. Z. S. 1851, p. 196, pl. xliii.

A species described as an *Artamus* from India, and figured by Mr. Wolf with a thorough *Artamus*-like bill; but it is disposed of in the following manner by Mr. Blyth (Ibis, 1865, p. 43), who says that is nothing but a male of *Sylvia orphea*, "being founded on a bad native drawing, which Dr. Sclater kindly showed to me."

ARTAMUS.

	Type.
Artamus, Vieillot, Analyse, p. 41 (1816)	*A. leucogaster*.
Ocypterus, Cuvier, Règne Anim. i. p. 339 (1817) . .	*A. leucorhynchus*.
Leptopteryx, Horsf. Tr. Linn. Soc. xiii. p. 143 (1821) .	*A. leucogaster*.

Range. Confined to the Indian and Australian Regions.

Clavis specierum.

a. Uropygio imo et supracaudalibus purè albis: pectore albo.
- *a'*. Dorso nigro vel brunnescente.
  - *a''*. Capite undique cineraceo: dorso toto brunnescentiore . . . . . *leucogaster.*
  - *b''*. Capite undique nigro.
    - *a'''*. Major, alâ 6·3, nigerrimâ dorso concolori . . . . . *maximus.*
    - *b'''*. Minores: alâ 5·2, nigricante, schistaceo lavatâ.
      - *a*⁴. Gutture circumscripte nigro: genis posticis, regione paroticâ et colli lateribus concoloribus . . . . . *melaleucus.*
      - *b*⁴. Gutture nigro, genis posticis utrinque albis: regione paroticâ tantùm et colli lateribus concoloribus . . . . . *mentalis.*
- *b'*. Dorso purè albo.
  - *c''*. Capite undique, alis caudâque cinerascenti-brunneis . . . . . *monachus.*
  - *d''*. Capite undique, alis caudâque nigris . . . . . *insignis.*

b. Uropygio brunneo dorso concolori: supracaudalibus cinerascenti-albis: pectore pallidè vinascenti-brunneo . . . . . *fuscus.*

c. Uropygio et supracaudalibus clarè cinereis, dorso concoloribus.
- *e''*. Subtùs vinaceo-castaneus: supercilio lato albo . . . . . *superciliosus.*
- *f''*. Subtùs pulchrè cinereus: supercilio lato nullo . . . . . *personatus.*

Uropygio et supracaudalibus nigris.
- *c'*. Subtùs cinerascens: mento nigro.
  - *g''*. Lineâ angustâ frontali nigricante: gulâ summâ et mento nigricantibus.
    - *c'''*. Major: subcaudalibus nigris latè albo marginatis . . . . . *cinereus.*
    - *d'''*. Major: subcaudalibus albis . . . . . *albiventris.*
    - *e'''*. Minor: subcaudalibus nigris angustè albo limbatis: facie latiùs quam in præcedentibus nigrâ . . . . . *melanops.*
  - *h''*. Lineâ angustâ frontali nullâ: mento ipso et angulo anteoculari tantum nigris.
    - *f'''*. Major: rectricibus duabus medianis albo terminatis in eodem modo quam laterales coloratis . . . . . *perspicillatus.*
    - *g'''*. Minor: rectricibus duabus medianis omnino nigris: reliquis albo terminatis . . . . . *venustus.*
- *d'*. Subtùs sordidè brunneus: mento vix saturatiore.
  - *i''*. Multò major: suprà brunneus, supracaudalibus nigris, uropygio dorso concolori: subalaribus albis . . . . . *sordidus.*
  - *k''*. Multò minor: suprà brunneus, supracaudalibus uropygioque nigris: subalaribus pectori concoloribus vix pallidioribus . . . . . *minor.*

1. Artamus leucogaster.

Ocypterus leucogaster, Valenc. Mém. Mus. d'Hist. Nat. vi. p. 21, pl. vii. fig. 2 (1820).
Leptopteryx leucorhynchus, Horsf. Tr. Linn. Soc. xiii. p. 244 (1821, nec L.).
Lanius leucorhynchus, Raffles, tom. cit. p. 386 (1821).
Leptopteryx leucogaster, Wagler, Syst. Av. *Leptopteryx*, sp. 2 (1827).
Ocypterus leucorhynchus, Kittlitz, Kupf. Vög. p. 23, Taf. xxx. fig. 1 (1832).
Artamus leucopygialis, Gould, P. Z. S. 1842, p. 17; Gray, Gen. B. i. p. 285 (1845); Gould, B. Austr. folio, ii. pl. 33 (1848); Blyth, Cat. B. Mus. A. S. B. p. 199 (1849); Bp. Consp. i. p. 344 (1850); Reichenb. Vög. Neuholl. p. 171 (1850); Gould, P. Z. S. 1863, p. 233; id. Handb. B. Austr. i. p. 154 (1865); Walden, P. Z. S. 1866, p. 555; Gray, Hand-l. B. i. p. 289. no. 4279 (1869); Masters, Pr. Linn. Soc. N. S. W. i. p. 48 (1877); Castelnau & Ramsay, tom. cit. p. 380; Ramsay, tom. cit. p. 392; id. op. cit. iii. p. 179 (1878).
Artamus leucorhynchus, Gray (nec L.), Gen. B. i. p. 285 (1845); Bp. Consp. i. p. 343 (1850); Cab. Mus. Hein. Th. i. p. 208 (1850); Cass. U.S. Expl. Exp. Birds, p. 140 (1858); Gray, P. Z. S. 1860, p. 354; Wallace, Ibis, 1860, p. 141; Gray, Hand-l. B. i. p. 289. no. 4869 (1869); Walden, Ibis, 1872, p. 371; id. Tr. Z. S. viii. p. 67 (1872); id. Ibis, 1873, p. 309; Hume, Str. F. 1874, p. 214; id. Nests & Eggs Ind. B. p. 195 (1875); Salvad. Ucc. Born. p. 140 (1875); Sharpe, Ibis, 1877, p. 21; Tweeddale, tom. cit. p. 313.
Artamus leucogaster, Gray, Gen. B. i. p. 285 (1845); Bp. Consp. i. p. 343 (1850); Horsf. & Moore, Cat. B. Mus. E.I. Co. i. p. 161 (1854); Bernst. J. f. O. 1859, p. 268; Wallace, P. Z. S. 1863, pp. 28, 485; Sclater, tom. cit. p. 217; Beavan, Ibis, 1867, p. 324; Gray, Hand-l. B. i. p. 289 (1869); Salvad. Ann. Mus. Civ. Gen. vii. pp. 656, 770 (1875); id. op. cit. viii. p. 377 (1876), ix. p. 28 (1876), x. p. 138 (1877).
Artamus papuensis, Bp. Consp. i. p. 344 (1850, ex Temm. MS. in Mus. Lugd.); Gray, P. Z. S. 1858, p. 179, & 1861, p. 435; id. Hand-l. B. i. p. 289 (1869); Beccari, Ann. Mus. Civ. Gen. vii. p. 709 (1875).
Artamus leucorhynus, Walden, Tr. Z. S. ix. p. 174 (1875); Sharpe, Tr. Linn. Soc. new ser. i. p. 323 (1877); Tweeddale, P. Z. S. 1877, p. 544.

Ad. suprà brunneus, vix chocolatinus, uropygio et supracaudalibus purè albis fasciam transversam exhibentibus: pileo et collo undique cineraceis: loris et margine frontali magis nigricantibus: corpore reliquo subtùs cum subalaribus et axillaribus purè albis: scapularibus dorso concoloribus: alâ saturatè schistaceâ, remigibus nigris: caudâ nigrâ vix apicaliter pallidiore: rostro pallidè cyanescente: pedibus pallidè plumbeis: iride saturatè chocolatinâ. Long. tot. 7·5, culmen 0·8, alæ 5·35, caudæ 2·55, tarsi 0·75.

♀ *ad.* mari similis: rostro cyanescenti-griseo, apicaliter nigro: pedibus viridiscenti-griseis: iride brunneâ.

Hab. S. Andaman Islands (*Hume, Davison, Ramsay*), Little Coco Island

(*Davison*); Sumatra (*Raffles, Wallace*), Lampong District (*Buxton*); Java (*Horsfield, Wallace*). Philippine Islands: Luzon (*Meyer*), Negros (*Meyer*), Guimaras (*Meyer*), Cebu (*Everett*), Dumalon, Mindanao (*Steere*). Mangsi, Sulu archipelago (*Peale*); Labuan (*Motley, Ussher*); Borneo—Sibu, Santubong Bay, Marup, Bruit, Bintulu (*Everett*), Sarawak (*Doria & Beccari*), Banjermassing (*Motley*); Bali (*Wallace*); Lombock (*Wallace*); Flores (*Wallace*); Timor (*Mus. Lugd., Wallace*); Celebes—Tondano, Menado, Macassar (*Wallace*); Batchian, Gilolo, Morty Island (*Wallace*); Bouru (*Wallace*); Goram (*Wallace*); Kè Islands (*Beccari*). Mysol (*Wallace*); New Guinea (*Wallace*); Sorong (*D'Albertis*), Arfak Mountains (*D'Albertis, Laglaize*), S.E. New Guinea (*Ramsay*); Port Moresby (*Broadbent & Petterd*); Naiabui (*D'Albertis*); Aru Islands (*Wallace*). Australia—Port Darling and Port Essington, Gulf of Carpentaria, Cape York, Rockingham Bay, Port Denison, Wide-Bay District, Richmond and Clarence-River District, New S. Wales, Victoria, S. Australia (*Ramsay*), N.W. Australia (*Elsey*), Peron's Peninsula, Shark Bay, W. Australia (*Rayner*).

This is the species called by recent writers *Artamus leucorhynchus* (L.); but on carefully comparing the description, I believe it will be impossible to recognize in the present bird Brisson's "Pie-griesche de Manille," on which Linnæus founded his *Lanius leucorhynchus*.

I think that the title of *leucorhynchus* cannot be retained for the Philippine bird, as its colours are stated to be black and white; and any one examining the ordinary Indo-Malayan *Artamus*, which is the species of the Philippines, will find that Brisson's description does not tally; nor does Sonnerat's account and figure ("La Pie-grièche dominiqaine des Philippines," Voy. Nouv. Guinée, p. 54). The question is somewhat complicated by the fact that there are certain black-and-white *Artami*, such as *A. melaleucus* (Forster) from New Caledonia, and *A. maximus*, Meyer, from N.W. New Guinea, &c.; but it is highly improbable that either of these species formed the subject of Brisson's or Sonnerat's description. It appears, too, from the

paper of Drs. Hartlaub and Finsch on the birds of the Pelew Islands, that the latter group actually contain a black-and-white *Artamus*, which the above-named authors identify with the *Lanius leucorhynchus* of Linnæus (*cf.* P. Z. S. 1868, p. 116). It will be only fair to them to quote their exact words:—"The fact is that there are two species of *Artamus* in the Philippines, and more especially on the island of Luzon. One is the old Brissonian *Lanius manillensis*, figured also by Sonnerat. This is the large species, black above and white below. It is certainly this species which is found on the Pelew Islands. The other is the well-known Javan species—a somewhat smaller bird, with the upper parts of a more or less greyish or purplish brown. We have examined many specimens from the island of Luzon, where it appears to be more common than *A. leucorhynchus*. . . . ." My own experience goes with that of the Marquis of Tweeddale (*cf.* Walden, Tr. Z. S. ix. p. 174), in so far that I have never seen but one *Artamus* from the Philippines; and that is the same as the ordinary Indo-Malayan bird, called in this paper *Artamus leucogaster* (Valenc.). The reason why I adopt this title is that it is the first recognizable description of the species. So long as there is a doubt about the Brissonian bird from the Philippines, I think that the name ought to be discarded, though Lord Tweeddale says that he has "no doubt that from it Brisson and Sonnerat took their descriptions." Here I can only say, "Not proven!"

What the bird from the Pelew Islands really is cannot be determined without a specimen.

Having examined a large series of this *Artamus*, from nearly every locality mentioned above, I have come to the conclusion that only one species can be admitted, under the title of *A. leucogaster*, with a record of certain differences of size. Thus some examples from Celebes are larger, while the Australian birds are generally the smallest. Even in the Celebesian specimens the variation in size is more apparent than real, the length of the closed wing being in a Bornean bird about 5·35. I find that a specimen collected by Mr. Wallace at Tondano has the wing 5·3 inches; others from Macassar and

Menado respectively have it 5·25. Some individuals from N.W. Australia (*A. leucopygialis*, Gould) measure only 4·95 inches in the wings; but there is no corresponding difference in plumage.

As regards the distribution of the species in Australia, I have given above the localities as determined by Mr. Ramsay in a paper on the birds of that continent, with a proof of which he has favoured me. I also append the note in Mr. Gould's 'Handbook;' but it must be observed that this Wood-Swallow does go to Western Australia, as is evidenced by the specimen procured in Shark Bay by Dr. Rayner during the voyage of H.M.S. 'Herald.' Mr. Gould writes:—"Tasmania and Western Australia are the only colonies in which this bird has not been observed; its range, therefore, over the continent may be considered as very general: in South Australia and New South Wales it would appear to be migratory, visiting these parts in summer for the purpose of breeding. Among other places where I observed it in considerable abundance was Mosquito and the other small islands near the mouth of the Hunter, and on the borders of the rivers Mokai and Namoi, situated to the northward of Liverpool Plains; in these last-mentioned localities it was breeding among the large flooded gum-trees bordering the rivers."

Spec. in Mus. Brit.

a, ad. Philippine Islands (*Cuming*). *b, ad.* Java (*Horsfield*). *c,* ♀. W. Java (*Wallace*). *d,* ♂ *ad.* Sumatra (*Wallace*). *e, ad.* Sibu Island, May 5, 1874 (*Everett*). *f,* ♀ *ad.* Bali (*Wallace*). *g, h,* ♂ *ad., i, juv.* Lombock (*Wallace*). *k, ad., l, juv.* Flores (*Wallace*). *m, n, o, p, ad.* Timor (*Wallace*). *q,* ♂ *juv.* Timor (*Wallace*). *r,* ♂ *ad.* Macassar, Celebes (*Wallace*). *s,* ♀ *ad.* Tondano, Celebes (*Wallace*). *t,* ♀ *ad.* Menado (*Wallace*). *u, v, ad.* Batchian (*Wallace*). *w, ad.* Gilolo (*Wallace*). *x, ad.* Morty Island (*Wallace*). *y,* ♀ *ad.* Bouru (*Wallace*). *z, a', ad., b', juv.* Goram (*Wallace*). *c', ad., d', juv.* Mysol (*Wallace*). *e',* ♂ *ad.* Aru Islands (*Wallace*). *f', ad.* New Guinea (*Wallace*). *g', ad.* Island of Batanta (*Laglaize*). *h', i'.* Australia (*Sir T. Mitchell*). *k', ad.* Australia (*J. Gould*). *l'.* Port Essington (*Capt. Chambers*). *m'.* N.W. Australia (*J. R. Elsey*). *n', ad.* Mangrove Swamp, N.W. Australia (*J. R. Elsey*). *o'.* Peron's Peninsula, Shark Bay, May 1858 (*F. M. Rayner*).

2. Artamus maximus.

Artamus maximus, Meyer, Sitz. Akad. Wien, lxix. p. 203 (1874); Sclater, Ibis, 1874, p. 417; Beccari, Ann. Mus. Civ. Gen. vii. p. 709 (1875); Gould, B. New Guin. part vi. (1878).

♂ *ad.* suprà nigerrimus: uropygio et supracaudalibus tantùm purè albis: alis omninò nigris: rectricibus nigris, apicaliter angustissimè albido limbatis: capitis et colli lateribus, gutture toto et præpectore nigerrimis, dorso concoloribus: corpore reliquo subtùs purissimè albo: subalaribus albis, extimis parvis nigris: remigibus infrà cinereceis. Long. tot. 7·5, culmen 0·8, alæ 6·3, caudæ 2·8, tarsus 0·75.

Hab. New Guinea: Arfak Mountains (*Meyer, Beccari, Laglaize*).

This fine and distinct species has recently been figured by Mr. Gould (*l. c.*); and the above description is taken from the type specimen; lent him by Dr. Meyer.

Spec. in Mus. Brit.

a, ♂ *ad.* Arfak Mountains, N.W. New Guinea (*Laglaize*).

3. Artamus melaleucus.

Loxia melaleuca, Forster, Icon. ined. 40; id. Descr. Anim. p. 272 (1844).
Leptopteryx melaleuca, Wagler, Syst. Av. *Leptopteryx*, sp. 1 (1827).
Ocypterus berardi, Bp. C. R. xxxviii. p. 538 (1854).
Artamus melaleucus, Gray, P. Z. S. 1859, p. 163; id. List B. Trop. Isl. Pacific Ocean, p. 23 (1859); Finsch, P. Z. S. 1877, p. 739.
Artamus melanoleucus, Gray, Hand-l. B. i. p. 289. no. 4280 (1869).

♂ *ad.* suprà saturatè fuliginoso-brunneus, pileo toto nuchâque, capitis lateribus et gutture toto nigris: uropygio et supracaudalibus purè albis: scapularibus dorso concoloribus: alâ totâ schistaceo-nigrâ, remigibus intùs cano lavatis: rectricibus nigris angustè albo apicaliter limbatis: corpore reliquo subtùs cum subalaribus et axillaribus purè albis: remigibus infrà cinereis, intùs cano lavatis. Long. tot. 7·2, culmen 0·75, alæ 5·2, caudæ 2·8, tarsi 0·6.

♀ *ad.* mari similis: pileo brunnescentiore, vix cucullato. Long. tot. 6·2, alæ 5·15, caudæ 2·7, tarsi 0·65.

Hab. New Caledonia (*Forster*); Loyalty Islands (*Whitmee*); Api, New Hebrides (*Murray*).

Spec. in Mus. Brit.

a, b, ♂, ♀ *ad.* Nu, Port de France, New Caledonia, May 13th, 1858 (*J. Macgillivray, Esq.* *c, ad.* Lifu, Loyalty Islands (*Rev. S. J. Whitmee*).

4. Artamus mentalis.

Langrayen de Viti, Hombr. & Jacq. Voy. Pôle Sud, pl. 9. fig. 1 (1843).

Artamus mentalis, Jardine, Ann. N. Hist. xvi. p. 174, pl. viii. (1845); Bp. Consp. Av. i. p. 344 (1850); Cass. U.S. Expl. Exp. Birds, p. 141 (1858); Gray, List B. Trop. Isl. Pacific Ocean, p. 23 (1858); Finsch & Hartl. Faun. Centralpolyn. p. 84, tab. 1. fig. 5 (1867); Gray, Hand-l. B. i. p. 289. no. 4281 (1869); Layard, P. Z. S. 1875, p. 434; id. Ibis, 1876, p. 392.

Ocypterus mentalis, Peale, U.S. Expl. Exped. 1848, p. 84, pl. 23. fig. 2; Hartl. in Wiegm. Archiv, 1852, p. 98.

Artamus vitiensis, Hombr. & Jacq. Voy. Pôle Sud, Zool. iii. p. 73 (1853).

♂ *ad.* suprà fuliginoso-niger, pileo vix saturatiore, scapularibus dorso concoloribus: uropygio imo et supracaudalibus purè albis: rectricibus nigris, intùs ad apicem conspicuè albo terminatis: alâ totâ nigrâ: facie laterali gulâque nigris: genis posticis, gutture imo et corpore reliquo subtùs cum subalaribus axillaribusque purè albis: præpectoris lateribus fuliginoso-brunneis: remigibus infrà sordidè cinereis, intùs versùs basin albis: rostro pulchrè cyanescente, apicaliter nigro: pedibus corneo-nigricantibus: iride brunneâ. Long. tot. 7·2, culmen 0·9, alæ 5·05, caudæ 2·8, tarsi 0·7.

Hab. Fiji Islands—Ovalau, Waikaia, Mokani, Vanua Levu, Taviuni, Loma Loma, Mango, Viti Levu (*Layard*).

Spec. in Mus. Brit.

a, ♂. Island of Ovalau, August 1856 (*F. M. Rayner*). *b, c,* ♂. Island of Ngau, October 1853 (*F. M. Rayner*). *d.* Ndreketti, Fiji (*E. L. Layard*).

5. Artamus monachus.

Artamus monachus, Bp. Consp. Gen. Av. i. p. 343 (1850, ex Temm. MS. in Mus. Lugd.); Wallace, Ibis, 1860, p. 141; id. P. Z. S. 1862, p. 340; Gray, Hand-l. B. i. p. 289. no. 4272 (1869); Walden, Tr. Z. S. viii. p. 67, pl. vi. fig. 1 (1872); Gould, B. New Guinea, part vi. (1878).

♀ *ad.* Capite, nuchâ, facie laterali et gutture toto pallidè umbrinis, pileo summo saturatiore: collo postico, dorso toto, scapularibus, uropygio et supracaudalibus purè albis: alâ saturatè cinerascenti-brunneâ, tectricibus minimis et medianis umbrino lavatis: caudâ saturatè cinerascenti-brunneâ: præpectore et corpore reliquo subtùs purè albis: subalaribus albis: remigibus infrà cineraceis, intùs albis. Long. tot. 7·5, culmen 1·05, alæ 6·3, caudæ 2·9, tarsi 0·75.

Hab. Celebes, Menado (*Wallace*); mountain-districts of North Celebes (*Wallace*); Sula Islands (*Wallace*).

For the opportunity of describing the above specimen I am indebted to Mr. Gould, who received it in exchange from the Leiden Museum. It is marked "♀. Celebes: Duyvenbode, 1866." On comparing it with the Sula-Island skins in the Museum, I can find no differences in plumage; but the size is rather smaller, the wing measuring 5·75 to 5·8 inches.

Spec. in Mus. Brit.

a, b, ad. Sula Islands (*A. R. Wallace*).

6. Artamus insignis.

Artamus insignis, Sclater, P. Z. S. 1877, p. 101, pl. xv.; Gould, B. New Guinea, part vi. (1878).

♂ *ad.* pileo toto nuchâque, facie laterali et gutture toto nigerrimis: collo postico, interscapulio et scapularibus, dorso toto, uropygio et supracaudalibus purè albis: alis caudâque nigerrimis, rectricibus intùs angustissimè albido limbatis: præpectore et corpore reliquo subtùs purè albis: subalaribus albis, minimis externis nigerrimis: remigibus infrà cineraceis, intùs ad basin albis: rostro cyanescente. Long. tot. 7·3, culmen 1·0, alæ 5·65, caudæ 2·6, tarsi 0·8.

Hab. New Ireland (*G. Brown*).

The description is taken from the type specimen kindly shown to me by Dr. Sclater; it is now in the Marquis of Tweeddale's collection.

7. Artamus fuscus.

Artamus fuscus, Vieill. N. Dict. d'Hist. Nat. xvii. p. 297 (1817); Gray, Gen. B. i. p. 285 (1845); Blyth, J. A. S. B. xv. p. 299 (1846); Gray, Cat. Mamm. &c. Nepal Coll. Hodgs. p. 98 (1846); Blyth, Cat. B. Mus. A. S. B. p. 199 (1849); Bp. Consp. i. p. 344 (1850); Horsf. & Moore, Cat. B. Mus. E.I. Co. i. p. 161 (1854); Cass. in Perry's Exped. Japan, Birds, p. 238 (1856); Gould, P. Z. S. 1859, p. 151; Jerd. B. Ind. i. p. 441. no. 287 (1862); Swinh. P. Z. S. 1863, p. 287; Beavan, P. Z. S. 1865, p. 692; Gray, Hand-l. B. i. p. 289. no. 4270 (1869); Godwin-Austen, J. A. S. B. 1870, p. 100; Swinh. Ibis, 1870, p. 247; id. P. Z. S. 1871, p. 377; Holdsw. P. Z. S. 1872, p. 440; Ball, Str. F. 1874, p. 403; id. Str. F. 1875, p. 291; Hume, tom. cit. p. 102; id. Nests & Eggs Ind. B. p. 194 (1875); Blyth & Wald. B. Burm. p. 126 (1875); Armstrong, Str. F. 1876, p. 321; Hume, tom. cit. p. 458, & 1877, p. 30; David & Oustalet, Ois. Chine, p. 101 (1877).

Ocypterus rufiventer, Valenc. Ann. Mus. vi. p. 25, pl. vii. fig. 1 (1820).

Leptopteryx rufiventer, Wagler, Syst. Av. *Leptopteryx*, sp. 3 (1827).

Artamus leucorhynchos, M'Clell. P. Z. S. 1839, p. 158 (nec L.).

Ocypterus leucorynchus, Jerd. (nec L.), Madr. Journ. x. p. 237 (1839).

Ad. suprà sordidè brunneus, supracaudalibus grisescenti-albis fasciam transversam angustam formantibus: pileo colloque undique clarè cinereis: lineâ angustissimâ frontali lorisque nigricantibus: mento summo et genis anticis etiam nigro adumbratis: corpore reliquo subtùs pallidè vinaceo-cinerascente, subcaudalibus albicantibus: subalaribus albis, alâ sordidè schistaceâ, remigibus nigricantioribus: caudâ nigrâ sordidè albido terminatâ: rostro pulchrè pallidè cyaneo, apicaliter brunnescente: pedibus schistaceo-cinereis, unguibus saturatè corneis: palpebris cinereis: iride saturatè brunneâ *. Long. tot. 6·3, culmen 0·8, alæ 5·3, caudæ 2·3, tarsi 0·65.

Hab. India generally and Ceylon (*Jerdon*); Nepal (*Hodgson*); Assam (*Jerdon*); Arakan (*Blyth*); Tipperah (*Irwin*); Khasi hills (*Godwin-Austen*); Burmah (*Blyth*); Tonghoo and Karen hills (*Wardlaw Ramsay*); Upper Pegu (*Oates*); Siam (*Schomburgk*); Cochin China (*David & Oustalet*); S. Hainan (*Swinhoe*); Macao (*Perry*).

A more detailed account of the geographical distribution of the Indian Wood-Swallow may be gathered from the writings of Jerdon and Hume.

* In adding the soft parts of the species of *Artamus*, I have taken the best field-notes I could find. In the above instance the colours are derived from Mr. Oates's observations; and he adds:—"Inside of the mouth black in some, bright yellow in others. I have not yet discovered the reason of this."

It is not until one begins to study the distribution of Indian birds that one becomes sensible of the great work which is being done in 'Stray Feathers' by Mr. Hume and his coadjutors.

Mr. Jerdon writes:—"This Swallow-Shrike is spread throughout the whole of India and Ceylon, being very numerous in some localities, but locally distributed; for you may pass over large tracts of country, apparently well suited for them, and not see one. It extends into Assam and Burmah. It is most abundant in wooded districts, especially where palm trees abound, more particularly the Palmyra palm, from which, indeed, it takes several of its native names. Where they are numerous several may be seen seated on the same branch; but they fly off independently of each other, and after a flight of some few minutes return either again to the same perch or to another tree. At times I have seen an immense flock in the air all together, hunting for insects, and remaining on the wing for a much longer period. A small party may occasionally be seen skimming over the surface of a tank, picking up an insect now and then, and returning to a high bough of a tree overhanging the water. They live entirely on insects of various kinds. I have found them most abundant in the Carnatic, the Malabar coast, the Northern Circars, and Bengal, very rare in the Deccan and Central India. To my great surprise I found them on the sides of hills at Darjeeling, on cleared spots, up to above 4000 feet of elevation."

Captain Beavan also met with it in the last-named place; and Hodgson obtained many examples in Nepal.

Mr. Ball observes, in 1874:—"The Ashy Swallow-Shrike is rather rare in Chota Nagpur. My only specimen from the division was found in in Sirguja. This bird also occurs in the Rajmehal hills, where it is, I think, less rare. I have recently met with it in the Satpuras." In a later paper (1875) he writes:—"It is perhaps not so rare as I stated. In November last I came across a large flock in Singbhum, out of which I shot some specimens. From Mr. Levin I hear that he got a bird of the year in 1873, and subsequently both nest and eggs, in Palamar."

In Ceylon, according to Mr. Holdsworth, it is "generally distributed over the low country, but is locally abundant at certain seasons. It is very common at Aripo and in the neighbourhood of Colombo during the N.E. monsoon. I have always found it in small parties, and easy of approach."

Dr. Armstrong also met with the species, on the island of Ramesuram.

In a paper on the birds of North-eastern Cachar, Mr. Inglis says:—"The Ashy Swallow-Shrikes are often seen, in flocks, throughout the year. I have not seen their nests."

The range of the species in Burmah is given in the list of localities; and it goes as far down as Upper Pegu, where Mr. Oates says that it abounds throughout the plains. Eastward it extends through Siam to Cochin China and Hainan, where Mr. Swinhoe got specimens.

The American expedition to Japan met with the present species at Macao, in China, where, however, all Mr. Swinhoe's efforts to procure the bird proved futile.

Spec. in Mus. Brit.

a, b, c, ad. N.W. Himalayas (*Pinwill*). *d, e, ad.* Behar (*Hodgson*). *f–i, ad., juv.* Nepal (*Hodgson*). *k, ad.* Darjiling (*Jerdon*). *l, m, n, ad.* Madras (*Baber*). *o, ad., p, juv.* Kandy district, Ceylon (*White*).

8. Artamus superciliosus.

Ocypterus superciliosus, Gould, P. Z. S. 1836, p. 142; id. Syn. B. Austr. part i. (1837).

Artamus superciliosus, Gray, Gen. B. i. p. 285 (1845); Reichenb. Vög. Neuholl. p. 169 (1848); Gould, B. Austr. folio, ii. pl. 32 (1848); Blyth, Cat. B. Mus. A. S. B. p. 199 (1849); Bp. Consp. i. p. 344 (1850); Cab. Mus. Hein. Th. i. p. 169 (1850); Pelz. Reis. Novara, Vög. p. 82 (1865); Müller, P. Z. S. 1869, p. 279; Gray, Hand-l. B. i. p. 289 (1869); Ramsay, Proc. Linn. Soc. N. S. W. iii. p. 179 (1878).

♂ *ad.* suprà schistaceus, uropygio et supracaudalibus cinerascentibus: alâ cineraceâ, remigibus omnibus nigro terminatis: rectricibus cineraceis albo terminatis et fasciam apicalem exhibentibus: supercilio lato albo ab oculo antico usque ad nucham ducto: loris, facie laterali et gutture toto schistaceo-nigris, hoc infrà clariùs schistaceo: corpore reliquo subtùs

vinascenti-castaneo: tibiis clarè cinereis: subalaribus albis, margine alari schistaceo: remigibus subtùs pallidè cineraceis intùs canis: rostro cyanescente, apicaliter nigro: pedibus saturatè plumbeis: iride nigricante. Long. tot. 7·5, culmen 0·75, alæ 5·05, caudæ 2·85, tarsi 0·8.

♀ *ad.* mari similis sed pallidior: dorso magis brunnescente, et capite schistaceo nec nigricante: corpore subtùs pallidiore vinaceo, et gutture toto schistaceo distinguenda. Long. alæ 4·75, caudæ 2·8, tarsi 0·8.

Juv. adultis dissimilis: cinerascens, plumis omnibus angustè albo striolatis: remigibus albo terminatis: rectricibus vix albo apicatis: loris et regione paroticâ fuscescenti-schistaceis: corpore subtùs cinerascente, plumis albido striolatis, abdomine fusco marmorato, plumis hôc colore limbatis.

Hab. Australia.

Mr. Gould gives the following note on the range of this species:—

"I am unable to say what is the extent of its range; but I am induced to believe that it is confined to Australia, and that in all probability it seldom leaves the interior of the country—the extreme limits of the colony of New South Wales, particularly those which border the extensive plains, being the only parts where it has yet been observed. I first met with it at Yarrundi, on Dartbrook, a tributary of the Hunter, where it was thinly dispersed among the trees growing on the stony ridges bordering the flats."

Mr. Ramsay's list of localities are the following:—"Wide-Bay district; Clarence-and-Richmond-Rivers district; New S. Wales; Interior; Victoria; South Australia."

Spec. in Mus. Brit.

a, b, ♂, ♀. S. Australia (*Sir G. Grey*). *c, d,* ♂, ♀. Australia (*Sir T. Mitchell*). *e,* ♀ *ad.* Sydney, N. S. W., November 1876 (*Sydney Museum*). *f,* ♂ *ad., g,* ♀ *juv.* Homebush, N. S. W., January 1877 (*Sydney Museum*). *h,* ♂ *ad.* Bankstown, N. S. W., December 1876 (*Sydney Museum*).

9. Artamus personatus.

Ocypterus personatus, Gould, P. Z. S. 1840, p. 149.

Artamus personatus, Gray, Gen. B. i. p. 285 (1845); Gould, B. Austr. folio, ii. pl. 31 (1848);

Bp. Consp. Av. i. p. 344 (1850); Reichenb. Vög. Neuholl. p. 170 (1848); Cab. Mus. Hein. i. p. 208 (1850); Gould, Handb. B. Austr. i. p. 150 (1865); Pelz. Reis. Novara, Vög. p. 82 (1865); Gray, Hand-l. B. i. p. 289. no. 4277 (1869).

♂ *ad.* suprà saturatè schistaceus, dorso postico et uropygio magis canescentibus: tectricibus alarum dorso concoloribus: remigibus nigricanti-schistaceis angustè albo apicaliter limbatis, omnibus subterminaliter conspicuè cano adumbratis: rectricibus canis albo terminatis fasciam latam formantibus: fronte lorisque, facie laterali totâ et gulâ nigris, vertice quoque nigro adumbrato: corpore reliquo subtùs cinerascente, torque gutturali indistinctâ a regione postauriculari ductâ: tibiis cinerascentibus: subalaribus et axillaribus albis: remigibus subtùs cinereis, versùs apicem nigricantibus, intùs basaliter albis: rostro cyanescente, apicaliter nigro: pedibus lactescenti-plumbeis: iride nigricanti-brunneâ. Long. tot. 7·2, culmen 0·75, alæ 4·9, caudæ 3·15, tarsi 0·8.

♀ *ad.* mari similis sed sordidior: dorso alisque brunnescentioribus: subtùs brunnescenti-cinerascens, torque gutturali indistinctâ cinereâ: facie laterali gulâque sordidè schistaceis. Long. tot. 7, culmen 0·75, alæ 4·85, caudæ 3·05, tarsi 0·75.

Hab. Australia.

Mr. Gould observes:—"My knowledge of the range of this species is very limited. A single specimen was sent me from South Australia; while fine examples were killed by Gilbert in the colony of Swan River."

Mr. Ramsay has the following list of localities:—"Wide-Bay district: Richmond- and Clarence-River districts: N. S. Wales: Victoria: South Australia: West Australia."

Spec. in Mus. Brit.

a, b, ♂, ♀ *ad.* South Australia (*Sir George Grey*). *c,* ♀ *ad.* West Australia (*J. Gould*). *d,* ♀ *ad.* Between the Avon and Salt Rivers, W. Australia (*J. Gould*). *c, d.* Central Australia (*Capt. Sturt*).

10. Artamus cinereus.

Artamus cinereus, Vieill. N. Dict. d'Hist. Nat. xvii. p. 297; Gray, Gen. B. i. p. 285 (1845); Gould, B. Austr. folio, ii. pl. 29 (1848); Reichenb. Vög. Neuholl. p. 168 (1848); Bp. Consp. i. p. 344 (1850); Gould, P. Z. S. 1863, p. 233; id. Handb. B. Austr. i. p. 147 (1865); Gray, Hand-l. B. i. p. 289 (1869); Ramsay, P. Z. S. 1875, p. 584.

Ocypterus cinereus, Valenc. Mém. Mus. vi. p. 22, pl. ix. fig. 2 (1820).

Leptopteryx cinerea, Wagler, Syst. Av. *Leptopteryx,* sp. 4 (1827).

♂ *ad.* suprà brunneus, pileo vix pallidiore: supercilio et regione paroticâ pallidioribus brunneis: corpore subtùs cinerascenti-brunneo: fronte angustâ, loris, palpebrâ, genis et regione paroticâ anticâ gulâque nigricantibus: alâ totâ sordidè cinereâ, plumis extùs angustissimè pallidioribus: dorso imo et supracaudalibus nigris: rectricibus duabus centralibus nigris, reliquis nigris latè albo terminatis: crisso et subcaudalibus nigricantibus, his albo terminatis: tibiis extùs albis, intùs nigricantibus: subalaribus et axillaribus et remigibus intùs albis: rostro pallidè grisescenti-cyaneo, apicaliter nigro: pedibus virescenti-plumbeis: iride nigricanti-brunneâ. Long. tot. 7·5, culmen 0·75, alæ 4·95, caudæ 3·0, tarsi 0·85.

♀ haud a mari distinguenda.

Hab. Australia.

"In Western Australia," writes Mr. Gould, "it is a very local but by no means an uncommon species, particularly at Swan River, where it inhabits the limestone hills near the coast and the 'Clear Hills' of the interior."

Mr. Ramsay gives "West Australia" and "Port Darling and Port Essington" as the habitat of the species.

Spec. in Mus. Brit.

a, b, ad. South Australia (*Sir T. Mitchell*). *c.* Central Australia (*Capt. Sturt*). *d, juv.* West Australia (*J. Gould*).

11. Artamus albiventris.

Artamus albiventris, Gould, P. Z. S. 1847, p. 31; id. B. Austr. folio, ii. pl. 30 (1848); Bp. Consp. i. p. 344 (1850); Gould, Handb. B. Austr. i. p. 149 (1865); Ramsay, P. Z. S. 1868, p. 383; Gray, Hand-l. B. i. p. 289. no. 4276 (1869); Masters, Proc. Linn. Soc. N. S. W. i. p. 48 (1877); Castelnau & Ramsay, tom. cit. p. 380 (1877).

A. similis *A. cinereo*, sed subcaudalibus albis distinguendus: rostro flavicanti-corneo, apicaliter nigro: pedibus nigricanti-brunneis.

Hab. Australia.

"Two examples of this species are all that have come under my notice: one of these was killed on the Darling Downs, in New South Wales; and the

other some distance to the northward of that locality, it being one of the birds procured during Dr. Leichardt's expedition to Port Essington." (Gould, *l. c.*).

This is a species with which I am unacquainted, as the only specimen in the Museum referred to it by the late Mr. G. R. Gray appears to be only *A. cinereus* with a little more white on the under tail-coverts, possibly a variable character.

Mr. Ramsay gives the following localities:—"Gulf of Carpentaria; Rockingham Bay; Port Denison; Wide-Bay district." He appears to regard it as a good species.

12. Artamus melanops.

Artamus melanops, Gould, P. Z. S. 1865, p. 198; id. Handb. B. Austr. i. p. 149 (1865); id. B. Austr. folio, Suppl. part v. (1869); Gray, Hand-l. B. i. p. 289. no. 4283 (1869).

A. similis *A. cinereo* sed minor: facie latiùs nigricante et subcaudalibus nigris angustiùs albo terminatis distinguendus.

Hab. Australia.

Mr. Gould writes as follows in his original account of the species:—"The specimen from which the above description was taken has been kindly sent to me by Mr. S. White, of the Reed-beds, near Adelaide, South Australia, who informs me that it was shot by him at St. à Becket's Pool, lat. 28° 30′, on the 23rd of August, 1863, and who, in the notes accompanying it, says:—'I have never seen this bird south. It collects at night, like *A. sordidus*, and utters the same kind of call. It seems to be plentiful all over the north country, and particularly about Chambers Creek and Mount Margaret.'"

Mr. Ramsay considers it to be confined to the "Interior, Victoria, and South Australia."

I am very doubtful about the species, as we have in the Museum two specimens from Cape York received from Mr. Gould as his *Artamus melanops*; and these two individuals I can hardly separate from *A. cinereus*. They have a little more black on the face, and narrower white edgings to the under tail-coverts: this appears to be the best character; but, as I have already hinted, it appears to be somewhat variable. At the same this species is so little known that perhaps *A. venustus*, nob., may turn out to be only the adult stage.

Spec. in Mus. Brit.

a, b, ad. Cape York (*J. Gould*).

13. Artamus perspicillatus.

Artamus perspillatus, Bp. Consp. i. p. 344 (1850, *ex* Temm. MS. in Mus. Lugd.); Wallace, Ibis, 1861, p. 348; id. P. Z. S. 1863, p. 485; Gray, Hand-l. B. i. p. 289. no. 4271 (1869).

Ocypterus albovittatus, Kittlitz, Kupf. Vög. p. 23, pl. xxx. fig. 2 (1832).

♂ *ad.* suprà cinerascenti-brunneus: pileo undique colli lateribus et corpore subtùs clariùs cinerascentibus: mento ipso, loris et palpebrâ nigris: uropygio imo et supracandalibus nigris: rectricibus nigris, latè albo terminatis: alâ totâ saturatè cinereâ, remigibus versùs apicem nigricantibus et angustè albo terminaliter limbatis: hypochondriis sordidiùs cinerascentibus: tibiis clariùs cinereis: subcaudalibus nigris: subalaribus et axillaribus albis: remigibus infrà sordidè cinereis, intùs versùs basin albis. Long. tot. 8, culmen 0·85, alæ 5·05, caudæ 3·1, tarsi 0·9.

♀ *ad.* vix à mari distinguenda. Long. tot. 8, alæ 5·2, caudæ 3·2, tarsi 0·95.

Juv. similis adultis, sed marginibus plumarum albidis varius: subtùs magis canescens, plumis cano terminatis.

Hab. Timor.

Spec. in Mus. Brit.

a, b, ♂, *c,* ♀ *ad., d, juv.* E. Timor (*Wallace*).

14. Artamus venustus, sp. n.

Ad. suprà cinerascens, pileo undique, capitis lateribus et corpore subtùs toto clarioribus et magis

canescentibus: genis anticis, loris et mento ipso nigris: uropygio imo et supracaudalibus nigris: rectricibus duabus mediis omnino nigris, reliquis nigris latè albo terminatis: alâ totâ cinereâ, remigibus subterminaliter nigricantibus, angustissimè albo apicaliter limbatis: abdomine imo et subcaudalibus nigris, his longissimis apicaliter albis: tibiis clarè cinerascentibus: subalaribus et axillaribus et remigibus intùs albis: rostro plumbeo, ad apicem nigro: iride saturatè brunneâ. Long. tot. 7, culmen 0·7, alæ 4·65, caudæ 3, tarsi 0·7.

♀ mari similis, sed magis brunnescens. Long. tot. 7·5, alæ 4·75, caudæ 3·0, tarsi 0·7.

Juv. suprà brunneus, pilei dorsique plumis medialiter ochrascenti-brunneo striatis et terminatis: dorsi postici uropygiique plumis et supracaudalibus ochrascenti marginatis: tectricibus alarum ut in dorso marginatis: remigibus latiùs albo terminatis: subtùs cinerascens, subcaudalibus pallidè brunneo terminatis.

Hab. North-western Australia.

Five specimens of this bird are in the Museum, brought by Dr. Elsey during the expedition to North-western Australia. Some of them were determined by the late Mr. G. R. Gray as *A. perspicillatus*, and some as *A. cinereus*. They appear to me to be neither the one nor the other. The white tips to the under tail-coverts and the two entirely black central tail-feathers sufficiently prove that they are not *A. perspicillatus*. From *A. cinereus* the females of the north-western bird are more difficult to tell; but they are smaller, and do not have the black so extended on the cheeks; and this character seems to prevent their being *A. melanops*.

Spec. in Mus. Brit.

a, b, ♂ *ad., c,* ♀ *ad., d,* ♂ *juv.* N.W. Australia (*Dr. Elsey*). *e,* ♀ *ad.* Depot, N.W. Australia, Nov. 29, 1855 (*Dr. Elsey*).

15. Artamus sordidus.

Sordid Thrush, Lath. Gen. Syn. Suppl. ii. p. 186 (1801).
Turdus sordidus, Lath. Ind. Orn. Suppl. p. xliii (1801).
Artamus lineatus, Vieill. N. Dict. xvii. p. 297 (1817).
Ocypterus albovittatus, Valenc. Mém. Mus. vi. p. 23, pl. viii. (1820); Less. Traité, p. 37, pl. 44. fig. 2 (1831); Gould, Synopsis B. Austr. part i. (1837).
Artamus albovittatus, Vig. & Horsf. Tr. Linn. Soc. xv. p. 210 (1826).
Leptopteryx albovittata, Wagler, Syst. Av. *Leptopteryx,* sp. 5 (1827).

Artamus sordidus, Gray, Gen. B. i. p. 285 (1845); Gould, B. Austr. folio, ii. pl. 27 (1848); Blyth, Cat. B. Mus. A. S. B. p. 200 (1849); Reichenb. Vög. Neuholl. p. 168 (1848); Bp. Consp. i. p. 344 (1850); Cab. Mus. Hein. i. p. 208 (1850); Gould, Handb. B. Austr. i. p. 143 (1865); Ramsay, Ibis, 1866, p. 327; Gray, Hand-l. B. i. p. 289. no. 4274 (1869); Müller, P. Z. S. 1869, p. 279; Ramsay, P. Z. S. 1875, p. 584.

♂ *ad.* suprà chocolatinus, dorso postico et uropygio saturatioribus, supracaudalibus paullo nigricantibus: loris et genis anticis obscurè fuscescentibus: subtùs chocolatino-brunneus, abdomine imo et hypochondriis magis rufescentibus, subcaudalibus nigris, subalaribus albis: alâ schistaceo-cinereâ: remigibus saturatiùs cinereis, primariis extùs albis: rectricibus nigris, albo terminatis, duabus mediis omnino nigris, rectricis extimæ pogonio interno tantùm albo: remigibus infrà sordidè cinereâ: rostro cyaneo, apicaliter nigro: pedibus lactescenti-plumbeis: iride saturatè brunneâ. Long. tot. 7, culmen 0·7, alæ 5·1, caudæ 3·1, tarsi 0·75.

♀ mari similis: vix minor.

Hab. Australia; Van Diemen's Land.

The distribution of this species is given by Mr. Gould as follows:—"No species of the Australian *Artami* with which I am acquainted possesses so wide a range as the present; the whole of the southern portion of the continent, as well as the island of Tasmania, being alike favoured with its presence. The extent of its range northward has not yet been satisfactorily ascertained, beyond the certainty that it has not hitherto been received in any collection from the north coast. It may be regarded as strictly migratory in Tasmania, where it arrives in October, and after rearing at least two broods departs again in a northward direction. On the continent of Australia it arrives rather earlier, and departs later; but a scattered few remain throughout the year in all the localities favourable to their habits, the number being regulated by the supply of insect food necessary for their subsistence. I may here observe that specimens from Swan River, South Australia, and New South Wales present no difference either in size or colouring; while those from Tasmania are invariably larger in all their measurements, and are also of a deeper colour."

In Mr. Ramsay's paper the range is tabulated as follows:—"Rockingham Bay; Port Denison; Wide-Bay district; Richmond-and-Clarence-Rivers district; New S. Wales; Interior; Victoria; South Australia; Tasmania."

Spec. in Mus. Brit.

a, b. Australia (*J. Gould*). *c, ad.* Australia (*Cooper*). *d, ♂ ad.* South Australia (*Sir G. Grey*). *e, juv.* Perth, Western Australia (*J. Gould*). *f, g, ♂, ♀ ad.* Tasmania (*Antarctic Expedition*). *h, i, k, ad.* Tasmania (*Ronald Gunn*). *l, pull.* Georgetown, Tasmania (*J. Gould*).

16. Artamus minor.

Artamus minor, Vieill. Nouv. Dict. d'Hist. Nat. xvii. p. 298 (1817); Gray, Gen. B. i. p. 285 (1845); Gould, B. Austr. folio, ii. pl. 28 (1848); Reichenb. Vög. Neuholl. p. 168 (1848); Bp. Consp. i. p. 344 (1850); Gould, Handb. B. Austr. i. p. 146 (1865); Ramsay, Ibis, 1866, p. 327; Gray, Hand-list B. i. p. 290. no. 4285 (1869); Ramsay, P. Z. S. 1875, p. 584.

Ocypterus fuscatus, Valenc. Mém. Mus. d'Hist. Nat. vi. p. 74, pl. 9. fig. 1 (1820).

Leptopteryx minor, Wagler, Syst. Av. *Leptopteryx,* sp. 6 (1827).

Ocypterus minor, Gould, Synopsis B. Austr. part i. (1837).

Ad. minimus: chocolatino-brunneus, facie laterali et colli lateribus pileo concoloribus: subtùs magis rufescens vix castaneus, lineâ angustâ frontali mento lorisque nigris: uropygio imo, supracaudalibus et subcaudalibus nigris: alis caudâque plumbeo-nigris, rectricibus intùs ad apicem albis, duabus centralibus et rectrice extimâ haud albo terminatis, concoloribus: subalaribus pallidè cervino-brunneis: rostro pulchrè violescenti-cyaneo, apicaliter saturatiore: pedibus vix nigris: iride nigricante. Long. tot. 5·9, culmen 0·55, alæ 4·55, caudæ 2·65, tarsi 0·5.

Juv. similis adultis, sed plumis ochrascenti maculatis, corpore subtùs fasciato, maculis caudæ apicalibus minoribus et griseo lavatis.

Mr. Gould writes as follows:—"I found the *Artamus minor* abundant on the Lower Namoi, particularly on the plains thinly studded with the *Acacia pendula* and other low trees in the neighbourhood of Gummel-Gummel, where it had evidently been breeding, as I observed numerous young ones whose primaries were not sufficiently developed to admit of their performing a migration of any distance; besides which, they were constantly being fed by the parents, who were hawking about in the air over and around the trees, while the young were quietly perched close to each other on a dead twig. I have received two specimens from Port Essington; and there are

examples in the Paris Museum from, I believe, Timor*. It is evident, therefore, that this bird has a wide range."

Mr. Ramsay gives us the following localities:—"Port Darling and Port Essington; Gulf of Carpentaria; Rockingham Bay; Port Denison; Wide-Bay district; Richmond-and-Clarence-Rivers district; New S. Wales."

Spec. in Mus. Brit.

a, ad. Australia (*Sir T. Mitchell*). *b,* ♀ *ad.* Gilbert, lat. 18° 30′, long. 143° (*Dr. Elsey*). *c, d,* ♂, ♀ *juv.* N.W. Australia (*Dr. Elsey*). *e,* ♀ *ad.* Peron's Peninsula, Shark Bay, W. Australia, May 1858 (*Dr. Rayner*). *f, ad.* Port Essington (*Capt. Chambers*). *g, h.* New South Wales (*J. Gould*).

* This locality is erroneous.

A FEW WORDS ON FEN-LAND.

By Mr. G. D. ROWLEY.

(Plates CV. to CIX.)

"What tribute from the goose is paid!
Does not her wing all science aid?
Does it not lovers' hearts explain,
And drudge to raise the merchant's gain?"

Gay.

"Or, last, among its virtues many,
The pages of this 'Miscellany'?"

Anon.

Fen-land is almost a thing of the past. Little Huntingdonshire has lost her noble meres; and though her sister Norfolk still retains her broads, they shrink. Doubtless, in a practical sense, these changes are much to be applauded; yet I ask forgiveness if, as an ornithologist, I cast a glance behind, while in my secret heart I harbour a regret.

Mr. Stevenson, in that charming introduction to his 'Birds of Norfolk'—after lamenting that the gossard's occupation is gone, that the fenman no longer snares his Snipes or nets his Ruffs and Reeves

(*Machetes pugnax*), and has ceased to eat his Sunday Bittern (*Botaurus stellaris*)—adds that, alas! the three Harriers are now no more, that the hurried twittering of the Sedge-bird (*Salicaria phragmitis*), the reeling note of the Grasshopper-Warbler (*Acrocephalus nævius*), and the harsher melody of the Reed-Sparrow (*Emberiza schœniculus*) have given place to other sounds.

These, with that pretty little bird of disputed affinity, *Panurus biarmicus** (once so common at Whittlesea Mere), are gone; and the habitat of many a strange fen-fowl has ceased to be.

Too long would it take me to enumerate all the losses we have sustained: Mr. Stevenson well describes them, and winds up with the bold and honest declaration that the modern condition of the fen district is, to the ornithologist fond of ancient memories, almost the "abomination of desolation."

With the vanished fens various kinds of English shooting will soon have disappeared, and the remark of Thompson ('Birds of Ireland,' 1850, p. 273) that "in many parts of England Snipe-shooting is still obtainable" will not apply; there was, however, some fun in the observation at that period. At this time the bird is found in non-natural places: thus, in November 1869, Lord Lansdowne picked up one on the Esplanade of the Horse-Guards, under a lamp (*cf.* 'Land and Water,' Jan. 5, 1878); also a full Snipe was shot at Oulton Park, Tarporley, November 10, while running about the slate roof of a building, apparently probing the eaves with its bill in search of food (*cf.* 'Field,' Nov. 20, 1875).

* What I believe to be the last Huntingdonshire bird (a male) of this species (shot at Eynesbury, November 1866) is now in my collection—a sad reminiscence!

Pishey Thompson, in his 'History of Boston' (1856, p. 644, family edition), has a quaint illustration of "fen slodgers," with their goose-hooks over their shoulders, returning from a tramp.

The days are much changed since a man could squat on some out-of-the-way part, and run up a hut*, perhaps catch a few wild Geese and turn them into tame†, then feed his flock at free quarters, living on fish and wild birds dressed by a peat fire. Rates and taxes he looked upon, as William of Deloraine did prayers and penances:

> "Penance, father, will I none;
> Prayer know I hardly one;
> For mass or prayer can I rarely tarry,
> Save to patter an Ave Mary."
>
> *Lay of the Last Minstrel.*

In short, he lived a kind of semi-savage life, not without its attractions. He had an endless supply; for Dugdale says of Ramsey Mere ('Imbanking,' p. 364):—"Though both fishers and fowlers cease neither day nor night to haunt it, yet there is always of fish and fowl no little store."

To this kind of individual succeeded the class of which "old Merry" is a good type.

According to the account in Daniel's 'Rural Sports,' "old Merry, of Stretham Ferry" had the utmost knowledge of the haunts of the species of

* Creamer's hut (now called Brampton hut), Huntingdonshire, a great meet of the Fitzwilliam hounds, and Kisby's hut, near Papworth, a famous meet of the Cambridgeshire pack; also Kate's Cabin, near Norman Cross, about seven miles from Peterborough, a meet of the former pack. Who Creamer was, and the pedigree of Kisby, are things now lost in obscurity, like that misty and mysterious mother, Mrs. Carey. Kate selected a good situation on Ermine Street for herself (?).

† Such a flock is mentioned by Mr. Robert Gray ('Birds of the West of Scotland,' p. 340), in Long Island (1867), on the farm of Mr. John Macdonald Newton:—"There were about thirty birds in it; and they had all been hatched from eggs taken on the moors." These were semi-domesticated Grey-lag Geese.

birds which visited the fens. "As a marksman he was extraordinarily expert. With a gun upwards of six feet in the barrel, and that placed in its stock by the village carpenter, and altogether of a weight which nothing but a most powerful arm could extend and elevate, would he kill a Snipe flying. Before exhibiting this proof of dexterity, he usually requested to be supplied with a fresh charge in lieu of what he *threw away* (as he termed it) after so worthless a bird"*; "the wadding was a little *dry sedge*, of which he always took a wisp in the punt."

"Old Merry had not been troubled with much education"—not "*school-boarded*," in short; but the Rev. Mr. Daniel never heard of that, and poor Merry, doubtless, is much to be pitied (!) for the loss he sustained.

Latham gives the best account of what Mr. Wallace calls "that cosmopolite bird, the Goose," in the 'Geographical Distribution of Animals' (*cf.* Latham, vol. x. pp. 252 *et seqq.*). He enters into the plucking process for quills and feathers (which need not be repeated), and says that the feathers † contributed to the fame of the English archers.

"An English archer bent his bow,
Made of a trusty tree;
An arrow of a cloth-yard long,
Unto the head drew he.

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* In this opinion he was quite at unity with that of our ancestors, who placed a higher value on a Blackbird than they did on a Snipe; but while the former has greatly increased in numbers, the latter has rapidly diminished. Daniel says the price of a Snipe in Cambridge market used to be from 3*d.* to 5*d.* ('Rural Sports,' vol. iii. p. 179). Shakespeare quite bears out this idea in the lines—

"For I mine own gain'd knowledge should profane,
If I would time expend with such a snipe,
But for my sport and profit."

Othello, Act i. sc. 3.

† "These feathers should consist of the second, third, and fourth of each wing."—*Archæol.* vii. p. 52 [*u*].

"Against Sir Hugh Montgomery
So right his shaft he set,
The grey goose-wing that was thereon
In his heart's blood was wet."
Chevy Chace.

Latham states "that this bird is very long-lived, and we have full authority for its arriving at no less than a hundred years."

Daniel says that the old ganders and geese which have been plucked pretty frequently are called "*cagmags.*" He relates a curious anecdote of the affection of a gander to his owner, an old blind woman, in Germany. He used to lead her every Sunday to church, taking hold of her gown with his bill. "When he had introduced her to her seat, he retired to graze in the churchyard; and no sooner was the congregation dismissed, but he returned to his duty and led her home."

In Thompson's 'Birds of Ireland,' vol. iii. p. 31, mention is made of a like friendship between a gander and an old blind mare.

In Lincolnshire there are several sayings relating to Geese, such as:—"The bairns to bed, and the Goose to the fire;" "More Geese than men in the Lincolnshire fen." Also they used to forecast the weather by the breast-bone of the Goose: if it looked cloudy, a severe winter was said to follow.

Pishey Thompson, though he mentions many of these provincial sayings, does not allude to the above; still he works his subject pretty close.

I have said that Geese are on the decline, one reason being that free quarters can no longer be had for them by the fenman; and another is that the feathers now are not in such demand. Feather beds are out of fashion,

and horsehair ones have come in. (Horsehair has risen fifty per cent. in value; and the supply comes from South America.)

Daniel says (vol. iii. p. 248):—"Some wing them [*i. e.* Geese] only every quarter, taking ten feathers from each Goose, which sell for 5*s.* a thousand. Plucked Geese pay, in feathers*, 1*s.* a-head in Wildmore fen" †.

* The following was, in 1871, the value of feathers in London:—Raw Goose-feathers, best grey, from 1*s.* 2*d.* to 1*s.* 4*d.* per lb.; white, 1*s.* 8*d.* to 1*s.* 10*d.* These feathers lose about a quarter of their weight in dressing, and are then usually retailed at 2*s.* 6*d.* or 3*s.* 6*d.* per lb.

The best feathers are from English Geese, supplied by Lincolnshire, Cambridgeshire, and Norfolk; and those taken from the living bird excel the others; but the supply of this quality is now very trifling, the custom of plucking them having fallen into disuse. Next to English come Russian feathers in value. The largest supply of British ones is obtained from the south of Ireland. The proportion of foreign feathers is about two thirds, to one third of our own. The imported feathers in 1871 were 775 tons, and the home production 300 tons; but with the former were many Fowl's feathers. Since 1871 the imports have greatly increased, while our own have decreased.

† I have been at some pains to find out something about Goose-quills at the present day. It is a common but erroneous notion that quill pens have been quite superseded by steel, and that at the present time scarcely any are used. Had the metal pens not been introduced, the use of the good old quill would, doubtless, have been infinitely larger than it is; but, notwithstanding all that has been done, there are probably nearly as many quills manufactured to-day as there were before the introduction of the Birmingham rivals.

This is explained by the great increase in the manufacture of all kinds of stationery in this country, and by the opening up of a large colonial and foreign trade. Many millions of quills and quill pens are sold annually in the United Kingdom; and many more are exported to India, America, Australia, &c.

Some years ago many English and Irish quills were used; but at present very few of these are made into pens. The principal supply comes from Russia, where immense droves of Geese are reared for their quills and feathers. These quills are harder and better than English ones: the cold climate appears to make the barrel of the quill stronger. A further illustration of this is seen in quills from the Hudson's-Bay Territory, where the cold is intense, and the quills are almost like iron. These are particularly prized, and command very high prices, some of the primest being worth £2 per hundred. Hudson's-Bay pens are supplied for use in the House of Lords and to Her Majesty's Judges.

The manufacture of the quill is of great importance. The barrel is naturally opaque, or nearly so; and to render it transparent heat is applied. This is done in various ways. The simplest is by

The price of Geese is stated in the 'Northumberland Household Book':—"Item, it is thoughte goode to by Geysse so that they be good, and for iij*d.* or iiij*d.* at the moste, seynge that iij or iiij Meas may be served thereof."

The price in Boston market at Christmas 1877 was 1*s.* per lb.

Something might here be said of the "*pâté de foie gras*;" but the idea of eating these diseased livers * is so unpleasant that I refrain. Daniel goes into it (vol. iii. p. 250); and it has nothing to do with the fens.

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means of hot sand, after the quill has been soaked in water for several hours. A second method is by placing the quills in an oven or pot. In the third and most approved method the quill is put into a hollow fire, and then subjected to pressure on a hot steel plate.

The pens manufactured are usually hand-cut, with a simple penknife. Men and women are employed solely in this one branch of the manufacture. A good workman can cut 1200 pens in a day.

Small Goose-quills are largely used for making camel-hair brushes and floats for fishing.

* The celebrated "*pâté de Pithiviers*" is hardly less disagreeable, though the original house for this *fabrique* is said to date from A.D. 1500; and we must shut our eyes to a knowledge of what portion of the Lark is used.

Of the same kind is the famous bird's-nest soup of China, concerning which Charles Montague, Earl of Halifax, the eminent statesman of King William III., was commented upon. Macaulay remarks thus ('History of England,' vol. iv. chap. xx.):—"He was said to revel in Tokay from the Imperial cellar, and in soups made out of bird's-nests from the Indian Ocean, costing three guineas a-piece." And again (in vol. v. p. 159):—"Only six bird's-nests from the Nicobar islands were to be had in London; and all the six were smoking, in soup, on the board."

Probably the said Earl of Halifax had no idea of the ingredients of which these nests are composed—viz. viscous saliva. They are cheaper now.

These remarks do not, however, apply to the famous "*pâté de merles de Corse*" (*cf.* Ibis, 3rd ser. vol. vi. p. 381), made of Blackbirds (*Turdus merula* and *T. musicus*) "of three qualities:—1st, those that feed on the berries of the myrtle; 2nd, those that subsist on the fruit of the juniper; 3rd, those that feed on the olive." It is stated that their value is in the above order. The following appeared respecting them in 'The Times,' Wednesday, November 28, 1877:—

"INGRATITUDE.—The British Consul at Ajaccio notes among the annual exports from Corsica

The evidence of a large Goose-feeder, as taken down by me, May 24, 1877, at Boston, runs as follows:—

"I had one thousand Geese to fat last year; in 1862 I had seventeen hundred. Not so many are kept in this day, because the cottagers used to feed them on the banks, where they are not allowed to be now"*. [Thus 'Hudibras'—

"The law condemns the man or woman
Who steels the goose from off the common,
But lets the greater felon loose,
Who steals the common from the goose."]

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between 350,000 and 400,000 Blackbirds. They come to that island in vast numbers every winter to feed on the berries of the myrtle and arbutus, with which the mountains are covered. Here they become very fat; and their flavour and perfume as food cause them to be much esteemed by the *gourmets* of Paris."

The *Turdi* of the Romans, fattened by thousands on figs and bread, were not the Thrush and Blackbird, but the Fieldfare and Redwing.

* The habit of keeping Geese is as old as Egypt; and the tablet in the British Museum, representing the flocks of them possessed by a large landowner, is well known.

In 'Notes and Queries,' Dec. 8, 1877 (quoting the 'Pall Mall,' Dec. 3 previous), it is stated that St. Martin's Day, "the Martinmas of our peasants, and not the modern Michaelmas, is the orthodox goose-day. At all the great markets in French provincial towns the farmers' wives may still be seen rivalling one another in the sleekness and whiteness of their best-bred and best-fatted Goose. Goose-eating has gone out of fashion in France, and fat Geese are at a discount."

In London I have obtained, from *a well-informed source*, the following statistics as to the number of Geese consumed at Christmas 1877, on which I can rely:—

In Leadenhall market arrived about 38,000. These were thus divided, viz.:—

French	20000
Dutch, fed in England	5000
Irish, fed in England	5000
Irish, killed in Ireland	5000
English natives	1000
Hamburg and Belgium (very large)	2000

A great many Geese, both English and foreign, were sold direct to cooperative stores and clubs, which never came to market.

It is calculated by the above authority that about 100,000 Geese passed through the London trade; each Goose averaged from 10 to 11 lb., and sold at from 8*d.* to 9*d.* per lb. These figures show how much the breeding of English native Geese has declined.

"One thousand Geese will consume five 12-stone sacks of oats per night; they eat turnips and oats, and make good manure. A Goose-house smells, no doubt; *but I like it.* We send a few birds alive to town still, for the Jews, and some fowls also. The Dutch and French Geese are not so good for the table as the Lincolnshire ones; ours are the best. When they used to travel by road, a man drove a few first; the rest would then follow. A cart used to go behind to carry the corn, and to pick up the sick—though some Geese improve on the road. Their pace is one mile per hour, and the journey ten miles per day." I have seen the baby asleep in the goose-house.

Another person states that they were driven by men with long sticks, each of which had a red flag to it, and it is now about thirty-one years since the journey by road was quite given up. They were caught with a hook round the neck, and marked with blue on the head, and some on the back.

Thirty-nine years ago (*i. e.* about 1838) is given by a different source as the last time Geese walked to London. All agree that they "made bad neighbours;" they used to come into the corn-fields in the night and at daylight, and were sad marauders *.

Holinshed, in his 'Chronicles,' vol. i. chap. ii. p. 374, has the following account:—

"In the countrie, where their geese are driven to the field like heards of cattel by a gooseheard, it is strange to me to see or heare of geese to be

* This habit was not confined to tame Geese, or even to *Anser ferus*; for Daniel says ('Rural Sports,' vol. iii. p. 256) that in the winter of 1740, on the coast of Picardy, the Brent Geese spoiled all the corn on the sea-coast. He appears to have taken the account of this prodigious flight of birds from Latham (vol. x. p. 260), who remarks that they tore up by the roots all the corn near the sea. "The inhabitants attacked them with clubs, and killed numbers; but the quantity was so great that it did not avail much; nor were they relieved from this scourge till the north wind which had brought them had ceased."

led to the field like sheape, yet so it is, and the gooseheard carrieth a rattle of paper or parchment with him when he goeth about in the morning to gather his goslings together, the noise whereof cometh no sooner to their ears than they fall to gagling and hasten to go to him. If it so happen that the gates be not yet open, or that none of the house be stirring, it is ridiculous to see how they will peepe under the doores and never leaue creaking and gagling till they be let out unto him to ouertake their fellowes."

Of all counties, perhaps Lincolnshire* may be called the Goose-country; but here these birds decline.

It is worthy of remark that Geese in ancient times were not looked upon as poultry, but as cattle. This is frequently mentioned in the Boston orders for the 800 fen in the Parts of Holland, confirmed and agreed to, 15th May, 1627, when the "Comoners" met together "on ye feast of ye Virgin Mary, to make Orders and By-laws."

Here beasts, horses or mares, sheep, swine, or geese always are classed together. The forfeit for putting a false brand upon his goose and sending it to pasture in the fen was 10*s*. No fowler was allowed to take dogs into the place, or "improperly set spriniks or lyine wands." No one was to

* The sign of "the 'Goose and Gridiron' occurs at Woodhall, Lincolnshire, and in a few other localities. It is said to owe its origin to the following circumstances:—The 'Mitre' was a celebrated music-house in London-House Yard, at the N.W. end of St. Pauls. When it ceased to be a music-house, the succeeding landlord, to ridicule its former destiny, chose for his sign a Goose stroking the bars of a gridiron with his foot, in ridicule of the 'Swan and Harp,' a common sign for the early music-houses. Such an origin does the 'Tatler' give."—*History of Sign-Boards*, by Larwood and Hotten, p. 445. Another theory of its meaning is also given.

The design of the two Geese hanging a fox, in Sherborne Minster and Wellingborough, alludes to an ecclesiastic and his flock: the former was not unfrequently so represented, while the Geese stood for the people (*cf.* 'History of British Humour,' vol. i. p. 206).

A notable instance of the use of the Goose as an emblem occurs in the case of "Avalos, Alfonso d', Marquis del Vasto or del Guasto (+1546), Commander of the army of Charles V." (*cf.*

"Lag 'em, Lag 'em."

LINCOLNSHIRE GOSSARDS, WITH THEIR DRIVING-STICKS AND FLOCK,

ON THE ROAD FROM KIRTON TO BOSTON.

(SKETCHED NOVEMBER 1877.)

fire "with hail shoot at any fowle." For this offence he paid £5 to the lord. "Any commoner might fish and fowle" in the fen with lawful nets, snares, or other "engins" at proper times; and eighteen fengraves were elected, to enforce these rules.

A Lincolnshire gossard, with his long "driving-stick" over his shoulder, tipped with a red rag at one end and a hook at the other, cried formerly, and still continues to shout, "Lag 'um, lag 'um," as he slowly plods his weary way, at the rate of a mile per hour, through the fens.

The flock are said to be much afraid of the red rag; but what did

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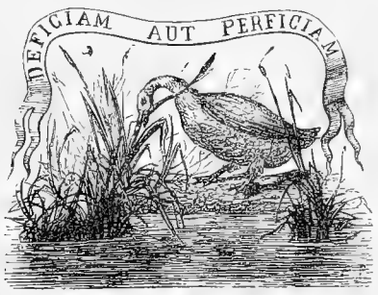
Mrs. Bury Palliser's 'Historic Devices, Badges, and War-cries,' p. 38, fig. 30. I quote the account, and, by permission of Messrs. Sampson Low, Son, & Marston, am able to reproduce the illustration, which refers to a curious habit of this bird).



"A Goose is here representing plucking a plant with its beak, with the motto *Deficiam aut perficiam* (I will perish or succeed)."

Pliny says of this bird:—"Their own greedie feeding is their bane; for one while they will eat untill they burst againe, another while kill themselves with straining their owne selves; for if they chaunce to catch hold of a root with their bill, they will bite and pull so hard for to have it, that many times they breake their own necks withall, before they leave their hold" (Book x. chap. 59).

This is a strange, though ancient notion; I wonder if any one ever saw a Goose which had died from this cause.

In England they did not appear to approve of the bird so well as did the Marquis, if it is true (as stated in the 'Daily Telegraph,' March 1, 1878) that the Heralds amerced and imprisoned a wealthy citizen for having called an heraldic Swan a Goose.

that ancient cry mean, handed down by tradition for countless generations? The Geese know the meaning, though I do not; for it urges them on, as "gee" does the British horse. Has the word an affinity to the "lag" in Grey-lag Goose?—concerning which *cf.* vol. i. p. 114; I suspect so.

The "'um" is said to mean "them;" therefore we have only "lag" to interpret, which bears a resemblance to the old Norse "*lagda*" (laid by the leg). Probably it is something of this sort—"Catch them by the leg," as nurses say to children "I'll catch you."

Such a scene is here depicted in Mr. Pearson's faithful woodcut taken from a sketch made by Mr. Vernon Howard, Master of the Boston School of Art, on the road from Kirton to Boston, near to the former place, November 1877. (Plate CV.)

The coloured lithographs of Mr. John Taylor's flock of 800 Geese were photographed on purpose for this work, and have been faithfully reproduced by Mr. Smit. They give a real representation of a Lincolnshire flock, and, on a small scale, a good notion of the great droves of old days. The road is the Horncastle one; and the water is Bargate drain, which divides Boston from Skirbeck. (Plates CVI., CVII., & CVIII.)

At p. 113, vol. i., I have recorded the famous bet between the Lords Rockingham and Oxford for 500 guineas. What do we learn from that anecdote? This, that the winner and the loser in that race were contending about a thing constantly before their eyes. No one would make such a bet now, because the state of things does not exist.

It has been my endeavour in former articles to place upon record scraps of bird-lore relating to the manners and customs of times quite gone, or only just impinging upon my own day.

Many of us can recollect the Christmas condition of the coaches on the

Hanhart imp

[illegible] ON GEESE ON THE LINCOLN CASTLE ROAD BY BARGATE DRAIN, BOSTON

[illegible] GRATE TAKEN [illegible]

Hanhart imp

MR JOHN TAYLOR'S FLOCK OF 800 GEESE ON THE HORNCASTLE ROAD BY BARGATE DRAIN, BOSTON.

FROM A PHOTOGRAPH TAKEN DECR 6TH 1877

J. Smit lith. Hanhart imp.

LINCOLNSHIRE GEESE AT HOME.
Photographed Decr. 10 1877.

great North road in the pre-railway era. They were hung round with Turkeys and Geese to such a degree that you could hardly look out of the window or into it.

So common in former days were droves of Geese on the road, that, when the parishes were inclosed, small strips of ground were left at the side as "Goose greens," on the principle of Arabian hospitality—a sort of religious duty.

Mr. W. T. Lighton, of Frampton, informs me that a small parcel of pasture-ground, now a plantation, with one or two ponds in it, called "Grey-Goose fleet," near Frampton Church, Lincolnshire, was believed to have been formerly "a refuge" for Geese on their journeys to and from Frampton marshes.

In Norfolk, I am told, the same custom prevailed.

In Mogg's map of the neighbourhood of London, at the fourth milestone on the Camberwell Road, at the left hand, turning to Peckham Rye, appears a green plot, marked "Goose Green."

In the parish of Leake, Lincolnshire, I have myself seen such a bit of ground by the roadside, now taken in; but I am not sure that it was a goose-green, though it looked like one.

The Goose, in fact, ruled all things; the French even called the mark near the eye of fading beauty, by us known as the "crow's foot," *patte d'oie* ("goose-foot").

In Fen-land, or close upon it, all things are fenny. Thus, in the local press, at this time we read at Huntingdon of a man stealing "a glaive," or eel-spear; at Boston a boy shoots himself while "tenting birds;" at Lincoln

a place is described as at the back of the "Pye-wype Inn,"*—"Pye-wype" being the name for the Lapwing (*Vanellus cristatus*), and in old household books simply "Wype" †.

In Norfolk we have "Bustard's lode" (Dugdale, on Imbanking, p. 286).

Though it would swell this article to an inconvenient length to notice half the birds of Fen-land's former days, yet one (the most rare and curious) must have a few words. I allude to *Acrocephalus luscinioides*, the Warbler of the Italian Savi.

Perhaps in the 4th edition of Yarrell (*cf.* vol. i. pp. 391, 392) there is no subject which has been more ably handled than that of this bird; and among the condensed information there given, as far as I am a judge, this is the most interesting, viz. the evidence of Mr. Bond and Mr. John Brown, of Cambridge:—

"A large extent of fen in the neighbourhood" [*i. e.* of Baitsbight, on the river Cam, where Harvey, the lock-keeper, lived, a man I well remember when at the University] "was overgrown with one of the social sedges, *Cladium mariscus*, which, towards autumn, was regularly cut, and being made into bundles was carried by water to Cambridge to serve as kindling for fires,"—in one case to load a gun, as stated of old Merry by Daniel. "The sedge-cutters used commonly to find many old nests, of singular construction, in the course of their work—nests which could not be assigned to any of the known fen-birds; and this fact was learned by Harvey, who dealt in various objects of natural history. The people of the district were also aware of a reddish-brown bird, having a peculiar song, often heard at night (not altogether

* We have also "Pye-wype ferry" near Lincoln, "Crane End" near Freiston, and "Snipe-bank,"—and in Huntingdonshire:—"Gosling's Island," Whittlesea Mere; "Wild-goose leys" twice, near Great Stukeley and close to Buckden; also "Hawke's-den leys," S. Neots.

† In Sweden the bird is still called "Vipa" (*cf.* Harting's 'Ornithology of Shakespeare,' p. 222).

unlike that of the Grasshopper-Warbler, or Reeler, still quite distinct); and this bird they called indifferently the 'Brown,' 'Red,' or 'Night-Reeler.'" Harvey at last got these birds and eggs. They will never more be obtained now.

The Editor states that Mr. Bond has the merit of pointing out the species as British.

In Huntingdonshire, at Wood Walton, in 1849, a nest and eggs were taken (*cf.* Yarrell, 4th edit. p. 392); and it lived at Whittlesea Mere, whence an adult bird is figured in Mr. Dresser's 'Birds of Europe,' part xxxviii. (April 1875). I need not, however, say that these localities will never see the species again.

A few additional places in other counties are mentioned in the above-quoted works; but this was one of our rarest fen-birds, and its extinction, with its curious nest, made of one material only, must be now, and ever will be, to British ornithologists for generations to come, a source of the deepest and most bitter regret. Count Wodzicki's account of its habits, in the 'Journal für Ornithologie,' is so interesting that I have had his remarks translated, and they follow this article.

Professor Newton has provided me with a few observations, as a supplement to the chapter on Savi's Warbler in the 4th edition of Yarrell:—

"The pair of birds obtained by Mr. Joseph Clarke, of Saffron Walden (p. 391), must have been killed in 1840 (see 'Annals and Magazine of Natural History,' p. 525).

"Mr. Bond had, in all, two nests and six birds. Of the latter, two are now in his collection; one he gave to Mr. Henry Doubleday, who afterwards parted with it, one to Capt. Johnson, of Walton House, near Carlisle, one to Mr. Charles Thurnall, from whom it has passed to Mr. Newcome, and the sixth to Mr. Ingall, of the Bank of England, whose collection was subsequently sold at Mr. Stevens's auction-rooms, when the specimen was not there.

"The nests had each four eggs in it; one he gave to the British Museum, and it is that figured at p. 397. Of the eggs, Mr. Thurnall had four: one was given to Mr. Yarrell, and was bought by me at his sale; the remaining three were in Mr. Bond's collection when he sold it.

"I know of two other British specimens of the bird which are not mentioned by me. These are a pair obtained in this county in 1845, and now in the collection of Mr. Thompson, of Winlaton; while the nest and three eggs, procured at the same time, are in that of Mr. Hancock."

I may add that I have one supposed British specimen, detected in a case among other old and ragged specimens of Reed-Warblers, Sedge-Warblers, &c. from Cambridge; but I never think much of such things if there is the least doubt about them.

Another bird, more common than the last, but now rapidly becoming more and more scarce, is the Spotted Crake (*Crex porzana*). In the Huntingdonshire and Cambridgeshire fens its eggs were obtained when I was a young collector. The last nest, near Whittlesea Mere, in the former county, is stated by Mr. Stevenson, on Mr. Newton's authority, to have been found in 1849 ('Birds of Norfolk,' vol. ii. p. 394, note).

I have a male specimen of this Crake in my collection, shot at St. Ives, Huntingdonshire, December 2, 1868; Mr. Stevenson says that, in Norfolk, they take their departure to the south about the end of October.

Such a marsh- and reed-loving species must soon become extinct in England.

Daniel states ('Rural Sports,' vol. iii. p. 264) that in the fens an annual driving of flappers into nets took place, and records that at Spalding, in two days of what is called "the ducking," 2646 Mallards were taken.

By the Act 10 George II., c. 32, this is not allowed from June 1st to October 1st.

A bird still numerous, but much diminished, is the Coot (*Fulica atra*). Formerly the numbers were countless; and Mr. Stevenson tells us of the "Coot-custard fair" at Hornsey, held in the spring, when nothing but Coot's and Black-headed Gull's eggs were used to make the puddings &c. ('Birds of Norfolk,' vol. ii. p. 429).

In this short paper many birds of the fen-district must be passed over; but a notice of the heronry of Whittlesea Mere, now that both it and its birds are gone, must not be left out.

In some old MS. notes, in the handwriting of the late John Wolley, a good authority, which have been kindly lent to me by Professor Newton, it is stated that Herons formerly bred "amongst the reeds at Whittlesea Mere, afterwards in Monkswood, Alconbury Hill, Huntingdonshire; but being unprotected there," they "went to Lord Fitzwilliam's, Milton Park, near Peterborough."

There was a fine shore of reeds at the Mere, a quarter of a mile deep, which in former days would be a paradise for Herons.

I cannot quit this subject without a word upon the Starling. While all around is decay, he at least promises to hold his own; and with joy I recognize the fact.

The damage to the reeds when, in autumn, heavy flights of Starlings came to pass the night was considerable.

Pridmore, a good authority on fen matters, before quoted by me (in "Bird-nets"), among other heavy shots tells me of one in particular, from a boat, at daybreak, on the north side of Whittlesea Mere, on a reed-bed.

Forty-two dozen were picked up at once; and subsequently several dozen more, with broken wings, were secured. The owners of the reeds were obliged to erect high platforms to stand on and shoot; otherwise they would break down acres. The discharge used to plough a lane in them; to use the words of an eye-witness to me, "the shots used to cut a road through both reeds and birds."

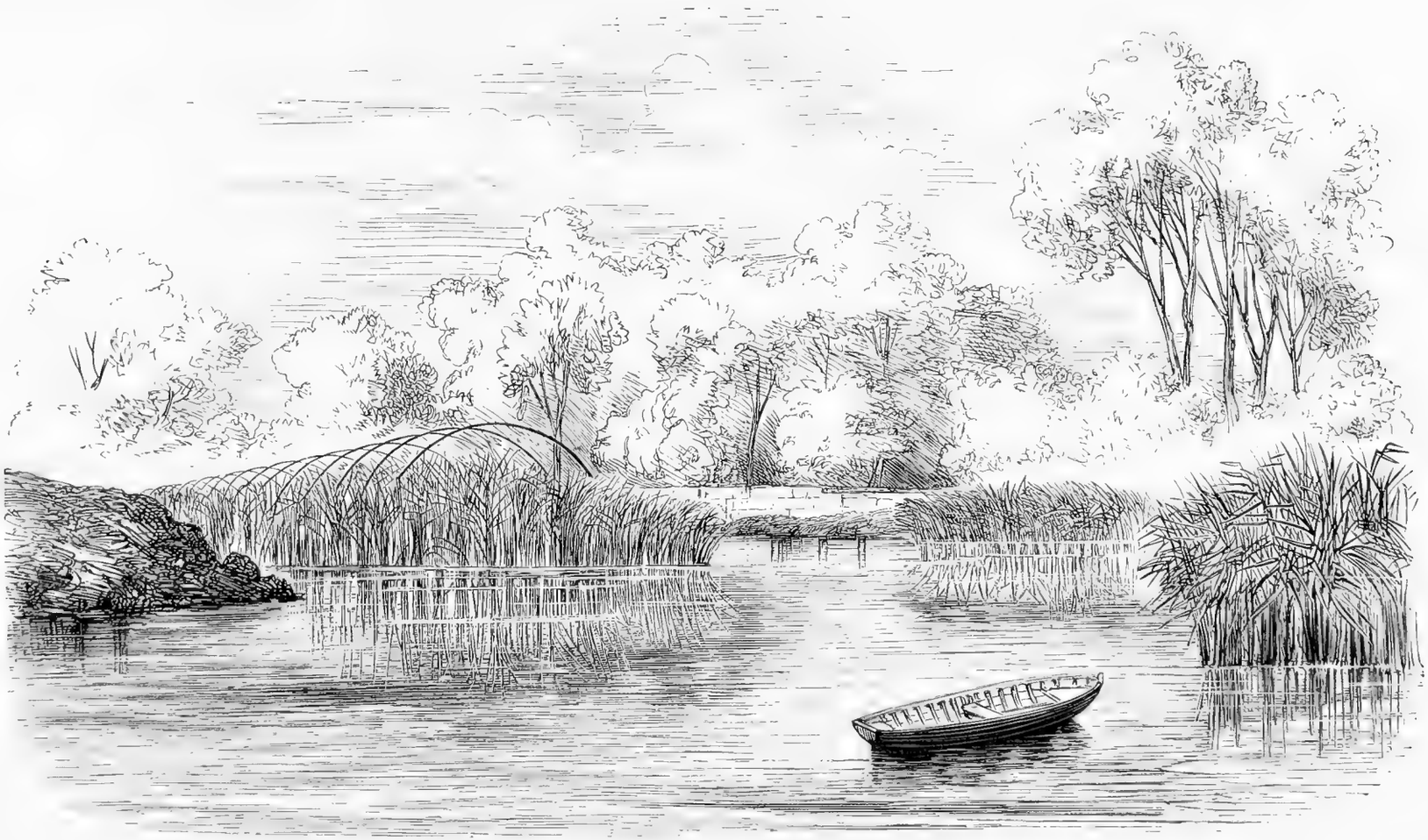
The same is done in Egypt at the present day. "To protect the growing crops, the fellaheen often construct little stands for boys armed with slings, who acquire a wonderful dexterity in bringing down their feathered game" ('Land of the Pharoahs,' by the Rev. S. Manning, LL.D., p. 87).

The gyrations and changing figures of a large flock of Starlings as they rise from the ground, and rapidly alter the form of their dense cloud, is to me one of the most beautiful objects in nature. It has been so well described by the Editor of the 4th edition of Yarrell (part xi. pp. 237 & 238) that I cannot repeat the process; that description should be read.

Next to the pleasure of watching their flight is that of hearing the sound of their voices. Hence the term in old writers, "a murmuration of Starlings." It is the noise of a multitude, each member of which chides, soothes, or complains, according to his special wants in the struggle.

This "murmuration" has been described to me by an old fenman at Whittlesea Mere, as coming from its deep reed shore; and he assured me that, under the wind, you could hear the sounds of the congregation a quarter of a mile off.

Even a well-used Sparrow-roost (in old laurels, perhaps) has its charms at sundown. It contains an immense number of birds, each of whom fights for a good place to pass the night in the common shelter; and the chatter which goes on can be heard for a long distance. Such a one, familiar to me in the days of childhood, comes back now to my mind.



THE DECOY AT FRISKNEY, LINCOLNSHIRE.

(SKETCHED 1877.)

Hardly any thing is more characteristic of the fens than the decoys, which have been so often described that it is needless to repeat the process.

Lubbock says ('Fauna of Norfolk,' p. 105) :—

"Blomefield names one of a distinguished Norfolk family as the founder of decoys :—'Sir William, son of Sir William Woodhouse, lived in the reign of James the First, and is said to have been the first person who, in England, invented and erected decoys for taking wild Ducks.'"

Pishey Thompson states ('History of Boston,' p. 676) :—

"In one season, a few years previous to the inclosure of the fens, ten decoys, five of which were in the parish of Friskney, furnished 31,200 Ducks, Widgeon, and Teal for the London market."

Decoys are fast going out of fashion ; they will hardly last much longer. The woodcut of the one now at Friskney is from a sketch in my own collection of such things, recently taken by Mr. Vernon Howard, School-of-Art Master at Boston. (Plate CIX.)

At Whittlesea Mere, a good authority tells me that fifty dozen Ducks have been taken in one day, and two hundred dozen in seven days. As for Coots, "which came in moonlight nights in great lumps," they used to take their eggs in bushels. When the water rose into the nest they would start again, and build a fresh one on the spoilt sitting of eggs.

ON SAVI'S WARBLER.

By Count CASIMIR WODZICKI.

['Journal für Ornithologie,' 1. Jahrgang, 1853, Extraheft, in a paper by Count Casimir Wodzicki, with the title "N. 7. Einige Beobachtungen über die drei schwirrenden Rohrsänger: *Salicaria locustella, fluviatilis,* und *Calamoherpe luscinioides*" (as continuation of the article by Dr. Ludw. Thienemann, in the second part of the Journal 'Rhea,' 1848, p. 216), page 48.]

3. CALAMOHERPE LUSCINIOIDES (Savi).

All the upper parts rusty brown; underparts tinged with rusty yellowish colour, darker on the flanks as well as on the lower tail-coverts. Bill rather slender, compressed; above the eyes there is an indication of a light fine stripe. Length of the bird from 5″ 6‴ to 6″ 2‴, most individuals about 5″ 9‴, the breadth 9″. The birds are smaller and more slender than *Salicaria fluviatilis*; the tail is less broad; upper mandible brownish black, under mandible yellowish; the tarsi are of a fleshy colour, as well as the mouth; eyes dark brown; on the tail are some darker stripes. Most of the males offer indistinct spots on the throat, of a darker colour than that of the breast; but this is no characteristic.

Calamoherpe luscinioides is a true bird of the reeds (which it never leaves), quarrelsome, always in motion—now on the ground, now on the

reeds. It is never seen sitting quiet; in spring-time it often flies into the air, roves about, and throws itself down again, with the wings folded backwards, like the Hedge-Sparrow, but without singing. I often saw it, like *Parus biarmicus*, moving on the stalk of a reed from below to the top. Much more confident than *S. fluviatilis*, it is also more curious. Hearing a noise it flies from the ground, sits down on the reed, and looks astonished at the dog or the hunter. With quiet dogs it is easily induced to stir; and then it can be shot on the wing.

C. luscinioides and *P. biarmicus* have this in common with the Crossbills, that in some years very few of them come to breed, in others indefinitely large numbers. Last year only two pairs bred, whereas this year there are hundreds. It is just the contrary with *S. fluviatilis*; last season they occurred frequently, in this only rarely in the same localities.

Calamoherpe luscinioides is further distinguished by its temper. It is extremely passionate, eager for combat. In the breeding-time male and female, or rivals, pursue each other close to the feet of the observer, even after a shot; they even make their reeling noise while in danger. Male and female sit so steadily on the nest that they can be looked at very well; frightened away, they return immediately without constraint, either on the wing or hopping from branch to branch up to the nest. They leave in the same way, but seldom on foot, as is the custom of *S. fluviatilis*; this is only done when the nest is near the ground.

The nest is in the old high reeds, in the midst of the dense grass, only exceptionally in the high grass or on a grass-tuft. Without being interwoven it rests firm, on broken reeds, commonly six inches above the level of the water, sometimes also two or three feet; and it is very well concealed. If one sees the small bird, and on the other hand the rough material of the

nest, the diligent work really must be declared wonderful; for the nest consists of broad carefully interwoven leaves of the reed, and it is so polished inside that the eggs roll. An inexperienced person would take it for the nest of the smallest Moor-hen, so much is it similar to this, only smaller. The greater number of the nests are pointed, broad above, quite conical, 4″ high, 3″ 6‴ broad, 2″ 6‴ deep. The depth varies much—from 2″ 6‴ to 3″ 9‴. The deepest must excite admiration; they are hardly 2″ 6‴ broad, and one can scarcely believe that the breeding female touches the eggs with its belly.

I often observed, when these tender birds build their nest, how troublesome it is for them to bring the material together. In the beginning this is done by male and female; later the female does it alone, while the male takes the leaves from the bill of the female and alone continues weaving. The male is gay and diligent at work, and continually utters the monotonous "*krrr, krrr.*"

The call of both male and female is like that of *S. fluviatilis*—a short "*krr.*" This noise has an agreeable tone; far off it appears to be in one's own ear. He who has heard, on fat morasses, the noise of the bubbles which quickly ascend to the surface of the water, can well imagine the song of *Calamoherpe luscinioides*. Often the sound is higher or lower, without the dominating "*r*;" just as if one repeated quickly the letters "*gl, gl, gl, gl, gl.*" Here, as in *S. fluviatilis*, the voice has the singularity that it misleads the ear; for often one attempts to follow the sound in a wrong direction. They sing high or low, but sit quiet, the head bent somewhat back, the neck stretched, the throat much dilated: the exertion is evident.

During the breeding-season the song is continued diligently the whole day, till sunset; later, in the night, I did not hear it.

The bird's activity in running and creeping about in the day-time rubs the plumage very much. In the month of July, therefore, it is entirely worn out; the tail especially always is defective.

The young ones are similar to the old ones; but they are much more rusty red on the belly, and may easily be confounded with *C. arundinacea* before they are full-grown.

When the family is grown up, all emigrate into the high grass, the reeds are left. There they remain till late in the month of September, always on the wet ground.

C. luscinioides is perhaps the reed-bird which remains longest with us. The number of the eggs is mostly five, sometimes four. The bird only breeds once in every summer, either at the end of the month of May or in the beginning of June. The later young ones are from disturbed broods.

The eggs vary very much in form and colour. They are rounded, bellied, seldom lengthy, never pointed, always without gloss. In the same nest the eggs are similar to each other. The ground-colour is whitish, often quite chalky white, with fine points (just as on the eggs of *S. fluviatilis*) at the end. Those coloured in this way are most similar to the eggs of the species before named.

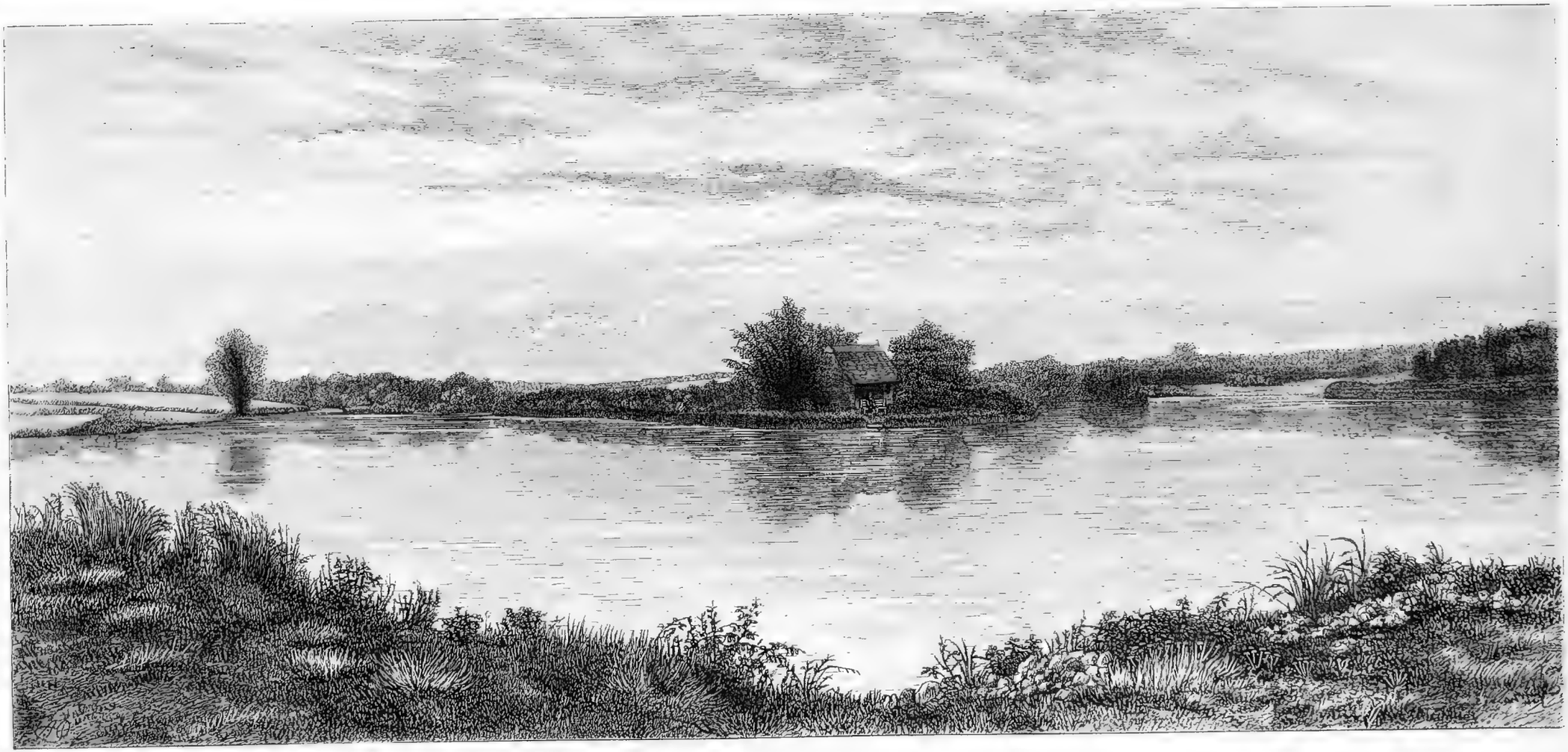
Other eggs are chalky white, sparingly sprinkled with larger, yellowish-brown and blackish-violet points; the crown cannot be well seen, because it originates from spots of the inner shell. These eggs could be confounded with those of *S. curruca*.

Finally, there occur others with a dirty-white ground, which hardly can

be seen on account of light-brownish and violet spots covering the end totally. Such specimens remind one of those of *Anthus* or *Alauda arborea.*

The length is $8\frac{1}{2}'''$ to $11'''$, the breadth $7'''$ to $9'''$. They differ so much that, of the eight sets which I collected in the spring, only two show any resemblance. Their weight is $1\frac{1}{2}$ to 2 grms.; but most remain under 2 grms.

The nests are not at all lined inside, and have not the least similarity to those of the Sylviads, Salicarias, or Calamoherpes; for they show the material, the structure, and the form of the nests of the small Moor-hens.



BREEDING-PLACE OF THE TUFTED DUCK (*Anas fuligula*).

(FROM A PHOTOGRAPH, 1877.)

ON THE BREEDING-PLACES OF TWO MEMBERS OF THE BRITISH ANATIDÆ.

By Mr. G. D. ROWLEY.

(Plate CX.)

ANAS FULIGULA. The Tufted Duck.

The woodcut which illustrates this article is copied from a photograph sent to me by Mr. Whitaker, whose communication on the subject appeared in 'The Field,' May 19, 1877 :—

"*Tufted Duck breeding in Nottinghamshire.*

"Judging from the numerous letters which have appeared in 'The Field' lately on wildfowl breeding in England, it seems to be considered rather a rare event for the Tufted Duck to be found nesting in this country. Mr. Harting, in his very interesting paper on wildfowl last week, mentions a few counties in which they breed, and, amongst other localities, names some in Nottinghamshire.

"Now, so far as my own experience goes, it is not at all an uncommon event for this Duck to stay and nest in Nottinghamshire, at least in this neighbourhood. At the present time, within a mile of where I am sitting,

there are from twelve to fifteen pairs of Tufted Ducks staying to nest. Only on Sunday last, when walking round the lake here, I saw eight pairs of these birds.

"Tufted Ducks have bred in this water for the last thirty-five years. A great many breed at Newstead Abbey. They may also be found breeding at Thorsby, Rufford, on the ponds in the forest, Park Hall, and Oxten Bogs—in fact, in most suitable places near here.

"This Duck begins to sit very late, seldom before the last week in May or the beginning of June. Last year about fifty young ones were bred on the lake here.

"J. WHITAKER."

"Rainworth Lodge, Mansfield."

It was intended to photograph or draw the Ducks, with the young ones, in the lake; but this was not found to be possible.

Bewick (quoting Latham) says:—"The French allow these birds to be eaten on *maigre* days, and in Lent."

ANAS FERINA. The Pochard.

I have mentioned (*anteà*, vol. ii. p. 411) that this Duck used to breed at Scoulton, on the authority of Mr. Morris; but I find, in the first edition of Yarrell, that Messrs. Sheppard and Whitear, in their 'Norfolk Catalogue of Birds,' mention the fact in 1825; while the Rev. R. Lubbock ('Fauna of Norfolk, p. 112) says, in 1845:—"I have heard from an accurate observer that he has shot young Pochards at Scoulton, and that flappers of this species were not uncommon there, but that the quagmire where they were found was so rotten, and the reeds so high, that the difficulty of shooting them was very great." In a note, he remarks that "the Pochard has ceased to breed at Scoulton;" I am sorry to add that in 1877, when I visited the place, it had not returned.

Wassand Mere, Yorkshire, near Hull, is, perhaps, as famous as any breeding-place of this bird. Here it is protected by Henry Strickland Constable, Esq., of Wassand, and may be seen in great numbers. He has kindly furnished me with the following particulars :—

"The mere is nearly five hundred acres in extent; and the deepest part is about fourteen feet. It contains two islands; and the country round is rather flat. Three years ago [*i. e.* from 1877] the Pochards laid at the usual time in the reeds; but the rain fell so continuously that all the eggs were destroyed by the rising waters of the mere."

I have in my collection, a sitting of eggs from this spot, presented to me in 1841 by the late Mr. H. B. Milner; but these need no description.

Mr. J. C. Mansel-Pleydell has kindly sent me a copy of his list of the rarer birds of Dorsetshire. In it he does not mention that the Pochard breeds there; but in the 'Zoologist,' 3rd ser. Sept. 1877, p. 385 ("Ornithological Notes from Dorsetshire"), he says :—

"At one of these lakes [Poole and Studland] Pochards have bred for the last three years. In the spring of 1875 a male Pochard, incapacitated from accompanying his companions northwards by a fractured wing, was fortunate enough to induce a female to remain with him, and a brood of young red-heads appeared on the lake, which was so carefully and successfully watched that the following year (1876) three broods were hatched."

At p. 386 Mr. T. M. Pike, of Westport, Wareham, mentions, in an interesting article, that on a pool in the above county thirty Pochards had been hatched this year; "but the eels, or other fish, had destroyed the greater part of them."

A writer in 'The Field,' November 17th, 1877 (p. 574), records an unusually late brood of the common wild Duck at Rhiwlas, Bala: "last week," while out shooting, he came across an old bird with twelve young ones.

Hanhart imp

ENTRANCE OF KINGSTOWN HARBOUR
SHEARWATER JUNE 1860.

LARUS TRIDACTYLUS.

(The Kittiwake Gull.)

By Mr. G. D. ROWLEY.

(Plate CXI.)

The lithograph is taken from a sketch made off Kingstown Harbour, Ireland, in 1850.

On the south coast round Brighton we get fewer Kittiwakes than other Gulls; and I find them difficult to keep in the gullery here. One has contrived, however, to hold its own for some years, and waddles about on its short legs among the more graceful Black-headed and common Gulls.

When once the feeding-off is done (a dangerous time—just after their arrival), we rarely lose an individual.

Matrimonial differences, in spite of all precautions, sometimes cost a life in the spring; but our birds are very healthy, and we have some aged ones among them.

On a bright day, with plenty of sun, a lot of Kittiwakes crowding onto a buoy is at once a common and a pretty sight off Kingstown; and I have watched them often.

Mr. W. Mattieu Williams, in his book 'Through Norway' (pp. 109 & 110), describes a breeding-place of Kittiwakes near the North Cape- "Spirte Njarga Sverholtklubben."

He says, "the Fuglebjerg, forming a part of this promontory, presents one of the most wonderful displays of animal life to be seen in any part of the world."

He speaks of a series of ledges above a thousand feet high. "On these ledges, which extend along the face of the rock for more than a mile, and are about two or three feet apart, are perched hundreds of thousands of sea-birds, all squatting side by side, and equidistant from each other, about eight or ten inches apart, in horizontal rows, their white breasts contrasting strongly with the black rock behind.

"The regularity of their arrangement on the ledges is very grotesque; they appear like an audience of a million or two of male pigmies in evening dress—all shirt-front—occupying accurately measured seats. They are, for the most part, the Kittiwake.

"On blowing the steam-whistle a roar of wings is heard, mingled with harsh wailing screams, and a huge cloud rises from the face of the rock and darkens the sky. I have seen great clouds of sea-birds on the coast of Scotland, but nothing approaching this astounding multitude. I dare not estimate their numbers, not having any means of estimating the area of the living cloud, and the number of strata composing it, nor any

experience of the appearance which a million or two of such rapidly-moving living things would present. The sight was worth a special journey to behold."

Captain H. W. Feilden says (Ibis, October 1877, 4th ser. vol. i. p. 409):—

"We did not observe it [the Kittiwake] to the northward after entering the ice of Smith's Sound; and in 1876 no specimen was seen as the expedition returned south, until the north water of Baffin's Bay was reached."

REMARKS ON THE EXTINCT GIGANTIC BIRDS OF MADAGASCAR AND NEW ZEALAND.

By Mr. G. D. ROWLEY.

(Plates CXII. to CXV.)

With much regret I find that the 'Ornithological Miscellany' has arrived at a conclusion without any papers on Fossil Ornithology—a subject, as I apprehend, yet in its infancy, but one, to my mind, almost exceeding in interest that of the more recent period, as the facts which it is gradually unfolding are of an astonishing nature.

In truth, with respect to fossil ornithology, and extinct birds in general, we may repeat the sentiment of Newton's regret before his death, that "the great ocean of truth lay all undiscovered before him." Not that I am oblivious of such labours as those contained in M. Milne-Edwards's magnificent 'Oiseaux Fossiles de la France,' or of the exertions of such men as Owen, Haast, Hector, Alfred Newton, and Marsh in America, in this happy field of useful toil; but the view opened out is so vast that I may justly regard fossil ornithology as hardly begun. With what joy Linnæus, that man of almost faultless character, that saint of science, would have received these things* had he lived in this day.

* I mean such birds as these:—*Odontopteryx*, in the Mesozoic strata, with processes not teeth but resembling them; in Cretaceous strata *Hesperornis regalis*, a Grebe six feet high, with

Taking *Æpyornis* of Madagascar first, I have figured the perfect egg of *Æpyornis maximus* in my own collection.

This specimen (Plate CXII.), when I purchased it, was one of the very few then discovered, and quite new to England. Reading a paper * upon it before the Zoological Society, November 28, 1867, I pointed out, from the fragments of other eggs kindly presented to me by M. Alfred Grandidier, of Paris, the certainty that another species must have existed; and I further stated that the new one, which I named *Æ. grandidieri*, must have been much smaller than *Æ. maximus*.

In the lithograph (Plate CXIII. no. 3) the difference of granulation between these two species, and thickness of shell, may be observed, *Æ. grandidieri* being half that of *Æ. maximus*.

In the interesting article by M. Alphonse Milne-Edwards and M. A. Grandidier, received from them December 22, 1869, I find that they have clearly established three very distinct species—*Æ. maximus*, *Æ. medius*, and *Æ. modestus*, the last by no means a large bird. With which of these, if any, *Æ. grandidieri* corresponds, I am not at present able to state for certain: *Æ. medius* looks like it.

These very competent authors deliver it as their opinion that, "if the *Æpyornis* was not the tallest among birds, it was evidently the largest and heaviest—the most elephantine;" and this has always accorded with my view.

In passing, I may call attention to the enormous thickness of the shell

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teeth set in grooves, and *Ichthyornis*, a Pigeon, also with teeth in sockets; in addition, *Archæopteryx macrurus*, Owen, of the Lithographic limestone at Pappenheim, near Solenhofen, Bavaria (a rock of the Upper Oolite), with its wonderful tail of twenty vertebræ; and many another, too numerous to mention here.

* *Cf.* my translation of M. Grandidier's paper, "Observations sur le gisement des œufs de l'*Epiornis*," Ibis, 2nd ser. vol. iv. (1868) p. 65. Also a paper upon the egg of *Æpyornis maximus*, by G. D. Rowley (Trübner, 1864).

GDROWLEY, ACTUAL SIZE, WITH THE THICKNESS OF THE SHELL.

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ÆPYORNIS MAXIMUS MADAGASCAR, IN THE

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ACTUAL SIZE, WITH THE THI S OF THE SHELL

of the egg of the largest species*. What prodigious strength must have been necessary in the young bird to enable it to burst forth when ready to be hatched! It is possible that a very strong temporary sheath was furnished to the tip of the beak for this purpose.

In Col. Henry Yule's fine work, 'The Book of Ser Marco Polo the Venetian,' 1st edit. vol. ii. pp. 349 & 350, we have some account of the "Rukh"†; and he says:—"The circumstance which for the time localized the Rukh in the direction of Madagascar was, perhaps, some rumour of the great fossil *Æpyornis*, and its colossal eggs found in that island."

However this may be, I must here express my opinion that the Rukh, Ruc, or Roc never had any thing to do with the *Æpyornis*. The Roc, if any thing (and I think it was something), clearly appears to have been a bird of flight, which the *Æpyornis* certainly was not; neither was it a bird of prey, as is proved by the bones.

To clip the wings of the Roc is to un-Roc him. What, then, was the Roc? Have we any knowledge of enormous powers of flight in a fossil raptor? We have, in *Harpagornis moorei*‡, lately discovered in New Zealand; and it is not impossible that some other gigantic raptor may turn up in Madagascar, which, with plenty of exaggeration, may be the origin of the Roc. Such should be looked for; but, in any case, *Æpyornis* was not the Roc.

The fine illustrations of the bones of *Æpyornis* with which M. Milne-Edwards and M. Grandidier have accompanied their article are most valuable.

* M. Milne-Edwards and M. Grandidier mention one specimen, on the authority of M. Sganzin, the greater axis of which was pierced by a stick in order that it might be used to crush rice.

† Col. Yule has figured one of the eggs of *Æ. maximus*, now in the British Museum. This illustration does not appear in his second edition. The artist seems to have made the specimen too pointed.

‡ *Cf.* papers by Prof. Owen; also Dr. Julius Haast's article on the extinct genus *Harpagornis*, Trans. New-Zeal. Inst. vol. vi. p. 62.

DINORNIS.

Among the most interesting relics of these enormous inhabitants of New Zealand, the Moa-stones may be ranked. I have figured six (Plate CXIII. no 1), of the actual size, selected from a lot of fifty belonging to the same bird (*i. e.* found in one heap) and kindly sent to me from New Zealand, in the 'True Briton' ship, direct, by Dr. Haast, received October 20, 1874. Some of these are very pretty, and could be set into a pin.

I have other Moa-stones of larger dimensions, but not belonging to this lot.

Plate CXIII. no. 2, represents similar stones taken out of a King Penguin (*Aptenodytes pennanti*) from the Falkland Islands, and brought to Plymouth in 1867, being the second living bird ever seen in England.

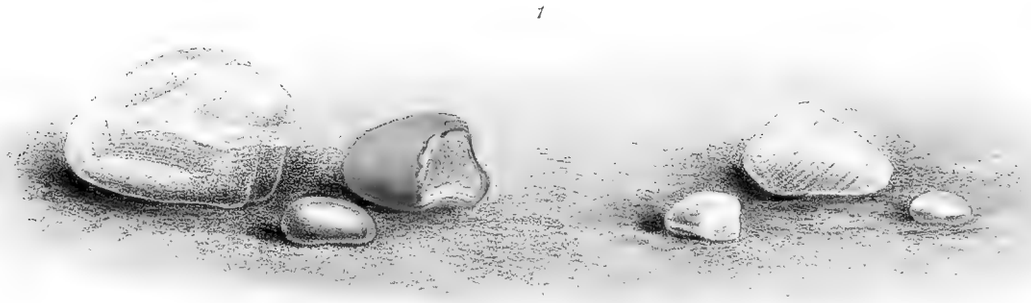
These stones were mixed with beaks of cuttlefish, and were presented to me by Mr. F. Bond (*cf.* 'Land and Water,' October 25, 1873; also 'Zoologist,' December 1868, p. 1483, and February 1874, p. 3883).

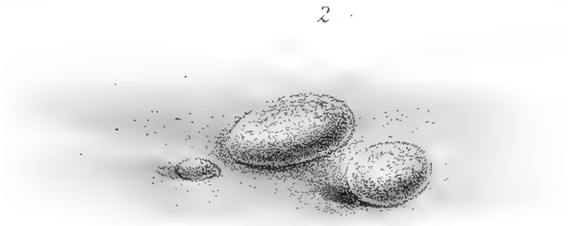
The transparent nature of the Moa-pebbles and the opaque* character of the Penguin-stones are well given, and show the different localities in which the two birds lived.

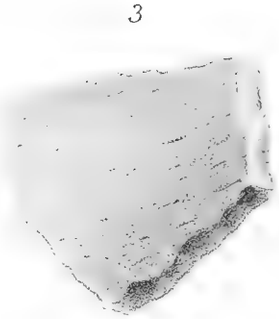
* Curiously enough, as I write this article, I observe the following in 'The Field,' March 9th, 1878:—

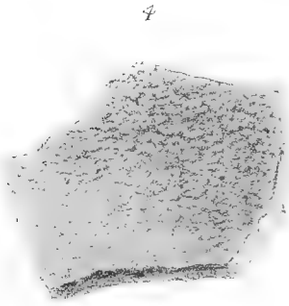
At the meeting of the Zoological Society on Tuesday, March 5, "Professor Newton drew attention to the statement of Leguat that every Solitaire (*Pezophaps solitaria*) contained a large single stone in its gizzard, and exhibited one of three stones found by Mr. Caldwell associated with the remains of as many birds of that species in the caves of Rodriguez. Each of these stones was found under the breast-bone of the skeleton of this extinct animal. The largest specimen was about 2½ inches in length by 2 inches in breadth. All were alike composed of basaltic lava, which does not occur in the immediate neighbourhood of the caves in which the remains of the Solitaire are found."

The fact that the stone was single is worthy of remark, and means something.









J. Smit lith. Hanhart imp

1. GIZZARD STONES OF THE MOA.
2. Do. Do. OF KING PENGUIN APTENODYTES PENNANTII.
3. FRAGMENT OF THE EGG OF ÆPYORNIS MAXIMUS
4. Do. Do. ÆPYORNIS GRANDIDIERI.

SHOWING THE DIFFERENCE OF GRANULATION & THICKNESS IN EACH SPECIES.

I have examined and made collections of similar stones from various birds, such as Wood-Grouse (*Tetrao urogallus*), Norway Blackcock, Ptarmigan, tame Goose, &c. ; but no particular results present themselves.

The general function of these stones, and their use in the gizzard of the possessor, may be understood by reference to the article by Mr. A. H. Garrod, Prosector to the Zoological Society (P. Z. S. 1872, p. 525, with two figures). He gives an explanation of the action of the gizzard, "as a simple crushing-organ" which produces "a most powerful compression of the contents."

The Prosector speaks twice of "sharp-pointed stones;" I may, however, remark that though doubtless some may be sharp-pointed when swallowed, they quickly become rounded, and that I never took one otherwise than smooth out of the gizzard of a bird. In this condition it appears to me best adapted for the crushing process which is well described by the Prosector, and increasing the triturating-power.

It is not my purpose to enter into the history of the Moa. Those who wish to go into the subject will doubtless read the valuable series of memoirs on the various species by Professor Owen, in the 'Transactions' of the Zoological Society, and also the articles by Dr. Haast and Dr. Hector in the New-Zealand 'Transactions,' to which may be added Mr. W. T. L. Travers's paper on its extinction, in the same work

There is, however, one point I would mention. Hitherto the abortion of the wings of *Dinornis*, *Apteryx*, and other New-Zealand birds has been attributed to the circumstance of the non-existence of any destructive mammal or great raptor in those islands. Hence, it has been said, a luxurious ease was engendered, and there was no necessity for flight.

But how is this to be reconciled with the discovery of *Harpagornis*

*moorei**? What a nice feast would an *Apteryx* be to this bird! When once we embark in the region of speculation, we find ourselves in danger. Dr. Rudolf Virchow has well said, with reference to such a thing:—"Do not take this for an established truth; be prepared to find that it is otherwise; only for the moment we are of opinion that it may possibly be so" †.

Certainly, "for the moment," I am of opinion that destructive agency is a factor no longer to be regarded as having been absent from the area of the Moa—provided always, however, that the *Apteryx* and *Harpagornis* were *contemporaneous*, as would appear.

Respecting the debated question of the antiquity of the *Dinornis*, after careful perusal of such evidence as we have, I am convinced that the bird belonged to very ancient days, but that favourable circumstances prolonged its existence to a quite recent period. We shall probably never know its true history, any more than we shall learn the wonders of Mr. Sclater's sunk continent Lemuria: the former is obliterated by the waves of time, the latter by those of the Pacific Ocean.

The thin shell of the egg of the Moa, resembling that of the *Apteryx*, must strike the oologist who is familiar with the fragments of the species of *Æpyornis*; nevertheless the bifid character of the feather of the Moa (N.Z. Trans. vol. iv. pl. 7) is very diverse from that of the *Apteryx* (*cf.* Ornith. Misc. vol. i. p. 24, plate vi.), whilst it resembles that of the Emu.

* For an account of this species, read Dr. Julius Haast's interesting article, Trans. N.Z. Inst. vol. vi. 1873, p. 63.

† "Die Freiheit der Wissenschaft im modernen Staat" ("The Freedom of Science in the Modern State"), 'Times,' January 29, 1878.

Before leaving these gigantic eggs, it may be well to remind my readers of the Russian *Struthiolithus chersonensis,* whose egg far exceeds that of the Ostrich, without, however, rivalling, except in the most distant degree, that of the *Æpyornis* (*cf.* Ibis, 1874, 3rd ser. vol. iv. p. 4).

I have in vain tried to trace this unique specimen, with a view to make it available to science, but without success. The granulation, as described in the above article, appears to me peculiar and to need further investigation.

It is always desirable to know what has become of type specimens, so that they may be available for future reference. I therefore mention that I have in my collection the bones of *Dinornis maximus,* figured by Professor Owen in the 'Transactions of the Zoological Society,' vol. vi. plates lxxxix. & xc., being a femur, metatarsus, and tibia, concerning which he says (p. 497):—"In March 1867 I was favoured by Major J. Michael, of the Madras Staff Corps, with the opportunity of inspecting . . . . " [the above], "which had been discovered, in August 1865, on the Glenmark estate of 'Kermode & Co.,' about 45 miles from Christ Church, Canterbury Settlement, Middle Island, New Zealand," about four feet below the surface, in a bog, in such juxtaposition as to lead to the inference that these were the bones of the same leg (the left). I purchased these of Major Michael's agent for £25. They were supposed to be the largest ever found; I do not know if others of greater dimensions have since come to light.

In my possession are many other bones of different species of Moa; but they have no historic interest.

It remains only to say a few words on the Plates of the two eggs of the

Moa. The one of *D. ingens* (Plate CXIV.) is the unique specimen, now in my collection, which I purchased for £100. The other lithograph, of *Dinornis crassus* (Plate CXV.), has been kindly presented to me by Professor Owen, for the purpose of this article. Both are of the actual size. These will be published in the quarto work, in two volumes, by the Professor, 'Memoirs on the Wingless Birds of New Zealand'*.

My own egg has a hole on the underside, made by the pickaxe of the finder, which does not much injure its appearance. The following account was in the 'Times,' October 17, 1865:—

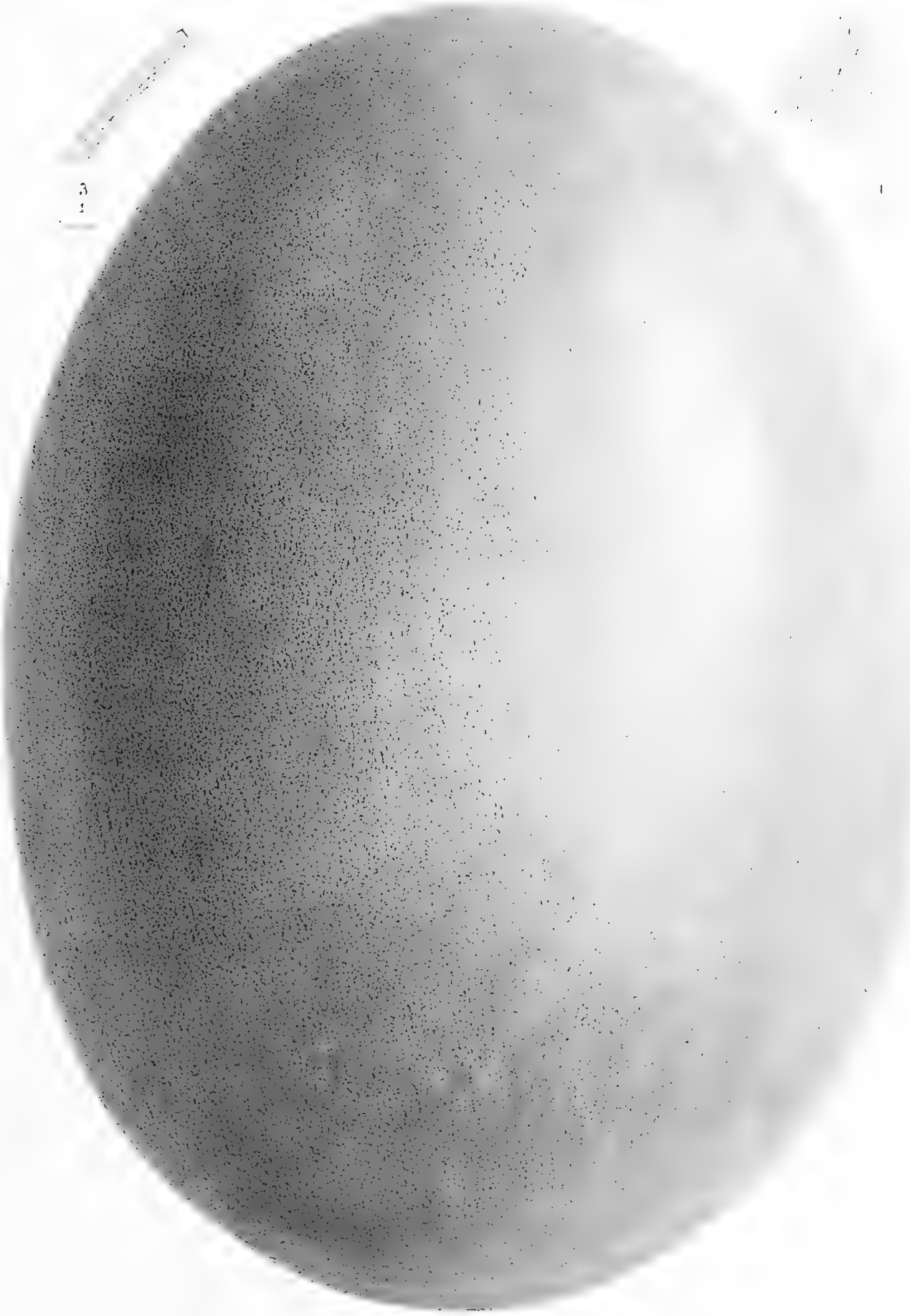
"*Curious Ornithological Relic.*

"Mr. G. D. Lockhart's ship 'Ravenscraig,' Captain D. B. Inglis, of London, just arrived from New Zealand, reports having brought home a curious relic of the ancient ornithology of those islands, in the form of an egg of the Moa, or *Dinornis*, of New Zealand.

"The egg is alleged to have been discovered under somewhat singular circumstances. While some labourers were marking out a site to build upon, in the Wairakie district, a pick struck upon a cave. On opening it, it was found to contain the skeleton of a Maori, in a crouching position, holding with both hands the egg, and in such a manner as if death came upon the unfortunate native while in the act of partaking of the contents of the egg.

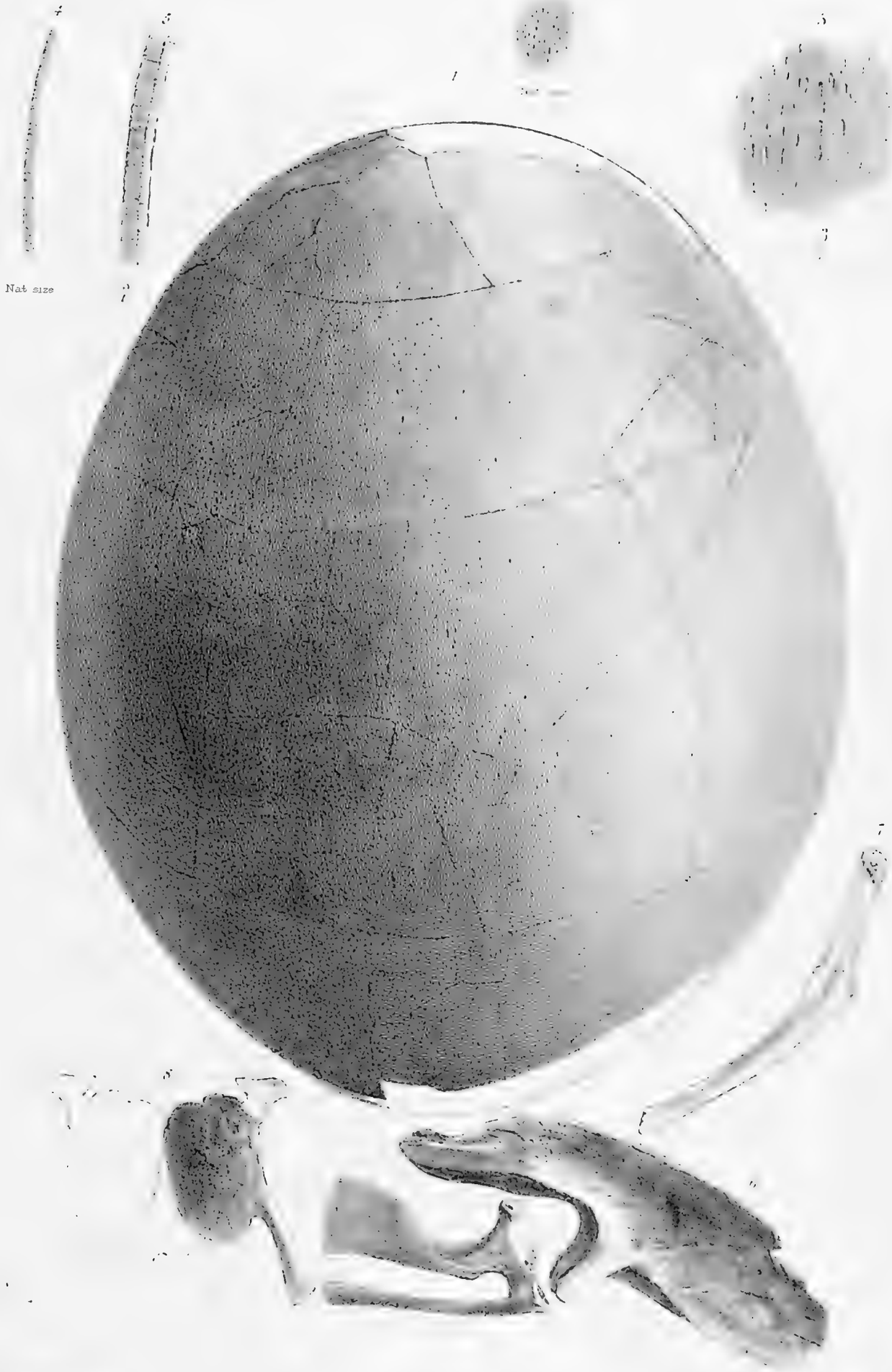
"Although the shell is slightly broken, the gigantic proportions of the egg yet remain perfect. It measures about 9 inches in length and 7 inches in diameter.

* 'Memoirs on the Wingless Birds of New Zealand,' 2 vols., 4to, with 124 plates (4to and folio) and numerous woodcuts, published by J. Erxleben, 2 Henrietta Street, Brunswick Square, London.



From nat on stone by J.Erxleben.

GG OF DINO


Nat size

"The 'Ravenscraig' left Wellington June 21, Pernambuco August 25, and arrived in the Downs on Saturday. On July 3 she was struck by a tremendous sea, which swept her deck, doing a great deal of damage. On July 14, in 153° S., 113° W., James Faddie, the second officer, fell overboard and was drowned, while the ship was running in a heavy gale.—*Reuter's Express.*"

This specimen was put up to auction at Stevens's rooms, Covent Garden, on November 24, 1865, where I bid 100 guineas. It was, however, at that time bought in for £200.

A description was issued by the vendors, which is as follows:—

"The following account of the singular discovery of this egg was published in the Wellington papers:—

"'*Discovery of a Moa's Egg at the Kai Koras.*

"'There is at the present time being exhibited at Messrs. Bethune and Hunter's stores, for the benefit of the curious, an object of no less interest than the egg of a Moa, another relic of the *rara avis* of New Zealand. The egg is of itself an object of no common interest to ordinary people; but it must be still more so to those who watch narrowly the development of natural history in its relations to this colony; and the circumstances connected with the finding are calculated to lend a still greater, not to say romantic, interest to it.

"'It appears from what we learn from Captain Davidson, of the schooner 'Ruby,' which trades between this port and the Kai Koras, that a man in Mr. Fyffe's employment at the latter place was digging the foundation of a house, and when on the side of a small mound he suddenly came upon the egg in question and the skeleton of a man, supposed of course to be a

Maori. The body had evidently been buried in a sitting posture; and the egg must have been placed in the hands, as when found the arms were extended in such a manner as to bring it immediately opposite the mouth of the deceased. This, it is assumed, was in accordance with the Maori custom, and was done for the purpose of giving the individual who was buried an opportunity of sustaining himself if he thought proper, or if in the course of things he required sustenance.

"'Between the legs of the skeleton were found numerous tools, cut from greenstone, including a spear, axe, and several implements, which would lead to the belief that the man to whom the bones belonged must have been, in some way or other, connected with the wood trade—that is to say, if carpenters, cabinetmakers, &c. flourished in his time.

"'All the bones were in excellent preservation, one arm and hand being entirely without blemish. The skull bore evidence of its proprietor having, at some time or the other, received some hard knocks, probably in the battle-field, while taking his part in some of those terrific encounters which are supposed to have taken place in ancient times.

"'Unfortunately, before the man who was digging discovered the natural treasure, the implement he was using came in contact with the shell and broke a small piece out of the side of it; but the fragments have been carefully preserved, and might readily be fitted into the aperture. The egg itself is about 10 inches in length and 7 inches in breadth, the shell being of a dirty-brownish colour and rather better than the thickness of a shilling coin. The inside is perfectly clear, and free from all traces of decayed matter.

"'From what Captain Davidson tells us, we should suppose that the ground where this relic was discovered must have been used as a cemetery at some distant period of the past, as Mr. Fyffe had previously found some interesting Maori emblems about the same place; but none of the natives about there (and some of them, we are informed, have arrived at very mature ages) have the slightest recollection of ever having heard, as a

matter of history, that any of their ancestors had found a final resting-place in that particular locality.' "

I was informed, in a letter from New Zealand written by the owners to me, that they had insured the specimen for £2000. It took about three years to conclude the purchase. I have given the above accounts, but by no means wish to add my authority to them, because things published in newspapers are frequently mistakes, and these statements have not been investigated.

SCELOGLAUX ALBIFACIES.

(White-faced Owl.)

By Mr. G. D. ROWLEY.

(Plate VIII.)

(Continued from vol. i. p. 36.)

The two birds whose portraits (taken by Mr. Keulemans at once on the stone, in my house here) appear in Plate VIII. are still alive, and each spring lay eggs, on which they sit; but as these have never proved fertile, I may with some confidence now name their sex as female in each case. I was unfortunately unable to do this at the time; and, as far as I know, no specimen of this rare species, with the sex given, has ever been figured. They seem very healthy, and likely to continue so, but have not been heard to utter a sound. This is perhaps quite as well, the noise being described as peculiarly disagreeable. After a time they usually destroy the eggs; and I let them do as they please.

The air of Brighton appears to agree with our birds; for they live to great ages in my aviaries.

CONCLUSION.

By Mr. G. D. ROWLEY.

"And now this pale swan in her watery nest,
Begins the sad dirge of her certain ending."—*Lucrece.*
Harting's *Ornithology of Shakespeare,* p. 201.

Birds have played a conspicuous part in the history of mankind. If we look at classical times we see the twelve Vultures of Mount Palatine, the solemn flap of whose wings before the vision of Romulus decided the fate of the Roman world; later again, we notice the Goose which saved the capitol. If we turn to Holy Writ, we read of the solitary Thrush of the Psalmist, and the two Sparrows of Christ's illustration.

In modern times, and in the pages of this work, we have seen the three Protestant Quails of Steenwick, the loyal Larks of the siege of Exeter, Sir David Lindsay's Parrot (that precursor of the Reformation), the Robin of the coffin of Queen Mary II., the lost Parrot of King Charles's daughter, and the faithful companion of the Duchess of Richmond*, whose resting-

* Another historic bird was that belonging to the unhappy Jane Dudley, Duchess of Northumberland (1555), mother-in-law of Lady Jane Grey. In her will she bequeathed to the Duchess of Alva, Lady-in-waiting to Queen Mary, her "green Parrot, having nothing else worthy of her" ('Walks in London,' by A. J. C. Hare, vol. ii. p. 439).

place is Westminster Abbey—reminding us of the consort of King Athelstan, who, in an ancient sculpture in the church of Milton Abbas, Dorsetshire, appears with her Falcon on her Royal fist (*cf.* Pennant's 'Arctic Zoology,' vol. i. p. 239). We have also noticed the Crows of Cressy; and I may mention that "Passer solitarius," as she was called by Cecil, the last of the Tudors, Elizabeth.

In Part V. (p. 105) there is an illustration of Mother Carey and her chickens. This may appear somewhat childish; but it represents not her so much as the superstitious belief connected with the Petrel, which has influenced more or less the minds of men.

"Outflying the blast and the driving rain,
The Petrel telleth her tale—in vain;
For the mariner curseth the warning bird,
Who bringeth him news of the storm unheard.

"Ah! thus does the prophet of good or ill
Meet hate from the creatures he serveth still;
Yet he ne'er falters: so, Petrel, spring
Once more o'er the waves on thy stormy wing."

BARRY CORNWALL.

In the pages of the 'Ornithological Miscellany' I have humbly endeavoured to notice not only birds but bird-lore, and the bearing the feathered race has had upon our lives and fortunes.

Thus the Jewish archer Mosōllam, taking his life in his hand, shot the bird from which the soothsayers were drawing their auguries. Yet he aimed not at it; for religious superiority, with some skill, caused the bold bowman to pierce with his arrow erroneous belief, and level it into the dust. Dean Stanley alludes to this, 'History of the Jewish Church,' p. 245.

When in former days a man felt embarrassed, he did not put his hands

in his pockets, as in a London ball-room, but he turned to his Falcon. Thus did the Earl of Angus, when pressed by Mary of Lorraine to give up a castle, and Henry IV. when urged to sacrifice the life of Richard II.

I must repeat the latter story, though well known; for Froissart is so quaint that one never tires of him when he lifts the curtain of those chivalrous days, and discloses a scene so different from our own.

"The King's Council speaks: 'Sire, so long as Richard of Bordeaux lives, the country will never have peace.' 'I believe what you say may be true,' replied the King; 'but with regard to me, I will never put him to death. I have given him my word that no bodily harm shall befall him; and I will keep my promise until it shall appear that he enters into any plots against me.' 'Sire,' answered the knights, 'his death will be more to your advantage than his life: for so long as the French know he is alive, they will exert themselves to make war against you, in the hope of replacing him on the throne, on account of his having married the daughter of their king.' The King of England made no reply, but leaving them in conversation went to his falconers, and placing a falcon on his wrist forgot all in feeding him" ["appeared to forget" would be nearer the truth].

Again, a man thinks little when he knocks over a Pheasant at the warm corner, and does not condescend to pick it up. This is the abundance of A.D. 1877; but A.D. 1454 tells another story, and a somewhat different scene rises before our vision when Philip the Good ("*Good* at need," we must presume, like Sir William of Deloraine) gave the celebrated banquet called the "Fête du Faisan," and in a way which would make a modern keeper laugh (though it might be rather dangerous to laugh then). A Pheasant was brought into the hall by the King-at-arms, having around its neck "a collar of gold richly garnished with pearls and other gems" (Kirk's 'History of Charles the Bold,' vol. i. p. 88). To witness this very simple incident all

the chivalry, the valour, and beauty of Burgundy had assembled—a court without equal at that time for its riches.

Turning from feasts and revelry to scenes of Irish misery and blood, we find James Anthony Froude (in his 'History of England,' vol. v. p. 223), after describing how the English burnt the cottages and killed the inhabitants of Kerry, with Ormond to aid, says :—"Here Sir Nicholas White, Fulke Greville, and Capt. Bingham climbed a crag to fetch an Eagle from its nest;" in short, they went out bird's-nesting.

Was it not Sparrow-catching which made the fortune of the House of Luynes of Dampierre, in France at least? for Felix M. Whitehurst (in 'Court of Napoleon III.,' vol. ii. p. 137) says that though previously, in Italy, the family was of the "*casa illustrissima* of the Alberti," yet "Albert, Duc de Luynes, obtained his nomination as page to Louis XIII. because he was very cunning in the art of training Shrikes to catch Sparrows." His subsequent history we know.

When the people of Paris taught their Parrots to scream all day the scurrilous refrain "Perette et Peronne" in the ears of that ablest of the Valois, Louis XI., after his narrow escape from the grasp of Charles the Bold (which, considering the knack that crafty king had of shutting up men in cages, instead of birds, was, to say the least, a risky proceeding), they turned their pets into politicians.

One might run on to great length in this way; it is not, however, necessary to exalt the influence which the feathered race has had upon us in the eyes of the members of the British Ornithologists' Union, for whom this work has been published—a work which claims no editorial merit, unless it

is the endeavour to be accurate, concerning which I cannot quote a finer saying than that of the late Mrs. Bury Palliser, an authoress of no mean merit—"It is better to raise doubt than to sow error."

I must now conclude by expressing my best thanks to the Subscribers and readers of the 'Ornithological Miscellany,' to its very able Contributors, and to all those skilled persons whose professional labours have aided me in my course. The work comes to an end in consequence of ill health; and I confess to a pang of regret as I write this last word.

GEORGE DAWSON ROWLEY.

Chichester House, Brighton,
March 7th, 1878.

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