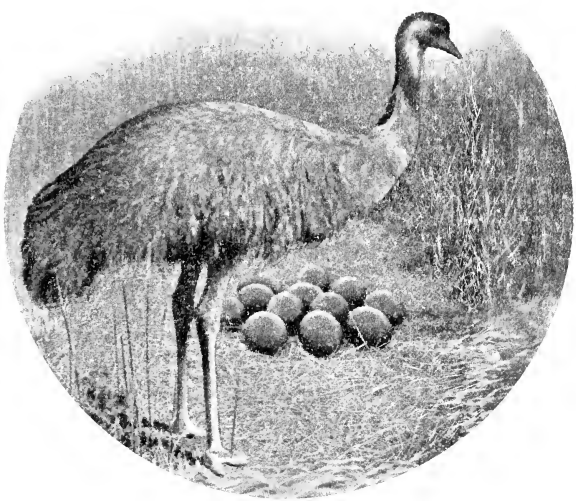
The Emu

A Quarterly Magazine to popularize the Study and Protection of Native Birds.

Official Organ of the ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION.



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EDITORIAL NOTE.

In issuing the first number of the second decade of *The Emu*, the editors congratulate the members of the Royal Australasian Ornithologists' Union on the position that body has attained and the good work it has done.

It began with 21 members. Now, not only does its membership include leading ornithologists all over the civilized world, but it has established itself so thoroughly as to make its influence so felt in all the Australasian States that in each its members are working earnestly towards "the study and protection of native birds."

But what has been done is only part of what should be done. Not only is closer investigation and observation of the life-history of our avifauna needed, but there are physiological—even psychological—problems connected with it that have hardly been touched.

Many members have to be thanked for what they have done towards making the Union and *The Emu* what they are, and many are capable of taking us another step forward. Is it unfair to ask for their further aid?

For the new decade members will notice certain alterations in type, which give the journal a more artistic dressing, notably the introduction of the antique or Clarendon style for bird-names and sub-headings.

Regarding ornithological nomenclature, this perplexing subject is still unsettled, but evidently approaching finality, thanks

chiefly to the aid of the Old World researchers, while the Union has its own Australian "Check-list" Committee at work. Mr. Gregory M. Mathews' "Hand-list" (Suppl., *Emu*, vol. vii.) is, perhaps, a good step on the road to finality; but, as the author himself is finding it necessary to make many amendments, it would be more convenient (for editorial purposes, at all events, because two or more names for the same species cannot be used in the one journal) were the Australasian Science Association's List (1898) followed by members and contributors, as in the last decade, until the Union's "Check-list" has been completed and approved.

PLATE I.

Scene in Heavy Bush.
Maunga-Haunia, North Island, New Zealand.

FROM A PHOTO. BY J. C. M'LEAN

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

VOL. XI.] 1ST JULY, 1911. [PART 1.

Bush-Birds of New Zealand.

BY J. C. M'LEAN, M.B.O.U., GISBORNE, N.Z.

PART I.

INTRODUCTION.

As must be well known to readers of *The Emu*, the bush of New Zealand, as far as the number of its species of birds is concerned, cannot possibly compare with that of Australia; still, what few birds exist are interesting from many standpoints. There were only about twenty species of strictly arboreal habits to be found in the North Island, and, although once common, many of them are now rare—one or two possibly extinct.

Some years ago (1892), when the second edition of the late Sir Walter Buller's "History of the Birds of New Zealand" had appeared, attention was drawn in a short article in *The Ibis* to the fact that two of the species * mentioned in that work as almost extinct were at that time not uncommon in one part of the North Island. Since then the writer has had many opportunities of making the acquaintance of our rarer birds; and an article was lately published in *The Ibis* based upon some notes made in the winter and spring of 1906.† Further notes have since been gathered in the same locality; and, with a view of showing the position, at this day, of the bush-birds of this part of New Zealand, the present article has been written. The impression has obtained among ornithologists that our bush-birds are *in extremis*; but this, I think, is hardly borne out by the facts, and, as I wish to show, many, although retreating before the advance of axe and forest fire, are still to be met with, in some numbers, in much of our higher bush country.

Maunga-Haumia,‡ upon whose north-eastern and southern spurs these notes were gathered, is, with its white southern face—caused

* *Miro australis* and *Clitonyx albicapilla*.

† *Ibis* (1907), p. 519, "Field Notes on Some of the Bush-Birds of New Zealand," by J. C. M'Lean, M.B.O.U.; with an Appendix on the Species of the Genus *Pseudogerygone*, by W. R. Ogilvie-Grant.

‡ Maunga-Haumia. *Maunga* means a hill. *Haumia-tiki-tiki* was, in native lore, a deity or lord of the fern root, as also of all growing vegetable food. Hence, perhaps, the Maori, observing this prominent feature, called it "The Mountain of Haumia."

by a land-slip some thirty odd years ago—a well-known landmark of the East Coast district. The range, rising to a height of 3,979 feet, is situated some 40 to 50 miles N.N.W. of Poverty Bay, and in the centre of that large extension of the North Island of New Zealand which ends in East Cape. Its bush could, until the past year or so, be included in possibly the largest area of untouched forest remaining to the Dominion. It still has some slight connection with that to the north and west, but probably not for long. Year by year large blocks are being felled and burnt upon its slopes and spurs, and with the destruction of the bush most of its bird-life—in fact, all its life—must disappear.

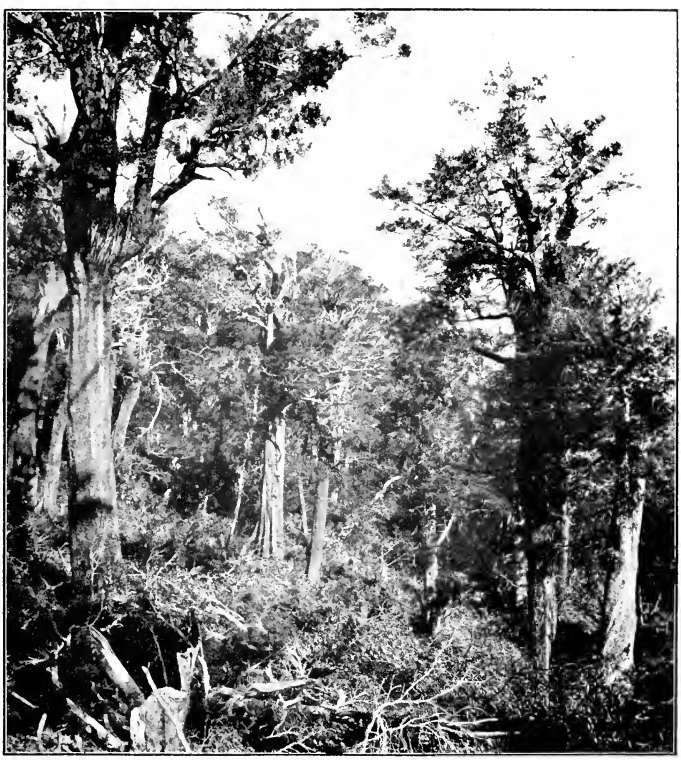
The writer spent the winter of 1906 on the north-eastern spurs, amid what was then virgin bush, and in the daily walks entailed in supervising the felling of part of some 3,000 acres had excellent opportunities of observing its birds. Another 2,000 acres were felled in the same locality during the winter of 1907, when the writer was superintending a block of 1,000 acres on the southern spurs—this latter in somewhat higher country, running up to about 3,500 feet. Above this the country is too poor and rough to warrant further operations for the present, and it is to be hoped will remain for many years a sanctuary for some of those rarer birds I had the pleasure of meeting there.

In 1906 the first camp was pitched—on 19th April—right on top of the birch ridge, at an elevation of about 3,000 feet. On top of this ridge the bush consisted of magnificent birch (*Notofagus fuscus*)—in reality a beech—with many other species of trees and shrubs interspersed, chief among which was the spreading tawari (*Ixerba brexioides*), forming more than half the vegetation, and whose seeds afforded much food, during early winter, for Parrakeets and Parrots. With the exception of a tall, tussocky grass, there was but little undergrowth among the birch; but down the sides of the ridge scrub became more plentiful wherever the bush changed to a more mixed class of tawa (*Beilschmiedia tawa*)—the fruit of which is the favourite autumn food of the Pigeon—hinau, miro, and other trees, and was thicker in the gullies, which, with moss-festooned white-wood (*Melicytus ramiflorus*), made a happy hunting-ground for our smallest bird, the Rifleman.

To the south-west, between this ridge and the main range, lay an undulating valley, of poorer soil, where much more open-bottomed bush prevailed, consisting of tawhera (*Weinmannia silvicola*) and manuka (*Leptospermum ericoides*), about 40 to 50 feet high, with hardly any undergrowth, but showing here and there patches of a peculiar grass-tree (*Dracophyllum urvilleanum*)—nei-nei of the Maories—averaging about 8 feet in height, and which grew so thickly as to almost exclude other species. This valley, intersected by the Mangamaia * and its numerous branches, was much frequented by the Whitehead, Bell-Bird, and Blue-wattled Crow; and here—more particularly in the nei-nei and

* "Resting-place," as applied to a grave.

PLATE II.



Typical Birch Forest.
Home of the Kaka (*Nestor meridionalis*), also of other Bush Species—*Cyanorhamphus, Clitonyx,* &c.

FROM A PHOTO. BY J. C. M'LEAN.

adjoining open-bottomed tawhera and manuka—I found that charming songster the Wood-Robin (*Miro australis*) at home, and in some numbers. This — the tawhera country I shall designate it—varied from about 1,500 to 2,300 feet in elevation above sea level.

Adjacent to, but to the west of this again, I spent the early spring (till 14th October), amid the heavy mixed tawa, with rimu and white-wood and a tangled undergrowth of supplejack and lawyer-vines, which clothed the spurs that led to Maunga-Haumia's highest part. Here the Pigeon and the Tui were more plentiful than in the other parts. The lower portions of these spurs, totalling 2,000 acres, were felled the following year (1907), but, as stated above, the higher parts have been left undisturbed.

The winter of 1907 (27th March to 27th October) was spent some 4 to 6 miles to the south of my spring camp of the previous year, upon the southern spurs, where mixed bush prevailed, with perhaps more rimu (*Dacrydium cupressinum*) and more white-wood. There was, generally speaking, more undergrowth, but no extensive birch forest as in 1906. Still, the very tops of the highest ridges had a fair sprinkling of these trees, and the tawari was common with them. The altitude ran from about 1,600 to 3,500 feet—the highest part of the felling.

In 1906 I was right in the virgin bush, and hardly ever saw the clearings; but in 1907 I daily saw something of cleared country of various ages, and so learnt something of what was going on in the way of the advancement of civilization and its attendant consequences. To the west of the felling of 1907 on the southern spurs still stretches a very extensive forest, which, however, will come down before many years are past. To the east lay last year's felling, burnt and sown and feeding sheep. Next this again was what was once similar forest—thousands of acres—now in grass from four to seven years old—a network, in parts, of half-burnt, rotting trunks, with patches of what is called "second growth"—a scrubby mass of shoots from stumps and seeds where the fire has not been quite hot enough to kill all life. As a rule, after a good hot fire there will be little of this; but sometimes considerable patches spring up, principally in damp gullies, and have, of course, to be felled after a few years. These patches, if within a mile or two of the main bush, are much frequented by the Pied Tit, Bell-Bird, and Tui, who, in spring especially, find much food suited to their tastes. This southern bush was in one sense more open than that of 1906, as a long, narrow valley leading into it from the cleared country had been grassed by wild cattle after the bush had been torn out and buried by the onrush of the large slip mentioned above, which, after starting off the left face of the distant hill, tore down the valley for at least 2 miles. At the spot shown in illustration (Plate III.), it is estimated the original gully has been filled up to a depth of 30 feet or more; and, as the valley is of fair width now, it can be imagined what an enormous amount of *debris* came

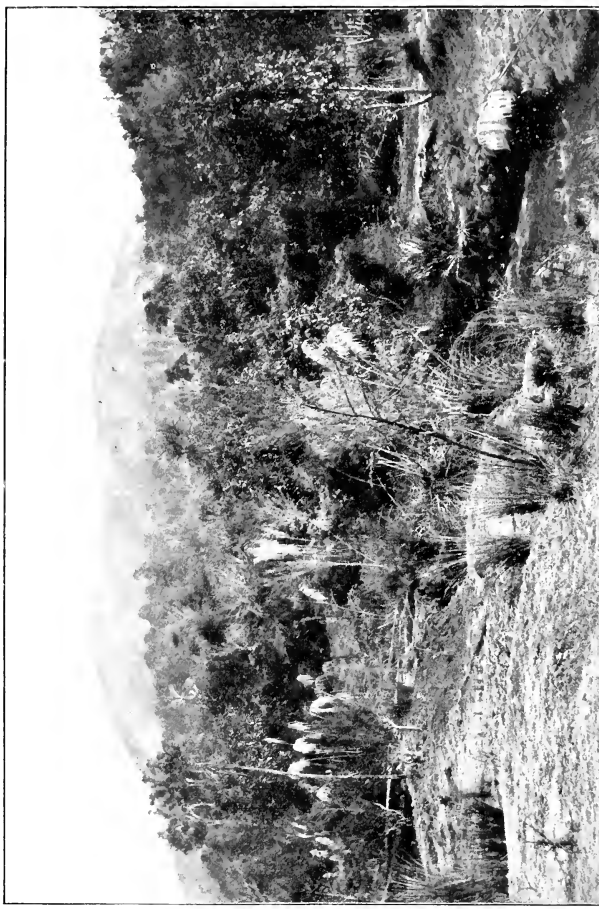
down and was deposited along this length. Near the base of this valley, half a mile beyond the spot mentioned, the great rimus and ratas have been removed for a distance of 100 feet up each side of the gully, and birches from near the high top now lie a couple of miles down the creek. The growth in the foreground is therefore recent, and the main heavy bush can be seen beyond. Maunga-Haumia's highest part lies about a mile directly behind the distant hill, which is 3,500 feet high.

It was this open valley which gave the writer the opportunity of seeing so much more of the bold little Bush-Hawk and its work than could possibly have been observed in the depth of heavy bush. Below the bare rocky face exposed by the slip was also open and in grass, but as one descended the slopes became sprinkled with short koromiko (*Veronica salicifolia*) and an odd puka (*Griselinea littoralis* ?), or "broad-leaf"; but further down the vegetation increased in size and variety until at last it became the most difficult scrubby bush that I have ever tried to force my way through. This scrub of rangiora (*Brachyglottis rangiora*), puka, koromiko, coprosma, and wineberry (*Aristotelia racemosa*), about 10 or 12 feet in length, was all bent horizontally by the winter snows, and so interlaced and held together by lawyers (*Rubus*) as to be for the most part impenetrable. Still, it was a great place for birds, such as the Whitehead, Pied Tit, Bell-Bird, and Crow. Above the face was a low forest of stunted and twisted birch, puka, white-wood, and fuchsia, with no undergrowth, but a beautiful soft carpet of that handsome sub-alpine fern, *Todea superba*. Mist was rarely absent from this top, and the moss grew in such profusion on the trunks that a 3-inch limb appeared at least 12 inches through. Here the Rifleman was in its element. The summit had been felled many years before to clear the "trig.," and over the prostrate birch and puka grew a dense scrub of 6-foot *Schefflera digitata*—the "five-finger tree"—whose berries, in a slightly lower altitude, were useful, in late winter, to the Pigeon and other birds. With the exception of the Rifleman, no birds were seen about the "trig."

To the south of this hill the bush was heavy, especially near the Urukokomoko stream, tawa, with many miro, rimu, and rata (*Metrosideros robusta*), predominating, while supplejack and lawyer-vines, together with numerous shrubs, made the undergrowth. Except on the tops of the narrow ridges, there was, on this southern side, but little birch, but tawari was fairly plentiful in parts. However, the latter did not fruit in anything like the same profusion that it did in 1906, so that Kakas and Parrakeets did not appear in any numbers. This irregularity in fruiting of New Zealand trees is a great factor in the distribution of certain native birds, and leads to errors of judgment when dealing with the apparent increase or decrease of a species. As was to be expected from the character of this southern bush, the Robin was not met with in 1907.

I was informed by Australian bushmen who were felling here

PLATE III.



Open Valley filled by Slip from face of Ridge (Maunga-Haumia). Recent Scrub, *Aristotelia* (Wine-Berry) and Manuka, with Toi-Toi Grass in foreground. Heavy mixed Tawa bush beyond, the hunting-ground of the Hawk—*Harpa novæ-hollandiæ.*

FROM A PHOTO. BY J. C. M'LEAN

that what we term "heavy bush" in New Zealand would be called "jungle" in Australia, and that our "scrub" would be classed as "brush."

For the information of those who may be interested, I may say that the bush is felled, in sections usually of about 150 acres (but may vary from 100 up to 500), during the winter. The undergrowth of shrubs and vines is first cut, and then all trees under 2 feet 6 inches in diameter (in some cases 3 feet) are felled on this. On the first favourable opportunity after the middle of December the bush is fired, and sown, as soon as possible, with a mixture of turnips, rape, grasses, and clovers. Given a good burn and a fair growing season, it is ready for feeding by the middle or end of May, from which time on to the beginning of September from four to five sheep to the acre are carried, and can then be turned off fat to the freezing works. With the exception of a little "second growth" (which, however, can be checked by cattle), bush country, so far as grazing is concerned, gives little further trouble.

The heaviest snow-storm which could have occurred for very many years visited the locality on 15th July, 1906, smashing the bush considerably and placing a mantle of 3 feet of snow all over this high country. This, I may say, rather spoilt the chance of obtaining good photographs after that date, as the ground was littered with great birch branches and uprooted trees, vines had gone with their supports to Mother Earth, and the beautiful tree-ferns either had their fronds stripped off or so bent down by the weight of the snow as to present a dilapidated appearance, like a half-closed umbrella. Occasionally snow fell lightly in both years, and the rainfall—much above that of the lower country—was very heavy, especially in 1907.

A few birds were procured in 1906 for identification. They were forwarded to the British Museum, and kindly identified by Mr. W. R. Ogilvie-Grant, and in these notes I shall follow the order and nomenclature adopted in the article which subsequently appeared in *The Ibis.* Some species were not molested, and in 1907 I did not kill a bird. Only those native species which were actually observed in this Maunga-Haumia country are here recorded under their separate headings. The bulk of the notes were written at the time of observation, but additional ones are added to help explain the position of the different species in this district.

Carpophaga novæ-zealandiæ—NEW ZEALAND PIGEON.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 229.

These handsome Pigeons were fairly common in the autumn (April) of each year, when feeding on the purple, laurel-like fruit of the tawa, but were never so numerous as I have noted them in previous years elsewhere. Towards the end of April and in early May they also fed upon the miro (*Podocarpus ferruginea*), which at that time was taking the place of the former fruit, and lasted (in 1907) till well into June. In 1906 there was

but little fruit on the miro, which, like many New Zealand trees, only bears to advantage every third or fourth year; and the birds soon became scarce after that year's exceptionally heavy crop of tawa was exhausted, towards the end of May. However, although a poor fruiting season with the tawa, there was a splendid crop of miro in the following year on the southern spurs, and the Pigeons remained much longer with us in that year. In early winter these two trees supply the favourite food of the Pigeon in the heavy bush, and, naturally, the bird was most plentiful wherever these trees were to be found. They became scarcer in July, after which month hardly a bird was to be seen in 1906, but in the following year a good many remained and found a little fruit in that month upon a scanty crop of hinau (*Elæocarpus dentatus*), karamu (*Coprosma grandifolia*), supple-jack-vine (*Ripogonum scandens*), pigeon-wood (*Hedycarya arborea*), and five-finger—the latter lasting into August; but fruit was now scarce, and the greater part of the Pigeons' food, from early July to October, consisted of the leaves of the rope-vine (*Parsonsia capsularis*) and of the wineberry, and odd birds were frequently disturbed from among the branches of the latter tree. They were then too poor and bitter to be worth shooting. Twos and threes were occasionally flushed from the ground in the bush during August and September, and in October were observed on the grass of six-year-old country. What they were feeding on in these situations I cannot say. One was picked up dead on 20th September, 1907, some distance from the standing bush, and its crop contained a mass of leaves of the wineberry and rope-vine, together with shoots and leaves of the kowhai. It was dreadfully poor, and I fancy had died of starvation, as I could, after a thorough examination, detect no signs of violence whatever. Many, however, took advantage of the rape crop next the standing bush, upon the leaves of which they fed until it was eaten off by the sheep at the end of September; and this, no doubt, was one reason for so many remaining here in 1907. Odd birds could be seen on the rape all through the winter, but were far more numerous there in August and September than in the preceding months; and on 10th August, 1907, I have a note of seeing 12 birds, which were then in pairs, about the "burn."

In May of 1906 there were several patches of tawa and miro much favoured by the Pigeons, and which we occasionally visited; but only a few (12 on 2nd May) would be obtained, as, although there would be quite a humming in the tops of these trees as the birds fluttered from branch to branch or were disturbed by the Bush-Hawks, it was very difficult to obtain a sight of a bird, on account of the dense foliage overhead. The Pigeon is very wasteful, and on these occasions the sound of falling fruit was continuous, while the soft "Kuu" of settled birds could be heard all round. Later on, at the end of the month, good shooting was obtained in the mornings, as the birds flew through the clearing on the saddle, where our camp was

pitched, on their way to miro further down the face, and they were then in splendid condition, and made a welcome addition to the bill of fare. Heavy N.W. winds were frequent in this high country, and then the birds were forced to leave the exposed miro tops and seek shelter low down in the smaller trees, where they picked the berries of the supplejack and five-finger, which latter was a common shrub in the damper gullies high up on the southern spurs, and fruited well in 1907.

After the main crop of bush fruits is exhausted in July, the Pigeon usually descends in some numbers to the scrubby-bushed gullies of the lower and more open country, where it feeds upon the young but bitter shoots of the kowhai (*Sophora tetraptera*); then, however, it is past its prime, and, unless obtained when it first appears, is not by any means palatable. Many birds were noticed, singly and in small parties, flying high due north from this bush in each year, evidently making to some other feeding-grounds. This was especially noticeable after the snowfall of 15th July, 1906

The Pigeon is much persecuted by the Bush-Hawk, and stands a poor chance of escape if caught out on the "burn" or open land away from cover. With the Maori the finding of the nest was a bad omen. This probably accounts for the little I could ever glean from the natives with regard to the breeding habits of the Pigeon.

The nesting season varies with the supply of food, and young have been noticed as late as the end of February. Although I have seen a few old nests, I have only once taken the egg. This was on 5th November, 1899, at Waikohu, Poverty Bay, and I transcribe my notes:—"No. 2, '99.—The nest was placed about 18 feet up in a mahoe (white-wood, *Melicytus ramiflora*), and placed upon a couple of branches among several young shoots. It was well sheltered above by the foliage, but quite exposed from below, and so loosely built that the one egg could be seen from the ground. The bird was flushed from the nest as I rode under the tree, and flew off very suddenly. The tree in which the nest was placed was about the same height as the surrounding ones —say, 25 feet—and grew at the bottom edge of a small ngaio and mahoe bush, in open fern country. It was very loosely put together, and composed of crossed ½-inch twigs of mahoe for a foundation, with one or two pieces of manuka tops laid round the cavity. These short manuka twigs were the only ones laid with any system, the ragged ends of all the others projecting out from the nest. It is like a concave disc, and measures 9 inches across the denser part of the nest, but about 18 inches if the straggling ends are averaged. The cavity is 1.5 inches deep, and the nest itself about 5 inches. The one egg was incubated for perhaps five or six days."

There were several patches of scrubby bush about this open country, and several pairs of Pigeons were in the locality, possibly nesting too. Their food, in that place, would consist (at that

time of year) of the fruit of the native fuchsia (*F. excorticata*) and pigeon-wood (*Hedycarya dentata*), soon to be followed by that of the mahoe (or white-wood), in which species of tree the nest in question was situated. Later on again, in January and February, the wineberry of these scattered bushes, with its grape-like clusters of small, purple-staining berries, would help them on to the tawa of the distant bush. Although the Pigeon nests in many of the smaller scrubby bushes in other parts of the district, I do not think they ever bred again in the above locality. In the Maunga-Haumia bush many birds were observed by a survey party during November and December of 1906 nesting in some of the higher and adjacent bush to that which I supervised in that year.

Regarding the Pigeon in other parts of the East Coast district, the bird is by no means so plentiful as it was some 15 or 20 years ago, and, considering the quantity of bush which has been cleared since then, it must naturally be considerably reduced numerically throughout the Dominion; but, owing to its habit of moving from place to place in quest of food, it is difficult to form an opinion as to its numbers at the present day. Old settlers speak of shooting numbers in the early days in the makauri and pipiwhaka bushes of the Poverty Bay flats, where the birds came in hundreds to the white pines (*Podocarpus dacrydioides*) and cabbage-trees (*Cordyline australis*); but these bushes exist now in name only, for the pine has long been milled, and the cabbage-tree has been removed to make way for the plough. Not only on the closely-settled flats, but in many accessible patches of bush in other inland parts, has the white pine been cut out, and so the bird is absent from such localities. Neither does it visit the scattered bushes and kowhai gullies of the open hilly country in anything like the numbers it did 20 years ago. As the tawa is a fairly consistent bearer each year, Pigeons can usually be found in early autumn about that class of bush; but, should the white pine fruit that year in any profusion, the birds, preferring the latter food, desert, to a great extent, the tawa, and assemble in great numbers wherever pine is to be found. I remember a small patch of about 40 acres of white pine bush in open country near Te Karaka, and still in existence, where, some years ago, we shot, in April, on two different days, some 70 Pigeons. The birds were there in scores, but the trees, quite red with berries, were very high indeed. They were the fattest I have ever handled, and tasted of the peculiar though pleasing flavour of the pine. We thought Pigeons were fairly numerous that year. Now, these pines did not again fruit for four years, and in the intervening seasons we considered the birds were becoming less numerous. However, when that patch did bear again, in March and April, quite as many, if not more, birds appeared; but the season did not open till May in that year, and by then both berries and birds were gone. It was about these years that the Pigeon visited the kowhai gullies in the above locality in such numbers

that one gun could easily bag 30 or 40 birds in the day; but it was poor sport shooting the resting birds, and, as mentioned above, they were then hardly fit for the table.

There was hardly any white pine in the Maunga-Haumia bush, but in 1908 there was one of the heaviest crops of that fruit ever known upon the trees of the Te Karaka, Hungaroa, and Mungapoiki districts, where this tree is more plentiful. Pigeons are said to have never been so plentiful in these places for years, and, being an open season, large numbers were killed. In Mr. James Drummond's weekly notes, "In Touch with Nature," it was mentioned how general the fruiting of the pines was in that year, and many observers reported how plentiful Pigeons were in many parts of this island (see *Lyttelton Times*, 25th July, 1908). Hence it will be noticed how much the Pigeon moves from place to place, following, as it were, its food supply. Still, although the bird of the main bush has no fixed place of abode, odd pairs reside in some of the very small patches of bush which have escaped destruction in the open country. Here they remain all the year round, and, if they have the good fortune to escape molestation, nest and rear their young.

It is a pity our Pigeon has not the same degree of wariness associated with its English namesake. It makes no attempt to conceal itself when feeding, and usually presents a conspicuous mark to the man with a gun.

The year 1907 was a close season for the Pigeon; but in the bush the game laws of New Zealand—at least, so far as they refer to birds—are merely a farce, and are but little observed by the Maoris. Still, the latter are not the only law-breakers, for in the bush the Pigeon is shot in and out of season *—close year or not—by many of the residents, and especially by the casual worker in those districts. In fact, to my own knowledge the Pigeon has no peace there, and is shot in every month of the year. In November of 1906 I met a party of scrub-cutters emerging from a bush some way up the coast, in which the birds were nesting, and they were carrying Pigeons home with them to camp! Certainly, some of this illegal shooting is done through ignorance. I can point to an advertisement which appeared in a local paper of May, 1907 (a close season), wanting to "purchase Pheasants, Ducks, and Pigeons in any quantity!" Such an advertisement could only lead to the supposition that the Pigeon was game in that year, and result in the birds being shot by those who knew no better. The *Animals Protection Act* is practically unknown to many, and few have the slightest idea that any New Zealand bird is absolutely protected. I am informed by one of its members that a leading local firm sold about the same number of .22 rifle cartridges in 1907 (the close year) as they dispose of in any other season, and the pea-rifle is the weapon of the bush. This speaks

* The season for shooting is from 1st May to 31st July, but each third season is closed for Pigeons.

for itself. There are always camps about the edge of the bush. Felling starts early: after that is over there is scrub-cutting till the fire: sowing takes place as soon as it is possible to get the seed on to the burnt ground: and then, when that is completed, felling starts afresh. These, with fencers' and splitters' camps, all help in the destruction of the unfortunate Pigeon.*

After all, with so much bush being cleared, and the consequent yearly decreasing food supply, no law of man can save the number of the birds; but let us hope that when the destruction of our forests practically ceases the birds may hold their own.

Harpa novæ-zealandiæ—BUSH- or QUAIL-HAWK.

Buller, "Birds of New Zealand" (2nd edition), p. 213.

Although the Bush-Hawk was not plentiful, a good deal was seen of this spirited little Falcon during my stay. On the northern side it was to be seen chiefly about the tawa bush. There I had not the same facilities for observing it as were presented in the more open and partly cleared country of the southern parts, and, though not more plentiful, much was seen of the bird in pursuit of its prey.

On wet or foggy mornings its shrill cry was occasionally heard from the top of some outstanding dead or dying tree, but when attacking the Harrier a sharp chattering note is sounded. On misty days the Bush-Hawk is more or less on the move; but in fine weather is generally seen on the war-path in early morning—often at daybreak—or towards evening, and has been disturbed while plucking a freshly-killed Pigeon at dusk: but as soon as the sun is well up it retires to the shade of the bush, where it may be found sitting quietly, and allowing a near approach, upon a limb under the dense foliage of a smaller tree. From this position, however, sudden sallies are made through the trees, in the hope of picking off some luckless bird. When thus on mischief bent, the whining cry of the Tuis, and uneasy stir among the Bell-Birds, herald his advent On these occasions the Bell-Birds are very concerned indeed, and glimpses are caught of them as they dash round corners, as it were, into low thickets, without a sound, but with the greatest haste and confusion imaginable. In this way many of the smaller species are taken: As the sun dips, about 3 o'clock, the Bush-Hawk glides quietly out over the bush, and sails silently above the tops with ever-vigilant eye for a bird in an exposed position. A slight divergence in his direct flight indicates when a glimpse of one has been obtained: but on he glides. There is method in his hunting. He does not sail up and down the valley, where all may see and take timely warning. Rather, he tips the tree-tops, following the undulations of the bush, thus suddenly opening up a fresh vista at every turn, and,

* For the credit of the Dominion, it is hoped that this fine endemic Pigeon will be properly protected, so that it may not become extinct like the famous Passenger-Pigeon of America, which less than half a century ago existed in millions.—EDS.

coming fast over a spur or hill-top, shoots down its side to snatch his luckless victim. In his pursuit of the Tui and the Pigeon a more direct mode of attack is employed. On the southern side, where cleared country touched the bush, and especially about the open valley leading up to the slip, one could obtain an almost uninterrupted view of these tactics. The Tuis were intercepted as they flew across the valley from clearing to bush, the Falcon cutting out from his outlook and preventing his victim from darting down to cover in the bush. The chase usually continued for some minutes, until, becoming exhausted, the bird would be struck down. One evening I saw a Tui killed high above the trees. The smashing blow was plainly audible, and the bird at once collapsed and fell screaming to the ground, the Falcon wheeling and coming down for it immediately. On walking over he was found busy tearing at his prey, and, on my advancing, managed to fly off down the hill with it. But as a rule the Bush-Hawk will, if carefully approached, allow one within a few yards when engaged in plucking its prey. In the valley above mentioned two pairs of these Falcons lorded it over their fellow-creatures, and many a Pigeon fell. One showery day a Pigeon was seen, as is their custom on such days, sitting disconsolate, and probably half-asleep, upon the topmost branch of a dead tree, which, being on a spur, stood high above its neighbours. One of the Falcons had seen it too, and, sailing over the valley, shot on and took it in one swift onrush from behind. Patches of Pigeons' feathers were frequently noticed about this valley all through the winter. Most of the killing was done at daylight or late evening, and the birds did so well that they refused to return to any Pigeon they had killed and from which they had been disturbed. One evening I came upon a Bush-Hawk with a Pigeon which was quite warm. The few scattered feathers showed where the bird had fallen on the grass of the open flat, but the Falcon had, as they usually do, dragged the bird to the shelter of a fallen tree some six or eight yards away. He left it on my approach, but sat and watched me from a stump a few yards distant while I examined the spoil. The marks of his talons were deep in the bird's back, but only in one place. The head had been pulled off, and he had started opening up the crop. The Pigeon was left where it lay, but next morning not the Bush-Hawk, but a Harrier, was in possession.

Odd Harriers (*Circus gouldi*) worked the cleared country near the bush, and if one came close enough he was sure to meet with a warm reception. This in winter, not the breeding season. The surprising part was that the Harriers should ever have the nerve to chance a renewal of the acquaintance; but they did, and the same bird has been seen in trouble on consecutive days. As a rule the Bush-Hawk hunts singly, but when escorting their enemy off the premises both Falcons assist. One day a Harrier was seen cruising about the valley near the reserve, and in wide circles was drawing nearer to the Bush-Hawks' domain. Soon the cry

of one of the pair was heard, and on looking up I saw the Falcon, who had left his look-out, a quarter of a mile distant, and was hurrying out to meet the intruder, who, knowing what to expect, had turned tail and was making back down the valley as fast as he could; but the smaller bird soon caught up, and, together with his mate, who shortly after joined in, knocked the Harrier about considerably. These two swung backwards and forwards over the Harrier, mounting high up with rapidly beating wings, and then swooping fast down on the enemy, who turned on his side and endeavoured to avoid each blow. First one and then the other cut in at him in rapid succession. Once he was made to turn a complete somersault, and had barely recovered himself when number two shook him up again. This lasted about five minutes, the Harrier making no fight at all, but, with a definite course set, doing his best to get away from the locality. The smaller of the two Falcons was silent, did not attack so fiercely, and towards the end returned to the bush. The mate, however, which, from its size, was probably the female, continued, and was very demonstrative. As she mounted up after each stroke she called a shrill "Keet-keet-keet"—a note audible at a considerable distance. After clearing off the Harrier she returned with rapidly beating wings to her mate, chattering as she flew, as if still much excited. In the tussle this Harrier lost a primary, and I was much surprised to see him next day in trouble with the same pair of Bush-Hawks, who gave him a still warmer reception, and hunted him much farther down the valley than on the previous day. There I passed him later on, sitting dejectedly on a stump.

In the lower open country the Bush-Hawk is seldom seen, and then only in winter. I have never seen a Falcon about the cultivated plains of the coast. It is thought that only males or young birds leave the high, rough country at this time, for those remarked appeared to be small birds. The immediate cause of the Bush-Hawk's absence from the more settled parts, and its increasing scarcity on the higher, rougher country and in the bush, is, of course, the gun.

Ninox novæ-zealandiæ—NEW ZEALAND OWL.

Buller, "Birds of New Zealand" (2nd edition), p. 192.

The Morepork, though common throughout, was more plentiful on the northern side. On the birch ridge, where there were many hollow trees, it was a nightly visitor to our camps, and on some evenings (more so than on others) was particularly noisy. Usually more in evidence in the earlier part of the night, these Owls did not seem to be influenced in their cries by the season of the year, but in windy weather were less frequently heard. Moonlight or pitch dark, it made no difference. I was unable to ascertain why it was that they could be so much more vociferous on certain nights than on others. It was fancied, though, that the advent of strange Owls among those who generally made a rendezvous about the camp may have had something to do with it.

In early winter mice became a plague about the camps, and were, later, displaced by rats, which, though not so numerous, were a nuisance too, especially on wet nights, when they came inside and left muddy footprints, or scampered overhead between the tent and fly. As these rodents increased about the place, so did the Owls; but we could well afford to put up with the latter's disturbance of the silence, and were pleased when we heard the squeal of a captured rat outside. The surface of this ridge was a network, a foot or more in depth, of spongy roots and rootlets; and in this secure retreat these rodents lived, venturing out at night to prowl about and feed upon whatever scraps they found, and it was upon these animals that the Morepork chiefly preyed. Although odd pieces of meat were deposited at the scrap-heap, I do not think the Owls came for anything else but the rats and mice which fed there. However, on one occasion an Owl was blamed—and I think rightly—for sampling our steak from a hind-quarter hung high in a birch.

Not only in hollow trees does the Morepork pass the day, but also, in the denser parts, under masses of overhanging vines or "kie-kie." They were also noticed in the felled timber, where dark recesses were formed in the gullies by piled-up trunks and branches. There they were secure—until the fire. Usually only single birds were disturbed, but occasionally pairs were met with, and it was noticeable how close they kept to one another. Such have been seen, in day time—of course, in a gloomy part—to follow each other from perch to perch, when I intentionally disturbed them to see if they would separate. On rare occasions, in late afternoon or when the sky is much overcast, the notes of an Owl may be heard for a moment or two; but it is not until the real change to dusk has come that the Owl, preparatory to launching off through the trees, fairly starts his calls. The notes, though a little variable, are unmistakable, and night is usually heralded by the deliberate cry from which the Morepork takes its name. This, with the second syllable slightly accentuated, may be repeated at regular intervals, usually five or six times.

On 26th September, 1906, one was unusually vociferous near the camp. "First he opened with the usual 'More-pork,' and one spell of calling consisted of the word uttered 36 times (about twice in every three seconds), before a short spell of three or four minutes. Then he went on for 42 calls, then flew a short distance and called the gruff note for a minute. Again he called 'More-pork' 41 times, after which I heard him no more." This gruff note is like the first syllable of the usual call rapidly repeated for long stretches at a time. When two or three of these birds are giving a concert over the tent, it can be imagined how weird it sounds. It has been remarked that when called repeatedly for some time these notes, after about six or eight repetitions, are dropped about half a note, and continued thus without variation to the end. Some slight difference in pitch is also noticeable with different birds. Judging by the hooting over our tents, they sometimes

have wordy quarrels; and one moonlight night I went out to see what all the noise could be about. Then two Moreporks were seen in wordy warfare. No blows were struck, but the language of each was quite sufficient, and it ended in one bird, who had been followed from tree to tree, leaving the locality

They were very persistent in their watch for prey, and have been noticed, on one or two occasions, still watching intently about the scrap-heap when we rose at daybreak, and this when the ground was white with frost. Any bird late like these was pretty sure to have to put up with some annoyance from the Whiteheads, who were very quick in finding an Owl in daylight. Normally these Owls can hardly have to put up with so much indignity as was witnessed here: and they were demoralized by the felling of their trees and the frequent mobbings by Whiteheads. The system of felling often resulted in a long, narrow strip of bush remaining from the day's work amid surrounding felled timber. Many Moreporks took up their quarters in such strips; and on the following day, when the strip would be felled right out, they were much in evidence. They only flew a chain or so up the face as each was disturbed, and, as the axes reached the top, as many as six or seven have been seen, as the last trees fell, scattering away into the felled timber below.

Proportionate to the security afforded by the protective and ornamental plantations of the settled parts, the Morepork is common; and it has been known to nest in thick belts of *Pinus insignis*, where the nests were made on the mass of fallen needles lodged in the forks, and sheltered by a dense growth overhead. There they take the eggs and young of the smaller birds, sometimes the bird itself; but here it is not the native that suffers, but chiefly Sparrows, Thrushes, and Blackbirds.

It is to be hoped that the Little Owls (*A. noctura*) which have lately been liberated in the Dominion will remain about the farms and help to keep in check the imported birds. Those who advocated their importation believe that they will do so. In Northern Europe, their native home, they are stated to be birds of the forest in summer, visiting the farms in winter.

Cyanorhamphus auriceps—YELLOW-FRONTED PARRAKEET.

Buller, "Birds of New Zealand" (2nd edition), p. 142.

The Yellow-fronted Parrakeet, in small parties of from 5 to 12 individuals, and often associated with the Whiteheads, was fairly plentiful in this bush. In the autumn and winter they were more numerous about the birch country, where the seed-pods of the tawari afforded abundant food, and where, at from 2,600 to 3,000 feet, they nested and reared their young.

It was expected that the Red-fronted species (*C. novæ-zealandiæ*) would occur in this part, but it was never met with. Many Parrakeets were shot in winter by the natives. These, and others obtained, were all of the present species. This is strange, as the former is the common species of the middle and southern portions of this island. As the Saddleback (*Creadion carunculatus*)

latus) is in the habit of accompanying the flocks of Yellowheads (*Clitonyx ochrocephala*) in the South Island, the winter flocks of the Whitehead here were specially watched, in the hope that *Creadion* might be with them too; but, instead of the Saddleback,* it was found that the Parrakeets were sometimes in attendance, not actually following, but moving with them in the higher trees above, and it was rarely that a large flock was unaccompanied. They appeared much attached to these flocks, and even the shooting of one of their number did not cause them to desert the Whiteheads. Unlike the other birds which sometimes followed the Whiteheads, they seemed to possess something more than cupboard love for their little friends. When any excitement occurred the Parrakeets would remain chattering in the tree-tops, but took no active part in any disturbance, and moved on again when the flock resumed its straggling march. In winter they feed to a great extent upon the tawari, and at other times upon different berries in the scrubby parts. The crop of one obtained in July contained the pulp of tawari seeds, also a few seeds of one of the coprosmas, the berries of which the bird had been eating. This bird was in good condition, while one examined in the following October was quite poor, and had only a few minute seeds in its crop. They were fond of the rimu berries, too, and a few of these tall trees were much frequented by them in March and April of 1907. In a way they are noisy little birds, but the notes are soft and musical, and do not jar upon the ear. A bubbling note I likened to the sound of water, in a thin stream, falling into a partially filled bottle. There are also many little whistled notes. The commonest note heard sounds like "Whui-whuick." At the nest the old birds scold one loudly with a sharper chattering than is usual, but often fly to a neighbouring tree with a peculiar short clap-clap of wings, where they will utter a soft "Whuick" occasionally. This is gradually subdued until only just audible.

The natives called the Parrakeet the "Footballer." On being questioned as to the reason for this, one said, "Oh! he got the jersey—red and green—all right, and sing out 'Free kick' all the time!"

On my arrival in April I found that these birds were nesting, and, although too late for eggs, some of the nesting sites were examined. Many of the smaller-trunked birches (*N. solanderi*) had small holes in them high up where branches had decayed. These holes were utilized by the birds. Sometimes the nest would be situated near the entrance, but its position depended upon where the obstruction in the cavity of these decaying trees occurred to prevent the dry wood and leaves, which formed the nest, from falling further down. These trees, though tall, were

* In a note in *The Emu* (October, 1906) it is mentioned that among other birds observed here was *Creadion carunculatus*. As the single bird seen was not positively identified, and as I never saw another, it is left out of my list, and was not included in that in *The Ibis*.

usually under 3 feet in circumference, and, of course, in the end were felled, the young, as a rule, suffering in the fall. It was noticed that the young in some nests varied much in size, and there can be little doubt that this bird is an intermittent layer. In one case of five young it was estimated that there was a difference of at least 10 days between the ages of the largest and the smallest. The two oldest could, with wings, beak, and feet make fair progress; two others were of medium size, while the youngest was much less feathered. The two big birds were taken by the bushmen to the camp, about a quarter of a mile away. Next morning the parents were about our tents, and would, I feel sure, have fed their two caged offspring; but the male was promptly shot. Much wanton destruction is done with the pea-rifle in the bush—practice, it is called. However, to finish the story of this unfortunate family The three remaining young were killed either in the fall or afterwards—they were dead when I examined them—and the two which were caged succumbed a few days later, while enclosed in a billycan, to a rough ride on a pack-horse.

One nesting site was in a kai-kawaka (*Libocedrus*) amid the tawari trees (Plate IV.); another was in a hinau. *Notofagus solanderi* is, however, the tree most frequently resorted to for nesting in. One nest I knew of was about 40 feet up in one of these smaller birches, which did not measure more than 18 inches in diameter. On 26th April I had discovered this nest through the behaviour of the old birds, and on the same day saw them entering the hole, while, during their absence, two young came out and climbed about the creeper for a while. When, three days later, we went to get the young, they had flown. The entrance, on the north-east side, was at an old branch-knot, 2 inches in diameter. This hole increased inside to a diameter of 3 inches, and led downwards for 9 inches to a cavity about 8 inches high and 5 in diameter, at the bottom of which a handful of dry leaves and decayed wood formed the nest. In the back, as it were, of this chamber was a diamond-shaped opening where a gale had sliced off a limb, leaving the cavity exposed to the rainy quarter. The birds had filled up this opening with moss and leaves, and had taken advantage of the slender rata-vines and ferns which overran the trunk to make this work secure. I judged the birds had done a little enlarging of the nesting chamber. Thus the Parrakeets were late in nesting this year. I believe, from information gathered, that young are sometimes obtained late in the season. Of course, I cannot say whether this, in 1906, was general in the locality or whether the bulk of the birds in this bush had nested so. Still, five nests were examined by myself and several others reported by the men; and the old birds, accompanied by their young, were frequently seen in April and May Possibly their food supply was scanty during the usual nesting season (I am taking it for granted that April is *not* the season), and they were retarded. But in bush

PLATE IV

Nesting-hole of Yellow-fronted Parrakeet (*Cyanorhamphus auriceps*) in Kai-Kawaka tree.

FROM A PHOTO BY J. C. M'LEAN

of this class there could hardly have been a shortage, and the Parrakeet is one of those birds which soon shifts to more fruitful parts if necessary In *The Ibis* I ventured to say that they may have anticipated the coming heavy crop of tawari, but this, too, is improbable. After all, it may have been a case of a second nesting on the part of the birds.

Although frequently made a pet, this Parrakeet does not possess the power of articulation in the same degree as many others of the Parrot tribe.

In some winters a few visit lower bushes in proximity to the main bush; but very rarely indeed is it seen in the open, older-settled districts. When it does visit the latter parts it must be sorely pressed for food, for then they come in hundreds. I have seen such an irruption, in a dry summer, many years ago, when the birds were so intent in the long, ripe-seeded grass of the flat cultivated country that we, as boys, almost succeeded in capturing them with our hats.

Field Notes from Cape York

By H. G. Barnard, R.A.O.U., Queensland.

On behalf of Mr. H. L. White, of Belltrees, Scone, N.S.W., I left Rockhampton on 10th September, 1910, by the s.s. *Wyandra*, arriving in Townsville two days later. I transhipped to the s.s. *Aramac*, and, after a pleasant but uneventful voyage of three days, reached Thursday Island. Here I had to wait three more days before I could get a boat across to the mainland. Leaving Thursday Island on the afternoon of Friday, the 23rd, in the mail cutter, I arrived at Peak Point Telegraph Station at noon on Saturday. After lunch I proceeded to walk to Lockerbie (an out-station of Mr. F. L. Jardine's, of Somerset), situated 5 miles inland, where I intended to establish my head-quarters. The country about "Lockerbie" is mostly open forest, which extends on the west to the coast, while to the north and east a low range of hills "covered with dense scrub" extends for a number of miles.

On reaching Lockerbie I found that Mr. Jardine was absent at Somerset; but, as a black boy was in charge, I remained the night. Obtaining a couple of horses from the "boy" in the morning, I went to the office, secured my outfit, and returned to Lockerbie in the afternoon, to find that Mr. Jardine had arrived from Somerset. He extended to me a very warm welcome, and I am very much indebted to him for his kindness and help during my stay at Cape York.

I remained at Lockerbie until the end of January, 1911, when we had a considerable amount of rain, which made collecting very unpleasant; and, as very few birds were then breeding, I decided to give the collecting a spell and return once more to

civilization, cheered by the knowledge that my trip had not been altogether in vain.

In the notes which follow, the technical names are according to Mathews' "Hand-list."

Dromæus novæ-hollandiæ. Emu.—Fairly plentiful; several seen within a mile of the Post-Office at Cape York; said to be very plentiful a few miles further south. No eggs taken; breeding season early. Droppings full of fruit seeds. Birds were never seen in scrub—in fact, they will not face it when hunted.

Megapodius tumulus. Megapode.—Plentiful; many nests noted, one clutch of five eggs taken. Nests always built near edge of scrub; eggs always placed in rings, the centre of the nest being very hard; diameter of egg circle from 5 feet to 8 feet. Many of the nest-mounds are of great size, and have been used for years. The mound being so solid and the eggs placed so deep, wild pigs do not damage, as in the case of *Catheturus purpureicollis.*

Catheturus purpureicollis. Barnard Brush-Turkey.—Plentiful, but likely to diminish in numbers owing to the depredations of wild pigs, which are overrunning the whole of Cape York Peninsula. All nests found in scrubs contained only odd eggs, and were practically ruined by the pigs. I opened only two mounds or nests in the open forest, and they contained 10 and 11 eggs respectively. One of these mounds had been visited by the pigs a few days previously. In this case the mound was the nearer one to the scrub. It is my experience that the pigs are gradually driving these birds from the scrub out into the open parts to build their mounds.

Ptilopus ewingi. Rose-crowned Fruit-Pigeon.—Plentiful in the scrub when I arrived at end of September, but later on went to the mangroves on the coast, where they breed freely. Nest unusually frail, and placed at heights varying from 4 feet up to 40 feet. Clutch, one egg.

Lamprotreron superba. Purple-crowned Fruit-Pigeon.—Found this bird plentiful all through the scrubs, where they were breeding, but never observed any in or about the mangroves. Nest the usual frail structure, but more strongly built than is the case with that of *Ptilopus ewingi*, and generally placed on a horizontal limb or palm leaf at heights varying from within hand's reach up to fully 40 feet from the ground. Clutch, one egg.

Megaloprepia assimilis. Allied Fruit-Pigeon.—Plentiful through all the scrubs, where they breed, and also in the mangroves. Nest a frail structure of sticks, placed on horizontal limb or palm leaf, at heights varying from 6 feet up to 40 feet or more.

Myristicivora spilorrhoa. Nutmeg-Pigeon.—Observed in great numbers, but the birds do not appear to breed freely on the mainland, visiting the islands off the coast for the purpose. Clutch, one egg. Nest a frail and rather flat structure, placed in mangrove or other tree at various heights. The eggs taken were in nests built in forest trees.

Geopelia humeralis. Barred-shouldered Dove.—Noticed in forest country, plentiful and breeding.

Geopelia placida. Peaceful Dove.—Fairly plentiful, but none found breeding.

Chalcophaps chrysochlora. Little Green-Pigeon.—Fairly plentiful in the scrubs, and generally observed on the ground. Found birds breeding; two sets of eggs taken. Nest much more strongly built than is the case with most of the Pigeons, and large for the size of the bird.

Rallina tricolor. Red-necked Rail.—Judging by the calls, which are made only at night, the birds are fairly plentiful, but only inhabit the dry, hilly country covered with scrub.

One of these birds flushed from her nest on the side of a dry stony ridge in scrub where the undergrowth was very thick. The nest, such as it was, was placed at the foot of a tree, and consisted of a slight hollow in the ground, in which a few dead leaves were placed. The eggs, four in number, were quite fresh. As the eggs would have been useless without the bird, I took them out of the nest, and placed in their stead four eggs of the Silver-tailed Kingfisher (*Tanysiptera sylvia*). Owing to the thickness of the undergrowth I knew it would be almost impossible for me to obtain a shot before the bird was on the nest. Having placed the eggs, I retired a short distance, and sat behind a tree to wait. The day was very cloudy, and light showers kept falling, making the scrub very dark. The bird was very shy, and, though I knew several times that she was close to me, I could not see her. I remained in this position for two hours, and then, thinking she could see me too well, I climbed to the fork of a tree about 15 feet from the ground, from where I had a much better view of the nest; but, though I remained in this position without moving for an hour and a half, and till I was thoroughly cramped, I could see no sign of the bird. Descending the tree, I took up my former position. After waiting some time I became very sleepy, and must have dozed off, for when I awoke the sun was getting low, and I was just in time to see the bird step quietly round the tree and on to the nest. As she sat on the nest I could not see her; but, raising my gun, fired into the nest, and, walking quickly to the spot, found the bird dead and the remains of the Kingfisher's eggs scattered all over the dead bird and the butt of the tree. I had watched this nest from 10 o'clock in the morning till 4 in the afternoon. I do not know whether these Rails remain here all the year. I first heard their call during December.

A supposed second species of Rail inhabits the Cape York Peninsula, but I was unable to obtain specimens. A bird shot by a resident of Cape York during my stay in the locality was too far gone to be skinned. The bird was examined by Mr. W. M'Lennan, who was collecting in the locality for Dr. Macgillivray, and considered by him to be *Amaurornis moluccana*. I am satisfied that further search will prove that the spotted eggs hitherto attributed to *Rallina tricolor* really belong to the second Rail, which I suppose to be the Rufous-tailed Moor-Hen.

The habits of the two birds are different, *Rallina tricolor* being found only in the scrub growing on the dry, hilly country, while the other (which I frequently saw, but could not shoot on account of its rapid movements) inhabits the low-lying, damp localities. The notes of the two birds are also quite distinct.

The clutch of four white and spotless eggs of *Rallina tricolor* taken measure as follows:—(*a*) 1.55 x 1.11, (*b*) 1.50 x 1.13, (*c*) 1.5 x 1.12, (*d*) 1.55 x 1.15.

Amaurornis moluccana (?) Rufous-tailed Moor-Hen.—The second

Rail observed by me will probably prove to be the Rufous-tailed Moor-Hen, the general colour above being a dark slaty-brown, bill and legs appearing to be a very bright greenish-yellow, and at once attracting the eye when a glimpse of the bird is obtained. This bird does not frequent the scrubs, but confines itself to the long, blady grass on the edges of scrubs and surrounding springs. The call of this bird is totally different from that of *Rallina tricolor*, and I frequently heard it calling both night and day, while *Rallina tricolor* only calls at night.

Ægialitis melanops. Black-fronted Dottrel. — Observed a few specimens in and around a swamp situated about 6 miles inland from the coast, but they did not appear to be breeding.

Numenius variegatus. Whimbrel.—Fairly plentiful on a strip of beach at Cape York.

Burhinus grallarius. Stone-Plover. — A few observed in forest country.

Antigone australasiana. Native Companion.—Few birds observed about swampy country.

Platibis flavipes. Yellow-legged Spoonbill.—A few observed feeding about freshwater swamps.

Xenorhynchus asiaticus. Jabiru.—A pair observed feeding on the edge of a freshwater swamp.

Herodias timoriensis. White Egret.—A few birds observed at a freshwater swamp about 6 miles inland.

Notophoyx novæ-hollandiæ. White-fronted Heron.—A single bird observed at a swamp.

Nycticorax caledonicus. Night-Heron.—Fairly numerous in the mangroves at tidal creeks, and inland at freshwater swamps.

Anas superciliosa. Black Duck.—A few small flocks seen about freshwater swamps.

There are no large permanent watercourses in the part of the Cape where I was, consequently very few water-fowl were to be seen. Further down, however, about the Jardine and Ducie Rivers, swamps are plentiful, and, I was told, contained numbers of water-fowl. Probably a good many nests would be found in these swamps after the wet season.

Phalacrocorax sulcirostris. Little Black Cormorant.—Few birds seen at deep waterholes at an inland freshwater creek.

Phalacrocorax melanoleucus. Little Cormorant.—Saw a pair at inland freshwater-holes.

Plotus novæ-hollandiæ. Darter.—Seen on several occasions at the freshwater swamps.

Fregata aquila. Frigate-Bird.—Seen flying about the coast, also flying low over scrub several miles inland.

Pelecanus conspicillatus. Pelican.—Were seen between Thursday Island and the mainland.

Astur novæ-hollandiæ. White Goshawk.
Astur clarus. Grey Goshawk.
} In *The Emu*, vol. x., p. 247, I drew attention to the fact that these two birds, which

have hitherto been catalogued as separate species, breed together freely in the Cape York district, and I am firmly convinced that the grey and white birds belong to the same species. In all, I secured 8 clutches of eggs. In three cases only were both the birds grey; in two cases they were pure white, and in each other instance the plumage of male and female differed in colour. In one instance I took a clutch of eggs from a pair of grey birds, the female being shot at the nest. The male remained in the vicinity for a week, and then mated with a white female. The pair stayed about the nest, which was eventually used. I secured the eggs, which differ considerably in size and shape from the former set. I also secured the eggs of a grey female whose mate was white. The birds are plentiful in the locality, and my attention was first drawn to the mating of birds of the two varieties by Mr. F. L. Jardine, of Somerset, who for several years had noted the fact. In all instances both the grey and white birds possessed fiery, blood-red eyes. I secured several skins. All the eggs obtained were of a bluish-white colour and totally devoid of markings. These birds always breed in forest country, the nest being placed high up in large *Melaleuca* trees or Moreton Bay ash (*Eucalyptus*). Nest, usual stick structure, lined with green eucalypt leaves, and large for the size of the bird, which, when sitting, is invisible from the ground. The nests are generally about 2 feet in diameter (outside measurement).

These birds appear to gather most of their food from the scrubs, as they are frequently seen flying over the tops of the tall scrub. On several occasions I observed the male bringing to the nest the small Fruit-Pigeon (*Lamprotreron superba*). Both sexes appear to take their turn at incubating.

Measurements of eggs:—Male grey and female white—(*a*) 2.02 x 1.42, (*b*) 1.93 x 1.43; both parents white—(*a*) 1.73 x 1.42, (*b*) 1.72 x 1.44; both parents grey—(*a*) 1.89 x 1.47, (*b*) 1.93 x 1.50, (*c*) 1.90 x 1.44, (*a*) 1.92 x 1.47, (*b*) 1.86 x 1.48, (*c*) 1.91 x 1.51; male white and female grey—(*a*) 1.92 x 1.51, (*b*) 1.94 x 1.41, (*c*) 1.97 x 1.43; both parents grey (grey male afterwards mated with white female)—(*a*) 1.74 x 1.48, (*b*) 1.89 x 1.56, (*c*) 1.87 x 1.53, (*a*) 1.79 x 1.47, (*b*) 1.77 x 1.47, (*c*) 1.80 x 1.47.

Astur fasciatus. Goshawk.—Fairly common. Pair of birds observed building a nest, which was deserted before the eggs were laid.

Accipiter cirrhocephalus. Sparrow-Hawk. — Fairly common; several sets of eggs taken. From one pair of birds no fewer than four sets of eggs were taken. The first set (3 eggs) was taken on 27th September, 1910. The birds at once commenced to build a fresh nest in a tree a short distance away, and from this nest three eggs were taken on 4th November, 1910. The birds then rebuilt a nest from which a set of White Goshawk's eggs had previously been taken, and from this nest another set of three eggs was taken on the 4th December, 1910. A fourth nest was built in an adjoining tree, and four eggs were taken from it on 28th December, 1910. The birds then left the locality. The peculiarity about Hawks' eggs from Cape York is their very light colour and the absence of blotches or other markings.

Uroaetus audax. Wedge-tailed Eagle.—Few specimens noticed on the wing, but never settled.

Haliaetus leucogaster. White-bellied Sea-Eagle.—Seen both on

the coast and inland, resting on the trees. Old nest observed in a tree on the side of a hill in the scrub.

Haliastur sphenurus. Whistling Eagle. — Fairly plentiful, and often noticed on the ground, feeding on bandicoots.

Gypoictinia melanosternum. Black-breasted Buzzard.—A pair observed on several occasions, flying low over the tree-tops.

Baza subcristata. Crested Hawk.—One pair observed early in the season, and later was noticed feeding three large young birds. The only pair observed.

Falco lunulatus. Little Falcon.—Only one pair observed.

Hieracidea orientalis. Brown Hawk.—Only a few observed. One nest was found on 7th October, 1910, and contained a single egg, which was heavily incubated.

Pandion leucocephalus. Osprey.—Observed both on the coast and inland. Fairly common. One bird observed on the ground feeding on a white Nutmeg-Pigeon.

Ninox peninsularis. Cape York Owl.—These birds are numerous both in forest and in scrub (their note exactly resembling that of *Ninox connivens*), and were breeding freely. Unfortunately, each of the nests found contained a pair of young birds, with a single exception, where there was only one nestling. When the female is in the hollow the male roosts in the branches of an adjoining tree, and on observing a person passing utters a loud growling note, thus drawing attention to the tree containing the nest. On one occasion I observed one of these Owls roosting in the branches of a tree and holding in its claw a small Fruit-Pigeon (*L. superba*). On being flushed it dropped the Pigeon, which appeared to have just been killed. This was the only Owl observed, but the note of another species was frequently heard at night—a note resembling that of *Strix delicatula*. These birds breed very early, all the nests containing young by the end of September.

Trichoglossus septentrionalis.—Great numbers seen. Several birds, out of numbers shot, were in very poor plumage, while others were breeding. Found several nests, each containing two young birds, and one with clutch of two eggs, on 22nd October, 1910. Measurements—(*a*) 1.0 x 0.84, (*b*) 0.96 x 0.84. This species breeds in holes in *Eucalyptus* and *Melaleuca* trees, in forest country. Nests placed from 1 foot to 18 inches down in a horizontal limb. Habits similar to that of *Trichoglossus novæ-hollandiæ* (of which it is the Northern representative); feed on the blossom trees.

Microglossus aterrimus. Palm-Cockatoo. — These birds were nowhere plentiful. They breed in the forest country, and appear to feed in the scrub, on the kernels of large fruits and grubs chopped out of rotten wood. When not breeding they are generally seen in flocks of from 3 to 7. The first nest was found on 27th September, 1910, and contained a young bird about 10 days old. From the same hole I later on took two clutches, one egg each—the first on 18th December, 1910, and the other on 15th January, 1911. Two other sets were taken—one on 29th September, 1910, and the other on 19th December, 1910. These Cockatoos select upright, large, hollow spouts, the eggs being placed at depths varying from 2 to 8 feet from entrance of hole, and from 10 to 50 feet from the ground.

Owing to the nests being placed in the upright hollows, they are exposed to the heavy rains, and to obviate risk of drowning to the young birds the parents cut green sticks, about 1 inch in diameter and from 12 to 18 inches in length, which are carried from the scrub to the nesting-hole, down which they are dropped. The birds then climb down the hollows and chop the sticks up into small splinters, until the bottom of the hole is covered to a depth of about 4 inches. On top of this platform the egg is laid. On one occasion I saw a Palm-Cockatoo carrying a stick, but, though I followed the direction of its flight for fully a mile, I could not discover the nesting-tree. During my former visit, in 1896, I found the birds far more numerous than on this occasion. Mr. F. L. Jardine informed me that he had noticed the same fact, and attributed it to the frequent visits of sportsmen (?) from Thursday Island, who shoot everything that comes in their way. The note of this Cockatoo is a loud whistling, and much more harmonious than the call of the other Black Cockatoos. Four clutches measure as follow:—(*a*) 1.84 x 1.37, (*b*) 1.75 x 1.37, (*c*) 1.84 x 1.35, (*d*) 1.80 x 1.38.

Cacatua galerita. White Cockatoo.—Very plentiful, breeding in both the forest and scrub trees, in the topmost limbs.

Ptistes erythropterus. Red-winged Lory. — Fairly plentiful in forest country. Saw the young on several occasions feeding with the parents shortly after I arrived. The breeding period, therefore, would be about June or July.

Platycercus amathusia. Blue-cheeked Parrakeet. — Found in forest country, mostly on the west coast of Cape York Peninsula, feeding usually on the seeds of the black tea-tree. When first noticed these birds were in small flocks of 4 or 5, and, from the state of the plumage, there were old birds and young. A bird shot on 15th October, 1910, proved to be a young male, which had evidently been hatched about April, and was in a very immature state of plumage. Specimens obtained in January, 1911, were in full breeding plumage, and I noticed birds examining nesting hollows. From this it is evident that the breeding season is from February to June, or thereabouts.

Podargus papuensis. Plumed Frogmouth. — Fairly common in forest country. Breeds in any timber in the forest. Nest the usual scanty stick structure, placed on a horizontal fork of a tree. Breeding months from September to February. The first nest taken by me contained two eggs, and I had previously been under the impression that one egg only formed the clutch. They measure—(*a*) 1.97 x 1.32, (*b*) 1.87 x 1.28. This is evidently a rare occurrence, as all the other nests found contained only one egg or one young bird. From information obtained from Mr. F. L. Jardine and others, I find that this species migrates, and frequently settles on the pearling boats in the Strait between Cape York and New Guinea. The flight across takes place only at night.

Podargus marmoratus. Marbled Frogmouth. — Fairly common; only found in thick scrubs.

Eurystomus pacificus. Dollar-Bird. — A few specimens seen on their way south to breed, early in October, 1910.

Alcyone pulchra. Purple Kingfisher.—Fairly plentiful along fresh-water creeks, where I found them burrowing in the banks of the

creeks. Several fresh burrows were dug out, but were only just ready for eggs. The length of the burrow is generally about 10 inches.

Alcyone pusilla. Little Kingfisher.—Observed by me on a former occasion (1896) at the mouth of freshwater creeks adjoining the mangroves, but not noted on this occasion.

Syma flavirostris. Yellow-billed Kingfisher.—Generally observed in pairs in the thick scrubs. One set of four eggs was taken from a burrow in a white ants' (termites') nest on the side of a tree, 10 feet from the ground; date, 7th January, 1911. The clutch measures—(*a*) 0.99 x 0.85, (*b*) 1.03 x 0.86, (*c*) 1.02 x 0.83, (*d*) 1.03 x 0.83.

Dacelo cervina. Fawn-breasted Kingfisher.—Plentiful in open forest country. Found breeding in hollow spouts of trees. A number of nests found, containing both eggs and young. Eggs varied from two to three for a sitting.

Halcyon barnardi (Campbell). Barnard Kingfisher.—A Kingfisher, closely resembling *Halcyon macleayi*, was obtained by me, and, on the skin being forwarded to Mr. A. J. Campbell, was said by him to be new. A nest containing five eggs (a description of which appeared in Bulletin No. 2 of *The Emu*, dated 21st February, 1911), was found in a white ants' (termites') nest in a bloodwood (*Eucalyptus*), about 20 feet from the ground. Several pairs of these birds were seen. Their habits resemble those of *H. macleayi*. The five eggs taken measure—(*a*) 0.90 x 0.84, (*b*) 0.90 x 0.83, (*c*) 0.92 x 0.80, (*d*) 0.92 x 0.80, (*e*) 0.90 x 0.82.

Halcyon sordidus. Mangrove-Kingfisher.—This bird was observed by me in 1896 frequenting the mangroves. Mr. W. M'Lennan, who is collecting skins, obtained a specimen from the locality in which I formerly observed the species.

Tanysiptera sylvia. Silver-tailed Kingfisher.—First observed on 23rd November, 1910, and a few days afterwards plentiful in the scrubs, but did not commence to burrow into the nests of the white ants (termites) until the end of December. These Kingfishers are migratory, but it is not known where they go. The first set of eggs was taken on 12th January, 1911, and a few days later large numbers could have been secured. The birds bred in the termites' nests, both on the ground and in the trees. Upwards of 50 nests have been examined by me, and the maximum number of eggs in a clutch was three. During the period of incubation the long white tail feathers of the brooding bird become much worn, or are broken off.

Merops ornatus. Bee-eater.—Observed in numbers, migrating south, early in October. They do not remain to breed at Cape York.

Caprimulgus macrurus. Large-tailed Nightjar.—A few were flushed from the ground in thick scrub in the daytime, and their peculiar "chop" note was frequently heard at night. I did not succeed in taking the eggs, but saw a pair obtained by some boys at Cape York during my sojourn there.

Chætura caudacuta. Spine-tailed Swift.—Observed in large flocks during the whole period of my visit.

Cuculus saturatus. Oriental Cuckoo.—Fairly plentiful in forest country. Very shy, and not easily obtained.

Cacomantis castaneiventris. Chestnut-breasted Cuckoo.—Very rare; only one specimen observed.

Chalcococcyx malayanus. Little Bronze-Cuckoo.—Fairly plentiful.

Eudynamis cyanocephala. Koel Cuckoo. — Fairly plentiful. Generally seen in the scrub trees eating fruit.

Scythrops novæ-hollandiæ. Channelbill Cuckoo. —Few birds noted, generally flying high.

Centropus phasianus. Swamp Coucal.—Plentiful in forest country. Breeding in the long grass. Found two nests, and took a set of three eggs from one. Five eggs in another nest were destroyed by vermin.

Pitta simillima. Lesser Pitta.—These are migratory birds from New Guinea, and on my arrival at Cape York they had not put in an appearance. The first one was noted on 10th October, 1910, and a few days later the species was plentiful in the scrubs, and there shortly commenced to build. They were still breeding when I left the locality. Nest, a large dome-shaped structure, placed on the ground against the root of a tree, &c. Eggs varied from three to four for a sitting. Many of the nests examined contained one or two eggs, which always disappeared before the full clutch was laid. Upwards of 40 nests were found, and none contained young.

Pitta mackloti. Blue-breasted Pitta.—The notes given for *Pitta simillima* apply to this species, which is very plentiful.

Micrœca pallida. Pale Flycatcher.—A few pairs seen in the scrub. None found breeding.

Micrœca flaviventris. Lemon-breasted Flycatcher.—Fairly plentiful in forest country, breeding. Nests are built on small dead tree-forks, and are very small structures. Only a single egg was laid for a sitting, and a specimen measures 0.73 x 0.52.

Pseudogerygone magnirostris. Large-billed Fly-eater.—Few birds noted about the mangroves, where I found them breeding on a former occasion. The eggs of *Chalcococcyx malayanus* I frequently observed in the nests.

Pseudogerygone personata. Black-throated Fly-eater. — Found breeding in scrubs. Always builds close to wasps' nests, which have to be burnt before the bird's nest can be examined.

Pœcilodryas albifacies.* White-faced Robin.—Two birds of this species were observed in thick scrub, but I was unable to obtain the eggs. First observed by me here season 1896–7. (See "Nests and Eggs" (Campbell), p. 153.)

Rhipidura albiscapa. White-shafted Fantail.—Was observed when I arrived, but did not remain, evidently going further south for the purpose of breeding.

Rhipidura rufifrons. Rufous Fantail.—Observed on my arrival at Cape York migrating from New Guinea, and was seen frequently, flying low over the waves, coming to the mainland. After resting for a few days they departed further south. None seen after the end of October.

Myiagra concinna. Blue Flycatcher.—Fairly plentiful, and found breeding in forest country.

Myiagra nitida. Satin Flycatcher.—A few seen in the mangroves; not found breeding

* According to Hartert, *P. albigularis.*

Myiagra latirostris. Broad-billed Flycatcher.—Not observed on this occasion, but on a former occasion were found breeding in the mangroves.

Machærirhynchus flaviventer. Yellow-breasted Flycatcher.—These birds are only found in dense scrubs, and always in pairs. Nest, which is open, is composed of small vine tendrils, and suspended from a thin horizontal fork at the extremity of a long, thin branch, at heights varying from 6 to 40 feet from the ground. Male bird principally constructs the nest, and keeps up a continual whistling song during the process, drawing one's attention to the nesting site. Two eggs form a sitting, and a pair taken on 25th October, 1910, measures as follows:—(*a*) 0.66 x 0.48, (*b*) 0.67 x 0.49.

Arses lorealis. Frilled-necked Flycatcher.—Found only in scrubs; nowhere plentiful. Several nests were found, but only one set of eggs was taken, the other nests being destroyed, probably by other birds, or vermin. A nest found on 9th November, 1910, was being attacked by a Rusty-breasted Shrike-Thrush (*Pinarolestes rufigaster*), which appeared to be trying to pull the structure to pieces. The Flycatchers were vainly trying to drive the destroyer away, and, to assist them, I threw several sticks at the Thrush, which would only fly a short distance and again return to the attack. I then shot it, and 9 days later secured a pair of eggs of the Flycatcher from the nest. These specimens measure—(*a*) 0.77 x 0.56, (*b*) 0.78 x 0.56. The nests were always suspended, cradle-like, between two vines hanging from a tall tree, and the height from the ground varied from 10 to 30 feet. Clutch, two eggs. Some of the birds shot had great numbers of thin worms, about 3 inches long, in the intestines.

Piezorhynchus albiventer.—Plentiful in scrub. Builds a moss-covered nest in the forks of small upright bushes, from 3 to 8 feet from the ground. Eggs, two for a clutch.

Coracina hyperleuca. White-bellied Cuckoo-Shrike.—Fairly plentiful in forest country, where it was found breeding, several nests being observed, mostly containing young. Habits resemble those of the other members of the *Coracina* family. Another bird was observed, but I was unable to identify it. This species was very shy, and seemed to migrate south, as shortly after my arrival none was to be seen. I have also noted the species on the Dawson River, where it was only an occasional visitor.

Edoliisoma tenuirostre. Jardine Caterpillar-eater.—A few observed in the forest country.

Lalage tricolor. White-shouldered Caterpillar-eater.—A few birds observed in the forest country.

Lalage leucomelæna. Pied Caterpillar-eater.—Fairly plentiful in forest country and on the edges of scrubs. Found breeding in the forest. Two sets, of one egg each, secured.

Drymaœdus superciliaris. Eastern Scrub-Robin.—Fairly plentiful in the scrubs. Always found on the ground. I watched specimens very closely, but could not find the nests.

Pomatorhinus rubeculus. Red-breasted Babbler.—Observed in small flocks in forest country. A number of old nests seen.

Cisticola exilis. Grass-Warbler.—Plentiful in long grass in open forest. Four nests discovered, two containing four eggs each, heavily incubated.

Megalurus galactotes. Tawny Grass-Bird.—A few observed in damp parts among reedy grass.

Sericornis.—Observed in the scrubs, but was not identified; probably *S. minimus.* A number of nests found, but no eggs obtained.

Malurus amabilis. Lovely Wren. Fairly plentiful, and seen in small flocks in dense scrub. Builds in small bushes close to the ground. One clutch of three eggs was taken.

Malurus cruentatus. Red-backed Wren.—Observed in flocks in long grass in forest country. Birds were breeding, but I did not succeed in finding a nest.

Artamus leucogaster. White-rumped Wood-Swallow.—Found only along the coast, and about mangroves, where they were breeding. One nest seen, containing three young birds.

Collyriocichla superciliosa.—Fairly common in open forest country, where they were found breeding, the nest being placed in a clump of twigs on the top of a dead spout. Two sets of eggs were taken. Measurements—(*a*) 1, 1.22 x 0.90, 2, 1.19 x 0.911; (*b*) 1, 1.07 x 0.80, 2, 1.09 x 0.79, 3, 1.05 x 0.81. Habits similar to *C. harmonica*, but note not so harmonious.

Pinarolestes rufiventris. Rusty-breasted Shrike-Thrush.—Confined to the scrubs, in which they are very plentiful, numbers of nests being found in the upright forks of small bushes, from 3 to 7 feet from the ground. Only one nest observed, containing three young. Other nests examined had either two young or two eggs in them. From observations, I am of opinion that this species is responsible for the destruction of the nests and eggs of many of the smaller birds.

Grallina picata. Pied Grallina.—Plentiful about *Melaleuca* swamps, and a few old nests observed.

Cracticus rufescens (quoyi). Black Butcher-Bird.—Found in scrubs. Breeds chiefly in forest country on the edge of the scrub. Fairly numerous. A number of clutches of eggs was taken, showing great variety in shape, size, and colouring. The colour varies from pale cream ground with brownish-grey spots through many shades of green. Clutches varying in number from three to four (in one instance five). Four clutches give the following measurements:—Set A—(1) 1.35 x 0.98, (2) 1.35 x 0.98, (3) 1.38 x 0.98; set B—(1) 1.40 x 0.99, (2) 1.39 x 1.01, (3) 1.45 x 1.01, (4) 1.42 x 1.01; set C—(1) 1.29 x 0.92, (2) 1.25 x 0.93, (3) 1.22 x 0.89, (4) 1.23 x 0.88; set D—(1) 1.22 x 0.90, (2) 1.08 x .86, (3) 1.27 x 0.90, (4) 1.18 x 0.89, (5) 1.28 x 0.92.

Cracticus mentalis.—This is a New Guinea bird, and now recorded for Australia (*Emu*, vol. x., p. 337). It inhabits the forests of tall stringybark trees, and is always found in pairs. One pair I located built no fewer than four nests, all of which were deserted on completion. I succeeded in getting only one pair of eggs, late in the season. The habits of these birds closely resemble those of *Cracticus destructor*, and the note is similar, but very much weaker, and can only be heard a short distance away.

Pachycephala peninsulæ. Cape York Thickhead.—Several pairs observed on the edges of the scrubs, but were not found building.

Pachycephala falcata. Northern Thickhead.—Odd birds only seen, in forest country. Habits similar to those of *Pachycephala rufiventris.*

Neositta striata. Striated Tree-runner. — Observed on several occasions running up and down the trees in forest country. None found breeding.

Dicæum hirundinaceum. Mistletoe-Bird. — Plentiful, but not found breeding.

Cyrtostomus frenatus. Sun-Bird.—Several nests observed along the edges of scrub, suspended in some cases from the ends of the pandanus palm leaves.

Melithreptus albigularis. White-throated Honey-eater. — Very numerous in forest country, feeding on the flowering *Melaleuca.*

Myzomela obscura. Dusky Honey-eater.—Fairly plentiful about the edges of the scrubs. One nest found, containing two young.

Glycyphila modesta. Plentiful, and always found about the *Melaleuca* swamps, where they breed freely, their dome-shaped nests being suspended from the ends of the branches of the small *Melaleuca* trees growing in the water.

Ptilotis analoga. Yellow-spotted Honey-eater. — Very common. Breeds in the shrubs on the edges of scrub and along watercourses.

Ptilotis gracilis. Lesser Yellow-spotted Honey-eater.—Inhabits forest country adjacent to scrubs. Found breeding in forest ; two nests and clutches of eggs were taken.

Ptilotis versicolor. Yellow-streaked Honey-eater.—Found only in mangroves. Not plentiful.

Xanthotis filigera. Streaked-naped Honey-eater.—Fairly plentiful about inland scrubs. A nest taken from a cultivated mango tree contained two eggs, which are the first described. (See *Emu*, vol. x., p. 339, by Mr. H. L. White.) The birds were also found breeding in the scrubs. One nest found contained two young birds, and was placed 12 feet from the ground. Another nest, in process of building, was situated 30 feet from the ground, but was deserted by the birds before the eggs were laid. Specimens were often seen feeding in the flowering *Melaleuca* trees on the edge of the scrub.

Entomyza albipennis. White-quilled Honey-eater.—Fairly plentiful in forest country, and on the west coast of Cape York Peninsula, feeding on the blossoms of the red-flowered tea-tree (*Melaleuca*). One pair had, in an old nest of *Pomatorhinus rubeculus*, two young birds. This bird may prove to be *E. harterti* (Robins. and Laver).

Tropidorhynchus argenticeps. Silvery-crowned Friar-Bird.—These birds were plentiful in the forest country, and a number of their nests was found, mostly containing two nestlings. Of three clutches of eggs taken, one numbered three and the others two each.

Tropidorhynchus buceroides. Helmeted Friar-Bird.—Very plentiful all through the forest country, and usually breeds in the Moreton Bay ash (*Eucalyptus*) in company with *Sphecotheres flaviventris* and *Chibia bracteata.* A number of clutches of eggs taken ; four usually formed the clutch.

Philemon sordidus. Little Friar-Bird.—Numerous on the west coast One nest found contained two eggs, which were heavily incubated. Nest placed in bloodwood (*Eucalyptus*) tree.

Munia castaneithorax. Chestnut-breasted Finch.—Only two pairs seen. One pair built a large, bulky nest of grass in a large tussock about 20 yards from where I was camped, but deserted the nest as soon as it was finished.

Oriolus flavicinctus. Yellow Oriole.—Plentiful both in forest and scrub. Numbers of nests observed, and two eggs in all cases form the full clutch.

Sphecotheres flaviventris. Yellow-bellied Fig-Bird.—Very plentiful in forest country, and nested chiefly in Moreton Bay ash in company with the *Tropidorhynchus buceroides*.

Chibia bracteata. Drongo-Shrike.—Very common. Breed in company with the *Sphecotheres flaviventris* and *Tropidorhynchus buceroides*. These birds are migratory, coming from New Guinea in large numbers during October.

Calornis metallica. Shining Starling.—Very numerous, and are migratory, coming from New Guinea in small flocks during October, afterwards congregating in large numbers at a suitable tree, where they breed, their large, bulky, and dome-shaped nests being bunched together all over the branches. I have counted as many as 300 nests in one tree.

Chlamydodera orientalis. Queensland Bower-Bird.—Nowhere plentiful, but a few play-grounds were observed under low black tea-tree bushes in forest country.

Until my recent observations proved to the contrary, it was believed that one species of Bower-Bird (*Chlamydodera cerviniventris*) only inhabited the Cape York country. I have now proved that two species are living in close proximity, but that *C. orientalis* is the more generally distributed. A low range of hills, running generally east to west, cuts off a strip of country, roughly about 10 miles long by 2 miles wide, at the northern extremity of Cape York Peninsula. This strip is fringed by mangroves along the coast-line, the back land being mostly low, and covered with white tea-tree (*Melaleuca*), rising rather abruptly into the range. Here *Chlamydodera cerviniventris* makes its home, and I did not succeed in finding a single specimen to the south of the range. *C. orientalis* is rarely found on the strip as mentioned above, but is found in fair numbers to the south of the range. I noted the bird upon many occasions, securing both skins and eggs. I found *C. orientalis* in open forest country only, while I saw *C. cerviniventris* only in the mangroves or tea-trees bordering same. I found several old nests in tea-trees. As *C. orientalis* is common about Cooktown and Townsville, and the same class of country extends on the west from near Cape York to these places, it is reasonable to presume that the bird will be found throughout the whole area. Whether *C. cerviniventris* is to be found to the east of the range, which starts from Orford Bay, south of Somerset, and cuts off a strip of country similar to that at the extreme north of the peninsula, remains to be proved. The bower of *C. orientalis* is composed of small sticks, forming a strongly built arch about 12 inches high inside, 15 inches outside, length of run about 2 feet, inside of run raised about 3 inches above the ground with sticks placed horizontally. For a space of about 2 feet right round the bower all grass and leaves are cleared away. One end only of the bower on the cleared ground is decorated by sea-shells, a few large land-shells (*Helix*), and large berries coloured red or black. The

bower is usually placed under a low bush. The birds are very noisy while using the bower to play in. The bower of *C. cerviventris* is made of small sticks, not so strongly built as that of *C. orientalis*, nor do the sticks meet in a complete arch. Height about 12 inches (outside), length about 15 inches, with a platform of sticks 1 inch high right through. Very little clearing round, but at one end of the bower, and about 1 foot away, is a platform, a foot in diameter, of twigs placed horizontally to a depth of 3 inches. The birds use this platform to play on. A few bunches of small green berries, about six in the bunch, are placed between the platform and the end of the bower. The birds make very little noise at the bower. *C. orientalis* is an expert mimic, while *C. cerviniventris* was not heard to imitate any sound. I found the first nest of *C. orientalis* on 22nd October, 1910, and it contained one heavily incubated egg. My last clutch, found on 9th January, 1911, also consisted of one egg. The nest is a loosely constructed and flimsy affair of small sticks, which are slightly turned up at the edges of the nest. The eggs can be seen plainly from below. The favourite site appears to be an exposed position on the thin horizontal limb of a bloodwood (*Eucalyptus*) tree, in open forest country.

Chlamydodera cerviniventris. Fawn-breasted Bower-Bird.—My observations on this bird are fully given above.

Craspedophora alberti. Albert Rifle-Bird.—Fairly plentiful in the scrubs. Their loud whistle is frequently heard, being different from the call of the southern species in that respect. Nesting sites, generally a clump of pandanus or screw palms, the nests being hidden at the butts of the long leaves, at heights varying from 3 to 30 feet from the ground. The nest is composed of large dead leaves and vine tendrils very loosely put together. Unlike the two southern species, the Albert Rifle-Bird does not decorate its nest with snake-skins. I examined about 50 nests, and did not find snake-skins in a single instance. Two eggs form a clutch. If a nest were found containing one egg, and left untouched in order to secure the full clutch, on returning next day the egg was sure to have disappeared; but if a single egg were taken, and the nest visited on the following day, the second egg would be found in the nest. I had the same experience during my former visit to the locality, in 1896. The male bird is never seen near the nest.

Phonygama gouldi. Manucode.—These birds are only found in the scrubs, and are very shy, except on the nest, when it is difficult to flush them. The nest is constructed of vine tendrils, and somewhat resembles that of *Chibia bracteata*, but is larger in size, while the eggs can be seen through the nest from the ground. Nest is usually placed in the topmost branches of a tree, at heights varying from 20 to 70 feet from the ground. All the clutches taken consisted of two eggs. Measurements:—Clutch A—(1) 1.40 x 0.93, (2) 1.43 x 0.94; clutch B—(1) 1.33 x 0.92, (2) 1.36 x 0.92; clutch C—(1) 1.30 x 0.90, (2) 1.34 x 0.92.

The following notes on the Manucode may be of interest to bird-lovers, and also be an aid to future collectors in securing their eggs. Shortly after my arrival at Lockerbie, and while watching a pair of Manucodes, I noticed a pair of Butcher-Birds (*Cracticus quoyi*) (*rufescens*) building their stick nest in a small tree, and soon afterwards located the unfinished nest of the Manucodes in a tree

about 30 yards from that of *Cracticus quoyi*. The Manucodes finished building first, and I secured a pair of eggs from their nest. One egg was laid in the Butcher-Bird's nest, and some wild creature took it, and the birds left the locality. Some time afterwards I located another nest of *Cracticus quoyi*, containing one egg, and here also was a pair of Manucodes. After watching them for some time I found that they were building in a small tree, about 50 yards distant from the tree in which the Butcher-Birds' nest was built. Both nests were about 50 yards from the scrub, in forest country. Five days later I returned and secured the eggs of the Butcher-Bird, the Manucodes' nest being almost completed at the time. The same day, about half a mile away, I found another nest of *C. quoyi*, containing four eggs, which I took. On descending the tree I noticed a pair of Manucodes a short distance away, and, as they seemed uneasy, I decided to watch them. After about an hour had passed, one of the birds flew into the top of a tall tree, between 30 and 40 yards distant from the tree from which I had recently taken the eggs of *C. quoyi*, and, on investigation, I found an almost completed nest. I returned to camp well satisfied, and a week later visited the nests, only to find, to my intense disgust, that both were deserted, and that there were no signs of the birds about. Even then I did not grasp the idea that the birds had forsaken their nests because the Butcher-Birds had left the locality.

In a week's time I found another nest of *C. quoyi*, containing eggs, and a Manucode's nest building in a tree about 50 yards away. I took the eggs of the former species, and returned in 7 days to find that history had repeated itself—the birds were gone. Then I realized that the Manucodes built near *C. quoyi* for protection, and that if *C. quoyi* were disturbed they left too. I now determined to hunt up all the nests of *C. quoyi* that I could, but, though I located several, I did not find the Manucodes also. Finally I found a pair of Butcher-Birds, and with them a pair of Manucodes. For several days I watched the birds without result, then gave up, but returned after 10 days. The Butcher-Birds were quiet, but the Manucodes were very restless when they saw me. As it was forest country, and near the edge of the scrub, I retired some distance and hid. After waiting some time, a White Cockatoo (*Cacatua galerita*) came slowly along and perched on the top of a bushy tree about 50 yards from the scrub. Instantly both the Butcher-Birds arrived, and a lively time ensued, which ended in all three birds landing on the ground at the foot of a tree. After putting up a good fight for a while, the Cockatoo left hurriedly, with both Butcher-Birds in hot pursuit. They returned, and one flew directly into the top of the tree where the intruder had been, and remained there. "Nest No. 1," I thought. This time the Manucodes remained in the tree in which I had first seen them. One of them, however, flew into a thick clump of leaves in a thin bloodwood (*Eucalyptus*). I waited some time, and, as the bird did not reappear, I knew that I had located "nest No. 2." The Manucodes' nest contained two fresh eggs, that of the Butcher-Bird a small young one.

I had now disturbed both the *C. quoyi* and Manucodes for a considerable distance round. A few days later I heard, in a different locality, the warbling note of *C. quoyi* in forest country, about 200 yards from a scrub. I instantly made towards the sound, and while I was doing so a Manucode flew directly over my head and made for

the scrub. I soon located the Butcher-Bird, and, after watching her a while, had the satisfaction of seeing her fly on to her nest, which contained eggs. I then began to search every tree, and found the Manucodes' nest in the top of a thick bushy tree. The nest was not complete, and I did not touch the Butcher-Birds' eggs. Eight days later I took a very fine pair of Manucode's eggs from this nest.

Corvus coronoides. Crow.—Few birds observed.

Strepera graculina. Pied Crow-Shrike.—One pair observed, which had evidently got astray, and remained for a short period only in the locality.

It is a peculiar fact, noticeable in the scrubs, that nests found in an unfinished state, or containing incomplete clutches, and left for further observation, were invariably destroyed before a second visit to them was made. All the complete clutches I secured were taken from nests that had not previously been visited. I attribute the damage to bush rats, snakes, and lizards, but why these creatures should be specially attracted to nests visited by human beings I am at a loss to understand. In very few cases were young birds found in a nest. The long breeding season of the Cape York scrub birds is probably owing to the fact that very many of their nests are destroyed in the manner described.

In conclusion, it would appear from the foregoing list of birds that the following are recorded for Cape York for the first time, viz.:—Peaceful Dove, Black-fronted Dottrel, Native Companion, Yellow-billed Spoonbill, White-fronted Heron, Little Cormorant, Black-breasted Buzzard, Pale Flycatcher, Shafted and Rufous-fronted Fantails, Red-breasted Babbler, Black Butcher-Bird, Little Friar-Bird, Pied Crow-Shrike. Regarding the two Fantails, *albiscapa* and *rufifrons*, possibly they were Northern forms of those better known kinds. I was unable to procure their skins for examination. Also, one small Quail was noted, but not identified.—H. G. B.

On Yorke Peninsula.

BY (CAPT.) S. A. WHITE, R.A.O.U., ADELAIDE.

ON 14th April, 1911, four members of the R.A.O.U. left Port Adelaide in one of the Gulf Steamship Co.'s boats, the *Juno*, for Stansbury. The annual camp-out of the Union in 1909 was held on Eyre Peninsula, which was partly worked: but as Yorke Peninsula had never been thoroughly investigated ornithologically, the members of our party had some interesting work before them, if it were only in ascertaining if any of the western forms find their way over Spencer Gulf on to Yorke Peninsula. The party consisted of Mr. J. W. Mellor, Mr. H. D. Griffith, Mrs. S. A. White, and the writer. We reached the little township of Stansbury early in the afternoon. After changing, we walked out on the main road to Yorketown for some distance, then cut across country into stunted peppermint gums (*E. odorata*), with little or no

undergrowth. The ground was covered with long dry grass, showing the splendid season that had been enjoyed last year in this district. *Pomatorhinus superciliosus* was met with in parties of from 10 to 12, hopping over the ground with great rapidity. I often stood and watched the birds turn over a piece of bark or dry manure in search of insects. Numbers of Spotted-sided Finches (*Staganopleura guttata*) were flushed from the grass. Hooded Robins (*Petroeca bicolor*) were very plentiful in the open scrub. The Bell-Bird's (*Oreoica cristata*) clear note was heard. The Graceful Honey-eater (*Ptilotis ornata*) was very numerous, and *P. sonora* was seen. A solitary specimen of the Owlet-Night-jar (*Ægotheles novæ-hollandiæ*) was observed on a bare limb of a box-tree gazing round in a terrified way. We returned to the township in the dark.

Next morning, after an early breakfast, we left by an express waggon and pair, taking a more northerly route this time. As soon as we were outside the township my wife drove the horses, and the other members of the party scoured the country on either side of the track in search of bird-life, plants, and insects. The first bird to attract us was the Many-coloured Parrakeet (*Psephotus multicolor*). This was the only Parrot which was met with on the trip. The birds seem to frequent farm-yards, and search in stock-yards and round haystacks for fallen grain. The Bush-Lark (*Mirafra secunda*) was seen among the grass in open glades in the scrub, and, when flushed, flitted with jerky movements a few yards, then dropped into the grass, where they lay as quiet as possible, depending on their protective colouration to escape observation, and allowing one to almost walk on them. Leaving the open peppermint-gum country, where *P. ornata* was very plentiful, we entered an undulating area covered with low scrub, broom-bush (*Melaleuca uncinata*), also a pink-flowering variety (*M. decussata*), and many species of low, heath-like bushes, among which was a very prickly *Hakea*. Here the bird-life changed. We had left the Parrots, Graceful Honey-eaters, Hooded Robins, &c., behind us, and in their place appeared, but very sparingly, *P. sonora*, *Oreoica cristata*, the Tawny-crowned Honey-eater (*Glycyphila fulvifrons*), Brown-headed Honey-eater (*Melithreptus brevirostris*), and Wattle-cheeked Honey-eater (*Ptilotis cratitia*). We called a halt and took the horses out about half-way across the peninsula. After boiling the billy and taking refreshment we scoured the country round, but found it to be poor in bird-life, with the exception of the species I have mentioned. There was a solitary specimen of the Butcher-Bird (*Cracticus destructor*), and Mr. Mellor recorded the Blue-breasted Wren (*Malurus assimilis*) and *Hylacola pyrrhopygia*.

Next day we drove south, and camped in a country of bigger timber. The Many-coloured Parrakeet was found in numbers round an uninhabited homestead. Hooded Robins were numerous, also the Graceful Honey-eaters, many old birds being busy feeding late broods. The strange call of the Restless Fly-

catcher (*Sisura inquieta*) was heard on every side. Spotted-sided Finches were numerous, in all stages of plumage. *Melithreptus brevirostris* were in large parties, hunting for food among the stunted gums. The Bell-Bird was heard and seen, also the Yellow-rumped Pardalote (*Pardalotus xanthopygius*). The Little Brown Flycatcher (*Micræca fascinans*) was very numerous, and the Spiny-cheeked Honey-eater (*Acanthochæra rufigularis*) was seen. The following day was devoted to the shore-birds. At daylight we were out on the beach and rocks. The tide was in, and large flocks of Sandpipers and other Waders were observed along the sand On a spit Cormorants, Pacific Gulls, and Oyster-catchers were congregated. A large Wader, which we thought at first was the Barred-rumped Godwit, but afterwards concluded was the Greenshank, gave us a lot of trouble. Despite all our efforts, we could not procure a specimen. Returning to a late breakfast, we went out again on half a mile or more of exposed rocks and sand, more or less covered in a dense weed—an ideal feeding-ground for Waders. The birds were scattered over a much wider area, and, instead of being congregated in large flocks on the shore, were now busily engaged hunting for food. We noted the Greenshank, Curlew Sandpiper, Little Sandpiper, Hooded Dottrel, Red-capped Dottrel, White-fronted Heron, and other species. Driving from Stansbury to Port Vincent, we caught the steamer on the return journey, arriving at Port Adelaide after a profitable and enjoyable trip. The weather had been perfect.

The following birds were identified by Mr. J. W. Mellor, R.A.O.U. (scientific names according to Mathews' "Hand-list," *Emu*, 1908) :—

Whistling Eagle	*Haliastur sphenurus*
Brown Hawk	*Hieracidea orientalis*
Kestrel	*Cerchneis cenchroides*
Owlet-Nightjar	*Ægotheles novæ-hollandiæ*
Swallow	*Hirundo neoxena*
Black-and-White Swallow	*Cheramœca leucosternum*
Wood-Swallow	*Artamus tenebrosus*
Yellow-rumped Pardalote	*Pardalotus xanthopygius*
Red-tipped Pardalote	*Pardalotus ornatus*
White-backed Magpie	*Gymnorhina leuconota*
Butcher-Bird	*Cracticus destructor*
Black-faced Cuckoo-Shrike	*Coracina robusta*
Grey Shrike-Thrush	*Collyriocichla harmonica*
Bell-Bird	*Oreoica cristata*
Black-and-White Fantail	*Rhipidura tricolor*
Restless Flycatcher	*Sisura inquieta*
Brown Flycatcher	*Micræca fascinans*
Short-billed Tree-Tit	*Smicrornis brevirostris*
Red-capped Robin	*Petræca goodenovii*
Hooded Robin	*Melanodryas bicolor*
Purple-backed Wren	*Malurus assimilis*
Chestnut-rumped Ground-Wren ..	*Hylacola pyrrhopygia*
Yellow-rumped Tit	*Acanthiza chrysorrhoa*

White-fronted Chat	*Ephthianura albifrons*
Whiteface	*Xerophila leucopsis*
Ground-Lark	*Anthus australis*
Lesser Bush-Lark	*Mirafra secunda*
Spotted-sided Finch	*Staganopleura guttata*
Crow	*Corvus coronoides*
White-browed Babbler	*Pomatorhinus superciliosus*
Tawny-crowned Honey-eater ..	*Glycyphila melanops*
Singing Honey-eater	*Ptilotis sonora*
Wattle-cheeked Honey-eater	*Ptilotis cratitia*
Yellow-plumed Honey-eater	*Ptilotis ornata*
Spiny-cheeked Honey-eater	*Acanthogenys rufigularis*
Brown-headed Honey-eater	*Melithreptus brevirostris*
White-eye	*Zosterops cærulescens*
Black-capped Tree-runner	*Sittella pileata*
Many-coloured Parrakeet	*Psephotus multicolor*
Stone-Plover	*Burhinus grallarius*
Pied Oyster-catcher	*Hæmatopus longirostris*
Black Oyster-catcher	*Hæmatopus fuliginosus*
Spur-winged Plover	*Lobivanellus lobatus*
Hooded Dottrel	*Ægialitis cucullata*
Red-capped Dottrel	*Ægialitis ruficapilla*
Double-banded Dottrel	*Ochthodromus bicinctus*
Curlew Sandpiper	*Ancylochilus subarquatus*
Little Sandpiper	*Pisobia ruficollis*
Greenshank	*Glottis nebularius*
Turnstone	*Arenaria interpres*
White-fronted Heron	*Notophoyx novæ-hollandiæ*
Pacific Gull	*Gabianus pacificus*
Silver Gull	*Larus novæ-hollandiæ*
Richardson Skua	*Stercorarius crepidatus*
Caspian Tern	*Hydroprogne caspia*
Crested Tern	*Sterna bergi*
Short-tailed Petrel	*Puffinus tenuirostris*
White-breasted Cormorant	*Phalacrocorax gouldi*
Little Cormorant	*Phalacrocorax melanoleucus*
Gannet	*Sula serrator*

Mallee-Fowl on Kangaroo Island.

By J. W. MELLOR, R.A.O.U., ADELAIDE.

THE work of the Royal Australasian Ornithologists' Union is bearing fruit in more ways than one. An example is the introduction of the Mallee-Fowl (*Leipoa ocellata*) to Kangaroo Island, South Australia, where these peculiar mound-raising birds of the mainland will be safe from the fox, which is rapidly exterminating this and many other ground-living and breeding species.

The question of protecting the Mallee-Fowl was brought before the Union at its sixth congress, at Hobart, in 1906, by the writer, and the members present were of unanimous opinion that something should be done. The writer advocated the establishment of the bird on Kangaroo Island, and a recommendation to this

effect was taken back to Adelaide. The matter was heartily taken up by the South Australian Ornithological Association. Specimens were difficult to procure; but by dint of perseverance the labours of the Association have at last been rewarded. The State Government voted a small sum for the object, and, with the aid of private subscriptions, several pairs of the birds were secured, a permit having been granted by the Government, as the species is now totally protected in South Australia. The writer took charge of them at his home at the Reedbeds, where they proved very wild and untamable, and fears were entertained for their safety; but in due course arrangements were made with Mr. Arthur Searcy, President of the Marine Board, who allowed the birds, in charge of the writer, to be taken down to Kangaroo Island by the departmental steamer *Governor Musgrave*, which left Port Adelaide on the evening of 23rd February.

Early next morning a landing was effected in the ship's boats at Harvey's Return, a rocky and dangerous landing-place, where supplies for the Cape Borda lighthouse are put ashore. It is the only spot for scores of miles along the coast where access to the rugged, precipitous cliffs can be attained, and then only by a steep incline, by means of a winch and trucks worked by horse-power from the top of the cliffs. In rough weather landing is impossible. Happily, on the morning in question the sea was moderate, with a long running swell, making the landing very difficult; but the experienced seamen, under the command of Captain P. Weir, drove the boat, on the crest of a billow, into a crack in the rocks, where she held fast. After spending the whole of the morning in "spying out the land" for a good locality in which to release the birds, a spot was selected about a mile from the landing and about three miles from the lighthouse, where a good pool of fresh water was available and the surroundings for miles presented much the appearance of the stunted mallee country on the mainland. With the assistance of Mr. W. O. Wood, the head lighthouse-keeper, and Mr. H. C. Tyley, second keeper, the birds were conveyed to the spot in a cart, and liberated, after a quantity of seeds of various kinds had been scattered about for them to feed upon until they found their natural provender, which consists of seeds of the wattle, insects, berries, thistle-tops, &c. The birds at once made off into the thick trees and undergrowth, and it will be interesting to learn how they fare in their new home. The light-keepers were most enthusiastic in their efforts to assist, and promised to keep a good look-out for further traces of the new-comers, and supply notes of their habits.

The writer stayed on the island until next day, and inspected the country around, which forms portion of the Cape Borda reserve, consisting of about 164 square miles, which the Government have declared a national reserve for the protection of native fauna and flora, and for an extended National Park. The various scientific and other patriotic bodies in South Australia are desirous of securing an extension of the area already granted, so as to

include permanent water, &c., and the writer's observations fully prove the necessity of enlarging the area. The land is of poor quality, rocky, and unfit for agriculture, and of very little use even for grazing. The two horses kept at the lighthouse have to be fed on chaff. Under these circumstances, the setting aside of a large area will in no way be a great loss to the Government, and, on the other hand, will mean a great national gain, the worth of which can only be rightly gauged by future generations.

Nesting of Psephotus hæmatonotus in Captivity.

By Mrs. A. D. Hardy, R.A.O.U., Kew

My aviary consists of an octagon, with a flight and a trap. The octagon has five glass sides, giving shelter from the southerly and westerly winds, with wire-netting on the sides facing north, and opens freely into the flight compartment, which is wire-netted both on roof and sides. Round seven sides of the octagon is a corrugated iron breastwork or skirting about 2 feet 6 inches high, and this continues round the weather side of the flight and trap. The central pole of the octagon aids to support the corrugated iron roof and wood ceiling, and to this and the angles are attached fixed and swinging perches of jarrah—hard wood, which stands a good deal of nibbling. The floor is the natural ground, with the surface well sanded.

Here are domiciled pairs of King Lories (*Aprosmictus cyanopygius*), Pale-headed Rosellas (*Platycercus pallidiceps*), Cockatoo-Parrakeets (*Callopsittacus novæ-hollandiæ*), Red-backed Parrakeets (*Psephotus hæmatonotus*), "Budgerigars" (*Melopsittacus undulatus*), Rosellas (*Platycercus eximius*), and "Blue Bonnets" (*Psephotus xanthorrhous*); but this pair, having set out to murder the others, and having succeeded to the extent of killing one "Bulla-Bulla" (*Barnardius barnardi*) and maiming another, had to be transferred to a refractory ward on the other side of the house, where they seem happy. There are also single birds of the Crimson or Pennant Parrakeet (*Platycercus elegans*), Yellow Parrakeet (*P. flaveolus*), "Port Lincoln" or Yellow-banded Parrakeet (*Barnardius zonarius*), besides a Plum-headed Parrot (*Palæornis cyanocephalus*) and a Rock-Parrot, both from the Indian region.

After the removal of the Blue Bonnets there was comparative peace. The big white house cat clambering up the wire-netted side and lying on the wire roof, which sagged with his weight, disturbed them naught, but occasional visits of a large Brown Hawk sent them in haste to the shelter of the roofed octagon, where a few of the more timid ones dashed about in great terror.

On the ground floor (and, I fear, in contravention of the *Game Act*) were five Brown Quails and two Little Doves (*Geopelia cuneata*). To better shelter the Quail from rough play of the Parrots I placed a wooden candle-box (inverted) on the sanded

floor, with a small arched opening at the ground, which gave ingress to Quail.

Domestic emergencies prevented my giving the aviary its usual weekly cleaning until more than a fortnight had passed, and then, on raising the Quails' box, I disturbed one of the Red-backed Parrakeets from five white eggs lying on the sand in the merest pretence of a hollow. I hastily restored the box to its position after my surprise, not daring to complete the cleaning then. Next day, moving the box slightly, I saw the bird sitting on the eggs. In due time, I take it (being unaware of the date of laying), four young were hatched—tiny things with a little fluff, very thin necks, comparatively large heads, which appeared to be mostly beak, and feet capable of clutching. The parent birds had a busy time The male had already done his share by feeding the female on the perch and ground, and on the nest also, judging by his frequent visits after feeding; but now both fed the young, while he also continued feeding his wife.

The following extracts are from my diary:—28th November.—The eggs were first noticed. 9th December.—The young hatched. 23rd December.—Wing and tail quills appearing, and traces of colour on head. 26th December.—Iridescent green colour appearing on head of one bird (evidently male), and patch of red distinct on his back. 30th December.—Young birds' plumage increasing rapidly, and the little ones perch well on my finger. The old birds are voracious for sow-thistles. Blue colour on young male's shoulder, like old male.

To protect the little ones from the curiosity of the *Platycerci*, a wire-netting cage was slipped over the box, with a small entrance of about 2½ inches diameter left, which, after considerable survey and much distrust, the mother bird at last accepted as part of the establishment. This protection seemed necessary, as the dead body of one unfeathered young one was found on the floor outside, with a leg eaten off. I attribute the occurrence to a combination of causes—either death was due to accident, followed by ejectment, or else mutilation by some of the other birds or by mice.

6th January.—The young male, more venturesome than his sisters, got out of box and cage, and was put back. 7th January.—Cage and box removed for a little while to give the birds an airing. 8th January.—The young male flew to the end of the flight; females not using wings. The male now has, in subdued hues, the colour markings exactly like male parent. They dislike being handled, but cling fearlessly to finger, or perch on my little girl's shoulder or cling to her dress while nestling their heads under her protecting hands. 9th January.—First female Parrot left nest. The young male perching well in aviary. The old male still feeding both young and mate; female feeding young and self. 10th January.—Second female left nest. Both flying freely, but clinging to wire-netting instead of perches. 11th January.—All perching. The parents keeping space clear of all other birds. 15th January.—Young ones self-feeding, but still helped by

parents. Male parent still feeding his mate. 1st February. Young feeding independently, and, except a trifle smaller, much like parents. Old male continues feeding mate, but not so frequently. 15th February. Young ones practically mature. Old male inclined to drive young male away, but is still occasionally feeding mate. Old birds together and young ones by themselves in a group.

A Trip to the Tunnel District, Tasmania.

By P. C. Thompson, Launceston, Tas.

The following notes were made during a trip to that district in Northern Tasmania known as "The Tunnel," in the month of October, 1910. It was made in company with Mr. A. L. Adams, a fellow-member of the R.A.O.U., and an ardent bird-observer.

The first thing that struck us was the fact that, while in the Launceston district birds were hatching their young, at "The Tunnel" very few species were even building.

Spotted Owl (*Ninox maculata*).—This species seemed fairly plentiful, for a little after dark one would hear them calling from all sides. Their call-note, which some persons still think is uttered by the Frogmouth (*Podargus*), is between "Mopoke" and "Morepork," but more like the latter.

Pallid Cuckoo (*Cuculus pallidus*).—Not at all plentiful; a few pairs noted on the surrounding hills.

Fan-tailed Cuckoo (*Cacomantis flabelliformis*).—This Cuckoo was far more plentiful than the previous species.

Frogmouth (*Podargus strigoides*).—Could hear their notes coming from all sides of the hut after dark.

Australian Raven (*Corone australis*).—Plentiful.

Black Crow-Shrike (*Strepera fuliginosa*).—Fairly plentiful.

Hill Crow-Shrike (*Strepera arguta*).—Common. This species can easily be distinguished from the Black Crow-Shrike either by its white under tail coverts or by its cry.

"Summer-Bird" (*Graucalus parvirostris*).—Plentiful all along the hills near the station. They seem to prefer the small trees in fairly open country. Frequently they were within 8 or 9 feet of the ground, feeding in the young gums.

Whistling Shrike-Thrush (*Collyriocincla rectirostris*).—Very plentiful. They could be seen clinging on to the side of a large gum, pulling away pieces of bark, from under which they would seize some grub, hit it two or three times against the tree, then swallow it.

Lesser White-backed Magpie (*Gymnorhina hyperleuca*).—Not as plentiful here as in the more open country.

Grey Butcher-Bird (*Cracticus cinereus*).—One or two heard calling, but none seen.

Olive Thickhead (*Pachycephala olivacea*).—Plentiful. From almost any of the tree-fern gullies came their notes, which sounded

like "I'll a-wet you." We would stand quietly in the scrub and imitate their note. Within ten minutes or so one or two would come down to within 7 or 8 yards of us, have a look, and then go off into the scrub again. Sometimes their notes resembled that of the Grey-tailed Thickhead.

Grey-tailed Thickhead (*Pachycephala glaucura*).—Plentiful. None noted with the yellow breast; all drab plumage. They were easily brought near by imitating their notes.

Dusky Fantail (*Rhipidura diemenensis*).—Plentiful.

Satin Flycatcher (*Myiagra nitida*).—Heard their notes coming from the tops of the large trees.

Scarlet-breasted Robin (*Petroeca leggii*).—Very scarce.

Flame-breasted Robin (*Petroeca phœnicea*).—Plentiful amongst the peppermints or burnt scrubs.

Pink-breasted Robin (*Petroeca rhodinogastra*).—In almost every gully this species was met with.

Dusky Robin (*Petroeca vittata*).—Fairly plentiful. Found nest containing two large young ones, also saw several young flying about.

Blue Wren (*Malurus gouldii*).—In the open country this little bird was seen, generally hopping around some fallen limbs or feeding amongst grass or tussocks.

Ground-Bird (*Cinclosoma punctatum*).—Only one pair noted amongst the bracken ferns.

Brown Scrub-Wren (*Sericornis humilis*).—Very plentiful These and the Dusky Robins seemed to be the only birds breeding.

Scrub-Tit (*Acanthornis magna*).—When searching one of the dense gullies I saw two birds feeding amongst the ferns or looking for food on the trunks of large tree-ferns. I could not obtain a view of their breasts, so decided to shoot them, if possible. They seemed to know that, for they would not let me get close enough, but kept flying across the creek, which meant that I had to go around *via* some log. After a good deal of crawling I obtained one, which proved to be a female. Examination proved they were not nesting.

Brown-rumped Tit (*Acanthiza diemenensis*).—Very plentiful; their notes seemed to be coming from every eucalypt or bush.

Ewing Tit (*Acanthiza ewingi*).—Shot for identification two specimens which I took to be this species.

Yellow-rumped Tit (*Acanthiza chrysorrhoa*).—Not as plentiful here as in the lower country.

Spinebill (*Acanthorhynchus dubius*).—Not common; one or two noted.

Strong-billed Honey-eater (*Melithreptus validirostris*). — Very common. From all the tall peppermints came their shrill notes.

Yellow-throated Honey-eater (*Ptilotis flavigularis*).—Very few seen. They are more plentiful in the open country.

White-eye (*Zosterops caerulescens*).—Common.

Yellow-tipped Pardalote (*Pardalotus affinis*).—From all around came their notes, "Pick it up."

Swallow (*Hirundo neoxena*).—Plentiful around the station.

Tree-Martin (*Petrochelidon nigricans*).—Very few; one or two seen.

Wood-Swallow (*Artamus sordidus*).—More plentiful than the previous species.

Musk Lorikeet (*Glossopsittacus concinnus*).—This was the only one of the *Psittaci* observed here. They were moving in flocks of, say, 12.

Brown Quail (*Synoicus australis*).—One flushed off the ground; most likely this species.

Description of a New Rhipidura.

By Edwin Ashby, R.A.O.U., Blackwood, S.A.

Recently I have received from my friend, Mr. C. E. May, Anson Bay, Northern Territory, two formalin specimens of a *Rhipidura* that appears intermediate between *R. dryas*, Gould, and *R. intermedia*, North.

It differs from the former in having dark spots or scale-like marks on the chest, as in *R. rufifrons*, and it differs from Mr. A. J. North's description of *R. intermedia* (*Vict. Nat.*, xix., p. 101) in that the orange-rufous colouration of the basal half of the tail feathers is absent, except for a wash of rufous on the basal portion of the outer web of the tail feathers (as in *R. dryas*); but this rufous wash barely extends beyond the upper tail coverts. Also, there is more white at the tips of the tail feathers. In fact, the bird under notice corresponds with Gould's description of *R. dryas* except for the black scaly markings on chest and its larger size. It therefore seems to link up the gap between *R. dryas* and *R. intermedia*, and suggests the probability that, if a sufficient series of skins were obtained round the coast of eastern and northern Australia, a gradual transition would be found from the typical *Rhipidura rufifrons*, Lath., of the Gippsland scrub, to the North-Western form of *Rhipidura dryas*, Gould.

Should the variety herein described be considered deserving of specific difference, I would suggest that it be known as *Rhipidura mayi*, after Mr. C. E. May, who has done so much good work in collecting the birds of the Northern Territory. The measurements are as follows:—Total length, 6.2 inches; length of wing, 2.8 inches; length of tail, 3.8 inches; tarsus, 0.7 inches.

[*Note.*—Since writing the foregoing I have learned that there are specimens in collections labelled *R. dryas* that have the black spots on the chest. My contention is that these are not *R. dryas*, because Gould expressly points out that the black spots are absent in that species. Secondly, there are also specimens in collections labelled *R. intermedia*, North, in which the tail feathers are not rufous, but are similar to *R. dryas*; and these may not be Mr. North's *R. intermedia*, as he states that in the type of that species the basal half of tail feathers is rufous.—E. A.]

Stray Feathers.

Yellow-faced Honey-eater (*Ptilotis chrysops*).—While staying on the Tyldesley River, East Gippsland, I found a nest of this species in a slender tea-tree about 12 feet from the ground; it contained (21st September) two young in light grey down, eyes not yet open. The parents came close to my head while I was examining the nest, making a "rut-ut-utting" noise with the wings while flying, in the same manner as the Spinebill and others of the *Meliphagidæ*.—H. STUART DOVE. Cunninghame.

* * *

Spinebill (*Acanthorhynchus tenuirostris*).—A nest just finished of this pretty Honey-eater was found near Tyldesley River on 21st September, in young swamp tea-tree, about 6 feet 6 inches from the ground. Both birds, in fine plumage, practically identical, came close up to me. One egg was laid on 24th September, another on 25th, when the female began sitting. Next morning she allowed me to touch her before she would leave the nest, and then just sat quietly by on a twig while I examined the eggs.—H. STUART DOVE. Cunninghame.

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Cape Barren Goose on Nest.—This photograph (Plate V.) was taken at the Public Gardens, Launceston. The nest is composed of a general collection of rough material, some of which must have been gathered from a distance. The nest is only slightly raised above the ground, the top being flat, with a hollow only large enough to hold the eggs (three). This hollow is lined with fine pieces of roots, grass, and the soft down plucked from the birds' own bodies. On leaving the nest at feeding-time the eggs are carefully covered with this material. These birds show a good deal of defence. The male bird will rush at any intruder with considerable force.—W. M'GOWAN. Launceston.

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Cleveland (Tasmania) Notes.—20th September, 1910.—My sister found a nest of the Striated Field-Wren (*Calamanthus fuliginosus*) with three eggs of owner and one egg of Fan-tailed Cuckoo (*Cacomantis flabelliformis*).

24th September.—Observed two pairs of Red-capped Dottrels (*Ægialitis ruficapilla*) on the edge of a brackish lagoon about a mile from the Macquarie River. Subsequently I noticed that the birds remained at this lagoon (about two acres in extent).

15th October.—In company with two ornithologists, was searching the flats of the South Esk for Native-Hens (*Tribonyx mortieri*), when one of the party found a nest with a clutch of fourteen eggs. Again (29th October), when exploring banks of the South Esk with one of my scholars, we found a Bush-Chat's (*Ephthianura albifrons*) nest containing three young ones and

PLATE V.

Cape Barren Goose (*Cereopsis*) on Nest.

FROM A PHOTO BY W. M. GOWAN, JUN.

two eggs. Also observed nest of Native-Hen with set of sixteen eggs. Bird was sitting.

29th October.—In Diprose Lagoon found Bald-Coot's (*Porphyrio melanonotus*) nest with set of eight eggs. This proved to be a "combination clutch"—five of *P. melanonotus* and three of *Fulica australis*.

1st November. Cuckoo-Shrike (*Graucalus parvirostris*) sitting on four eggs.

2nd November.—Another nest of same, with four eggs.

19th November. In small lagoon on way to the Macquarie River observed a Swamp-Hawk's (*Circus gouldi*) nest with five eggs. Grebes (*Podicipes poliocephalus*) were also present. At Macquarie River, amongst other nests, one clutch of the Native-Hen contained twelve eggs.

3rd September.—Flushed Snipe (*Gallinago australis*) on edge of Sister's Lagoon, 4 miles west of Cleveland.

23rd November.—Charlie Challis, one of my scholars, found a Coot's (*Fulica australis*) nest with three eggs. Flushed sitting bird from nest.

27th November.—Found another Coot's nest in Diprose Lagoon. Set four eggs. 1st December, another bird on three eggs in small unnamed lagoon. These Coots' nests are more tidy and more compact than those of the Bald-Coot.

6th November.—A Musk-Duck (*Biziura lobata*) made a nest underneath a Swamp-Hawk's nest, and two eggs were in it on above date. The Hawk's nest had been last inspected on 1st November, when it was apparently ready for eggs, but no Duck's nest was underneath This Hawk's nest was started on 4th October, and the first egg was laid on 22nd November. The clutch was subsequently destroyed by the Crows (Ravens).

6th November.—Disturbed a Tawny Frogmouth (*Podargus strigoides*) which was sound asleep on the ground at the foot of a tree.—(Miss) J. A. Fletcher. Springfield (Tas.), 23/2/11.

* * *

Nesting of the Red Wattle-Bird (*Acanthochæra carunculata*).—A good many pairs of this large Honey-eater remained in our district to breed, their favourite site for a nest being one of the bunches of mistletoe (*Loranthus*) which grow so plentifully in the big box trees (*Eucalyptus*) of Gippsland Out of five nests which we visited, four were so placed, and were at a height of 18 to 25 feet; the exception was built at a height of about 10 feet from the ground in a small sheoak (*Casuarina*) close to our paddock fence on one side and to the road on the other—a road along which timber-waggons, drays, and springcarts, besides pedestrians, daily passed. The nest was placed in a niche where a small branch sprang upwards and outwards from the main stem, and was so secluded among the slender, drooping branchlets that it was quite invisible until one mounted the top rail of the fence and thrust one's head in among the branchlets. I timed the period

of incubation, and made it 16 days. Two eggs appear to be the invariable clutch in this locality. The young, when born, had reddish skin, and showed some dark grey down on head and body. On seventh morning after hatching the eyes were opening; there was long dark-grey down on the head and back; the wing-quills were sprouting well. I noticed that, while one of the young had a yellowish bill, the other (probably a male) had a larger reddish-tinted one. This clutch had left the nest on the fourteenth morning from hatching, after considerable heat on the previous day, which may have hastened their departure. In another instance the Wattle-Birds had nested in a small clump of *Loranthus* sprouting from the upper side of a box limb (*Eucalyptus*) about 20 feet from the ground. They appear to prefer the parasite while still in the young state, with the leaves somewhat stiff and upright, before it develops the long, drooping habit of the mature bunch, although occasionally a nest is placed in one of the latter type. The female was sitting on two eggs on 15th October, the incubation in this case occupying 15 days. The young were sparsely covered with dark grey down on head and body. The eyes were opening on seventh morning; a long, dark down covered heads and bodies, and the feathers were sprouting, noticeably the wing-quills. At ten days from hatching some down still remained, although the feathers were developing well. When the camera was taken up the box tree to get a picture of the nest the old birds became wildly excited, dashing from branch to branch with harsh, grating cries, the female occasionally sailing to the ground and "shamming wounded," after the manner of the Yellow Robin, but in this case the deception was not nearly so long-continued or effective, the wild excitement which reigned in the bird's breast apparently preventing her from a long continuance in any course of tactics. The attempt to lure from the nest in this manner was a new trait to me so far as the Wattle-Bird is concerned. When 14 days old these two young had a plumage of streaked light and dark grey, much resembling the parents, although a little down still showed through. One of them, when touched, left the nest and sailed to the ground with outspread wings. Next day they left the nest altogether, giving a period of 15 days from hatching to fledging, as against 14 days with the sheoak nestlings.—H. STUART DOVE. Cunninghame.

Death of a Distinguished Ornithologist.—In *The Proceedings of the Ornithological Society of Bavaria*, vol. x (issued March, 1911), there appears the following *in memoriam*:—"On 28th January, 1911, in the evening, after a brief illness, our greatly esteemed first president, Herr Dr. (med.) Carl Parrot, the founder and for many years leader of the Ornithological Society of Bavaria, departed this life. We mourn his loss deeply, and reserve ourselves to refer to his works and his merits in an extensive necrologue later.—THE COUNCIL."

Protection of Pelicans in South Australia.

A DEPUTATION, organized by the South Australian Ornithological Association, waited on the Commissioner of Crown Lands (Hon. C. Vaughan) on Tuesday, the 9th May, and asked that the name of the Pelican should be removed from the schedule of unprotected birds and placed on the second schedule, of birds protected from 1st July to 20th December. The Pelican had at one time been on the second schedule, but had been removed, and was now being exterminated quickly. The deputation consisted of Mr. J. W. Mellor (secretary of the South Australian Ornithological Association), Captain S. A. White (local secretary of the Royal Australasian Ornithologists' Union), Mr. M. Symonds Clark (secretary Fauna and Flora Protection Society), Mr. E. Ashby (member of the Royal Society), and Mr. F. R. Zietz (ornithologist at the Adelaide Museum). After these gentlemen had fully and forcibly put the case for the birds, Mr. Vaughan, in reply, said he had been thinking of establishing on the Coorong a sanctuary for birds. There would, he knew, be an outcry from sportsmen, who had enjoyed indiscriminate shooting there. When the Government had closed American River against fishermen the latter had loudly complained that their grounds had been taken, but now there was hardly a fisherman who would not oppose anyone who tried to net fish in American River, because it was recognized that the sanctuary there was replenishing the supplies. The Government were thinking of taking similar action at Port Lincoln. The necessity for having a defined area on the Coorong of absolute protection for birds in the breeding season was becoming essential. Too many sportsmen went down there to shoot and "accidentally" hit the protected birds. He sympathized with the request of the deputation, and fully recognized that the Government had a duty to do in trying to protect the fauna and flora in South Australia, as Australia had the most peculiar fauna and flora in the world. He would bring the matter before the Government, and get a report by his officers, and see if a certain part of the Coorong could not be set aside as a sanctuary.

Another New Book on "The Birds of Australia."—A new book by A. H. S. Lucas, M.A., and W. H. Dudley Le Souëf, C.M.Z.S., has just been received at the time of going to press, and will therefore be reviewed in the following issue of *The Emu*.

"Oologia Neerlandica."—Old countries as well as new, like Australia, need works on oology. There will be ready shortly "Eggs of Birds Breeding in the Netherlands," by A. A. Van Pelt Lechner (Netherlands Ornithological Society), with coloured plates of specimens in the author's collection. The price by subscription is seven guineas net for the complete work.

From Magazines, &c.

Alterations in Nomenclature.—Mr. Gregory M. Mathews contributes a highly technical and argumentative article to *Novitates Zoologicæ*, vol. xvii., December, 1910. "On Some Necessary Alterations in the Nomenclature of Birds." As a sample see foot-note, p. 51. this issue.

* * *

A Bird of the Sierras.—Mr. Milton S. Ray, a well-known Californian ornithologist, in a recent issue of *The Condor* (Sept.–Oct., 1910), describes, in a most interesting paper, the discovery of the nest and eggs of the Grey-crowned Leucosticte (*L. tephrocotis tephrocotis*). The place of discovery was Pyramid Rock, "a lofty mountain of the great Sierran chain in the eastern portion of Eldorado County, California." The bird was first described by Swainson in 1831, and, although many have searched, the nest and eggs have remained unknown until 1910. Mr. Ray and his party had to traverse snow-drifts on the climb up the mountain, and the treasure they were in quest of was at length discovered beneath a pile of angular rocks.

* * *

Birds of North-East Greenland.—"In Dr. J. Lindhard's account of the Danish expedition to North-East Greenland, 1906–8 (*Geogr. Journ.*, xxxv., p. 541), we are told that the 'ornithological booty of the expedition was unexpectedly abundant.' Particular attention was paid to the breeding-places of such species as *Tringa canutus*, *Calidris arenaria*, *Phalaropus fulicarius*, *Larus sabinii*, *L. eburneus*, *Anser leucopsis*, and *Lomateria spectabilis*. Of all these species, specimens—not only of full-grown birds, but also of eggs and of young in different stages of development—were procured. Of *Calidris arenaria* twenty-four eggs were obtained, and a breeding-place of thirty pairs of *Tringa canutus* was discovered. A specimen of *Fuligula marila*, a species new to Greenland, was brought home."—*The Ibis*, October, 1910.

* * *

New Australian Sub-Species.—The trinomial system may simplify the nomenclature of birds. At the same time, it appears an easy medium for multiplying sub-species. According to the "Bulletin" (No. clxvii.) of the British Ornithologists' Club, Mr. G. M. Mathews exhibited and described the following as new :—

Ninox humeralis queenslandica.
Aphelocephala leucopsis pallida.

Also, according to "Bulletin" No. clxix. :—

Rhipidura albiscapa alisteri.
Pomatostomus superciliosus ashbyi.

And again, according to *Novitates Zoologicæ* (December, 1910) :—

Meliornis novæ-hollandiæ diemenensis.

King George as a Bird-Lover.—In connection with the coronation of the King and Queen—the Royal Patrons of the R.A.O.U.—members will learn with interest that King George is not only a great bird-lover, but His Majesty possesses a good knowledge of ornithology. The Queen shares with the King his love for birds.

According to an English paper (*The Daily Mirror*), the King has an aviary of small birds in addition to Canaries, chiefly Gouldian Finches (*Poephila gouldiæ*), Spotted-sided Finches (*Staganopleura guttata*), Banded Finches (*Stictoptera Vichenovii*), &c. When he was at Marlborough House this aviary was in a room adjoining his bedroom, and it has now been removed to Buckingham Palace, to an apartment close to the King's. The King knows his birds individually, and to a large extent attends to them personally, making real pets of them, his favourite being a sprightly Australian species, a Cockatoo-Parrakeet (*Calopsittacus novæ-hollandiæ*). Strange to state, it was found as a "stray" in the gardens of Marlborough House some years ago. Now it sleeps in the King's bedroom, and delights to perch itself on the King's finger or on his shoulder, and chatters in soft, confiding voice, now and again repeating "Poor Joey," "Poor old Joey."

* * *

A New Petrel for Australia.—In the *Proc. Linn. Soc. N.S. Wales*, vol. xxxv., part 4, 26th October, Mr. A. F. Basset Hull, Sydney, has described a new Petrel, which he has named *Œstrelata montana* (Lord Howe Petrel). It is one of the largest and most robust of the *Œstrelata*, and does not closely resemble any other member of its genus. An adult skin and a series of eggs were taken on 3rd June, 1910, for Mr. Hull by Mr. Herbert Wilson, who also furnished interesting particulars concerning the habits of the bird. The bird, which is locally known as the "Big Hill Mutton-Bird," breeds on Mount Gower, Lord Howe Island. The mountain is 2,840 feet in height, and, together with Mount Lidgbird, rising sheer out of the ocean, makes an imposing picture, judging by the excellent photograph (taken by Mr. Hull during a previous trip) which accompanies the article. There are three other plates, from photographs by Mr. A. R. M'Culloch, showing the breeding-place of *Œ. montana*, an adult bird at entrance to burrow under overhanging rock, and a downy nestling. The locality was very rocky, with a few patches of cutting-grass. The nests examined were in burrows some 6 feet in length, and mostly in wet ground. No nest was found in the open, but many were under the beetling boulders in inaccessible places. The nest itself was a large accumulation of cutting-grass, in which the single egg was almost concealed. All the burrows examined had two outlets. Average dimensions in inches of an egg, 2.52 x 1.9. Mr. Hull is to be congratulated upon the work he is doing amongst the little-known Petrels off our coast.

Reviews.

["The Feather Trade: the Case for the Defence."]

A PAPER by Mr. C. F. Downham, of Messrs. Sciama and Co. Ltd., read before the London Chamber of Commerce in November, 1910, has been issued in neatly printed pamphlet form. The paper purports to show "some facts and fallacies in connection with the trade in fancy feathers." The author treats on "Rare Birds, their Habits and Habitats," "The Ethics of Sport, &c.," "The Egret," "Birds-of-Paradise," "India and Elsewhere," &c. There is also a supplement containing some foreign laws and copies of official correspondence—altogether the result of much labour on the part of its author.

The Melbourne Chamber of Commerce has requested a criticism of the pamphlet from a local standpoint, and Mr. A. H. E. Mattingley has obligingly complied. He opens the subject by stating that the wearing of plumes of birds is a relic of barbarism, which has evolved, through ages, down to the present-day "fashion." This fashion is catered for by certain business people, who establish a demand, each season, for certain articles for personal adornment, and so "set" the fashion. Rich and poor alike become its devotees, vying with each other in becoming as fashionable as their finances permit. The fashion of wearing the plumage of birds, as established by the "fashion" caterers, has become not only popular, but has grown to alarming proportions; indeed, to-day it is well-nigh insatiable. The feather traders, to supply this great demand, are depleting the world of certain of its useful birds. Eminent naturalists agree that the place of birds in nature is to police the earth and to preserve law and order in our fields, forests, and waters by keeping in check the ravages of noxious insects and animals which, if unchecked, would devastate these parts. Thus, it is maintained that birds are indissolubly linked with a country's domestic economy and welfare. Therefore, it is asked, is the interest of comparatively a few plumage merchants to endanger the greater national interests of the agriculturist, pastoralist, orchardist, &c.?

From his connection with the trade Mr. Downham cannot be suspected of being an unbiassed writer, but he need not descend to disparaging remarks or irrelevances by calling his opponents in opinion, who have no "axes to grind," "irresponsible sentimentalists," "reckless members of bird protection societies," &c.

In connection with the method of collecting Egret plumes, the value of "The Feather Trade" as a pamphlet is at once discounted by the evidence of its principal witness, M. Leon Laglaize, who at one time solemnly affirmed, as an eye-witness, that in Venezuela, "after the breeding season, when the young ones leave their nests to try their wings, the abandoned nests are searched, and a valuable amount of feathers is collected there; the feathers have been skilfully rolled in to furnish and soften the interior of the nest. These nest feathers are the best kind,

for they have been pulled off by the bird itself before laying the eggs." As such a statement is ridiculous, and contrary to natural history facts, it has been suggested that M. Laglaize has been led into witnessing the collecting of comparatively worthless moulted plumes as a blind to the real object of a planned slaughter. Under date 14 1 09, His Britannic Majesty's Minister in Venezuela, in a communication to the Royal Society for the Protection of Birds, states :—"There is no doubt that by far the larger part of the feathers collected and exported are taken from the birds shot for the purpose. The estimates as to the exact proportions vary slightly, but 75 per cent. may be taken as a reliable figure for the proportion of feathers collected from birds killed and 25 per cent. for the proportion of moulted feathers collected."

In chapter ii. Mr. Downham expresses doubts about the genuineness of Mr. Mattingley's photographs of the starving young Egrets in Riverina, New South Wales, without attempting to disprove the statements which appeared in *The Emu* (vol. vii., pp. 71–73) with the pictures. Mr. Downham hazards the opinion that the presence of the photographer was sufficient to cause the state of collapse of the nestlings as depicted in the photographs, which he terms "bogus," and even suggests that the parent birds were not killed at all, but were merely frightened away by the presence of Mr. Mattingley and his companion—downright presumption on the part of the clever writer of "The Feather Trade." The illustration of the nest of starvelings imploring food from passing birds shows plainly that the young ones were looking in different directions; therefore, they could not be looking at the photographer, as suggested. The R.A.O.U. would not have reproduced Mr. Mattingley's startling (and now historic) photographs had it not *bona-fide* evidence of the state of the rookery as observed after it had been raided by the plume-hunters. Furthermore, there is the statement by Colonel C. S. Ryan, a past President of the Union, that personally he was aware of another Egret rookery on a station in Riverina that was raided by plume-hunters. The rookery was annihilated. Colonel Ryan possesses the name of the principal raider, and can vouch that over 400 backs of birds containing plumes were sold to the trade. (*Vide* evidence of Colonel Ryan, "Report from the Select Committee of the House of Lords, Plumage Prohibition Bill" (1908), p. 33.)

Even if "the Government of Venezuela"* is now legislating to protect its Heronries and to "farm" Egrets for the sake of "moulted" (?) feathers, in Australia, at all events, and doubtless elsewhere, the beautiful Egrets were cruelly slain during the breeding season, when the plumes were prime, for "the feather trade."

* It is stated that the prohibition refers to the small sub-State of Apure only, and not to Federal Venezuela.

["Nests and Eggs of Birds Found Breeding in Australia and Tasmania," by Alfred J. North, C.M.Z.S., &c.]

THIS publication of the Australian Museum proceeds slowly. The Trustees have issued part 1 of vol. iii. It was intended to publish 120 pages—about one-third of the volume—but insufficiency of paper has prevented this. It contains the Family *Cuculidæ* and the Sub-Family *Centropodinæ*, forming the concluding portion of the Order *Picariæ*; the Family *Loriidæ* and portion of the Family *Cacatuidæ* of the Order *Psittaci*. As in the previous parts, the illustrations of birds are reproduced from drawings made by the late Mr. Neville Cayley, who was also responsible for hand-colouring the plates of eggs in the coloured copies. Most of the figures of eggs of the Family *Cuculidæ* have been published in previous parts. The eggs of the different species of the Order *Psittaci* all being white, no plate of Australian birds' eggs is issued with this part. Mr. R. Etheridge, the Curator, advises that part 2 is already in the printer's hands, and will be gone on with immediately on the receipt of the paper, which, it is anticipated, will not be long delayed.

THE A.O.U. CHECK-LIST OF NORTH AMERICAN BIRDS.

["Check-list of North American Birds," prepared by a Committee of the American Ornithologists' Union. Third edition (revised). New York. 1910.]

THIS valuable work has reached Australia at an opportune moment. The Check-list Committee of the Royal Australasian Ornithologists' Union is already at work, and the members must profit by the study of this publication, which has stood the test of time.

It will interest Australians to note that trinomials are used to indicate sub-species. This is certainly a departure from the present Australian method of using a totally different name, which leaves the student without any indication that the bird under notice may not be a species, but a sub-species only.

One point that lessens the value of the A.O.U. Check-list, to Australian ornithologists, at least, is the omission of nearly all synonyms. Had the corresponding name in Sharpe's "Hand-list of Birds" been given as a synonym, the usefulness of the A.O.U. Check-list would have been increased to workers abroad. Few will recognize the Curlew-Stint under the name of *Erolia ferruginea*.

Though the Check-list forms a large volume of 420 pages, it contains no descriptions. The scientific name and authority, the vernacular name, the number of the species in the previous edition, a reference to the original description, and the range of each species, completes the information given in the List. Sub-species are similarly treated. Each is denoted by a letter.

The nomenclature conforms to the "Revised Code of Nomenclature" issued by the A.O.U. in July, 1908. Changes are "numerous," owing to the "strict application of the law of

priority." Though admittedly out of date, the old classification of birds adopted a "quarter of a century ago" is used, to avoid "annoyance."

In view of the vast difference in nomenclature, even in family names, one looks forward with interest to the publication of the Australian Check-list. While Sharpe, in his "Hand-list," uses the name *Colymbidæ* for the Divers and Loons of the Northern Hemisphere, the A.O.U. Check-list uses the name *Colymbidæ* for the Grebes and the name *Gaviidæ* for the Divers.* Again, the

* "British authors generally have used *Podiceps* for the Grebes, and just as consistently has it been rejected by American writers. The reasons given by the latter can be best understood by a quotation from a very recent paper on this subject. Allen (*Bull. Amer. Mus. Nat. Hist.* vol. xxiii., p. 289, 1907) stated: 'Certain naturalists, more especially the English, have, however, persistently employed *Colymbus* for the Loons and other names for the Grebes, clearly without good reason, possibly following Latham, who, in 1787, proposed *Podiceps* for the Grebes, and adopted *Colymbus* (Latham *nec* Linn.) for the Loons'; on p. 290 he added:—'Latham's "Genus lxxix. *Podiceps* (*Colymbus* Linn.)" is a substitute name for *Colymbus* Linnæus, and consists of what was left of that group after the Loons were removed from it by Brisson. It is, therefore, an exact synonym of the restricted genus *Colymbus* Brisson of the Check-list. From the modern point of view, Latham had no right to re-introduce, on a later page, the name *Colymbus* (Genus lxxxvi. *Colymbus* Latham) as a new genus for the Loons, after making it a synonym of his own genus *Podiceps*, to say nothing of Brisson's having separated the Loons from the Grebes as a distinct genus in 1760, or twenty-seven years before. According to modern usage in other similar cases, *Podiceps* has no standing, being a pure synonym of an earlier genus.' Upon referring to Latham's work I find that the preceding is obviously a misinterpretation of Latham's action. In the Xth Ed. of the *Systema Naturæ* (p. 135) Linné included four species under his genus *Colymbus* (Brisson *independently* introduced *Colymbus* for the Grebes; he never subdivided a Linnean genus; he used the same names as Linné, often with different significations, as, for instance, *Mergus*, which he used for the Divers, though Linné had utilized it for the Mergansers). Linné, in his XIIth Edition of the *Systema Naturæ*, increased the number of species under *Colymbus* to eleven.

"Latham was the first writer to subdivide this genus, and his method was perfectly legitimate, and, moreover, quite intelligible. He noted fifteen species, but separated the Linnean genus into three, accepting *Uria* for the Guillemots, restricting *Colymbus* to the Divers, and introducing *Podiceps* for the Grebes. As he worked with the Linnean system, he indicated in brackets the Linnean genus in the few instances where he made improvements. This is clearly seen as, when including *Sylvia* (p. 287), *Perdix* (p. 290), *Numenius* (p. 291), and *Phalaropus* (p. 294), he noted against each the Linnean equivalents, *Motacilla*, *Tetrao*, *Scolopax*, and *Tringa* respectively. But such can by no means be called substitute names as in each case Latham retained the Linnean names for a restricted portion of the Linnean genus. There can be no appeal whatever from Latham's action, and consequently *Podiceps* must be used for the Grebes. Latham's division was endorsed by such non-English ornithologists as Retzius (1800), Bechstein (1803), Meisner (1804), Koch (1816), Vieillot (1816), Cuvier (1817), Temminck (1820), Lesson (1828), and Kaup (1829), to mention only the first names that come to hand.

"In 1829 Kaup (*Skizz. Entw.-Gesch. Nat. Syst.*) introduced new generic names as follows:—On p. 35 he retained *Podiceps* for the *P. minor* group; on p. 41 he proposed *Dytes* for *P. cornutus* and *arcticus*; on p. 44 *Podilathrya* for *P. subcristatus*; on p. 49 *Proctopus* for *P. auritus*; and p. 72, *Lophaithyia* for *P. cristatus*. Here, again, though the names cannot be accepted with

Plotidæ of Sharpe's "Hand-list" is replaced by the *Anhingidæ* of the A.O.U. Check-list.

The difficulty experienced by zoogeographers of drawing a dividing line between the Nearctic and Neotropical regions has been overcome by taking the political boundary between the United States and Mexico as the southern boundary of "North America." Lower California and adjacent islands are included in "North America."

The Australian Check-list Committee would do well to accept an extract given in the preface, namely:—"That every technical name be followed by a vernacular name selected with due regard to its desirability."

American ornithologists are fortunate in having so complete a record to assist them.

Correspondence.

NOMENCLATURE OF AUSTRALIAN AVIFAUNA.

To the Editors of "The Emu."

SIRS,—The chief criticism of my work, "The Birds of Australia," by my Australian friends has concerned the nomenclature I have adopted, and, as it seems to me that the principles which I follow are not clearly understood, I herewith explain myself.

The universal nomenclature of zoology is based upon the 10th edition of Linné's "Systema Naturæ," and the acceptance of all scientific names is governed by the International Code, formulated by the various International Congresses of zoologists. The scientific names I am using for Australian birds are those selected in pursuance of the laws of the International Code. By so doing I am choosing the name which has the best chance of being of permanent value, and, moreover, the one which will be easily recognized by every scientific worker, whether he be an Australian or not. For, by subscribing to the International Code, and only preferring the name which is correct according to the Code, I adopt that name which will be utilized by every other ornithologist throughout the world who also obeys the coded laws, whatever his nationality, and whether he knows of my choice or not. This point appears to have been overlooked by Australian ornithologists generally, as, with a conservatism which is antagonistic to progress, they have desired to use a name well known to themselves, though probably unknown to extra-Australian workers. To follow such a course in a work like mine would be fatal to its utility, and therefore could not be considered for a moment.

full generic rank, the method of restriction being correctly employed, no subsequent alterations can be admitted that would depreciate Kaup's division. Hence, *Podiceps* must be used for the Dabchicks and *Dytes* for the Grebes, the later introduced names being of only sub-generic value." —Gregory M. Mathews, *Nov. Zool.*, vol. xvii.

The strongest feature of the International Code is what is known as the "law of priority." By this law the correct name for any bird is that given by its first describer or discoverer. Now, my rigid acceptance of this law has apparently given offence to my Australian friends, yet therein they show a strange inconsistency. Without exception, workers in ornithology desire to have their work duly recognized, and one way is the quotation of the author of a new species and the use of the name proposed by him. This is especially desired by every working ornithologist, and the only way they can expect to have their claims acknowledged is through the working of the law of priority. Yet these same workers decry my alterations as "upsetting" names commonly in use by them; but if the law of priority is applicable to present-day workers, how much more should it be meted to those whose works are all that speak for them! It should be remembered that these early writers, whose names I accept, were quite as enthusiastic and earnest as any of our own time. It cannot be denied that it is due to such writers that their names should be recognized, as it is only just that the merit should be given to those whose right it is. That is all I am doing.

The gist of the whole trouble at present is that the "Catalogue of Birds" of the British Museum, which work has been accepted as a standard authority, did not follow the 10th but the 12th edition of the "Systema Naturæ" of Linné, and, moreover, the law of priority was only half-heartedly accepted, custom being allowed to overrule it in many cases. When I made up my "Hand-list" I used the British Museum "Hand-list" as a basis; consequently many alterations have to be now made. However, I am hoping that, by the time I have finished, the nomenclature of Australian birds will be comparatively fixed, and comparable with that of North American birds, which has been arrived at by 30 years' co-operation and criticism. At the present time the Palæarctic avifauna is being carefully worked at, and the correct nomenclature determined, by Dr. Ernst Hartert, of Tring. I am much interested in this, as the majority of the Australian Charadriiformes occur in that fauna as breeding birds.

I would like to impress that the Code is made governing all zoology, and that its provisions are therefore extensive. Laws to control Australian ornithological names, not subservient to the International Code, as suggested by some writers, are, of course, a practical impossibility. Objection has been made to the alteration of generic names on account of their pre-occupation in other branches of zoology. To those who would thus plead for the retention of an invalid name I would point out the inconvenience such a course would cause to workers who have to review faunas. The only means of knowing whether a name refers to an insect, mammal, or bird is by the operation of the law of priority, and hence validity of the earliest name. Otherwise, we should have the absurdity of never knowing whether a writer was dealing with an insect or a bird, and consequent confusion. The recorders

in the *Zoological Record* would be faced with problems, and their work might contain errors which would entail endless research to rectify. In consequence of writers not strictly observing the laws, slight errors of this description have crept in, even as late as the last volume.

I have been taken to task for using trinomials. When Dr. Hartert introduced trinomials into a paper on Australian birds, the comment in *The Emu* (vol. v., p. 167, 1906), reads :—"It would therefore appear that, in spite of all the 'immigration restriction,' trinomial nomenclature has got into Australia after all." Yet, on p. 140, A. G. Campbell had written regarding the birds of Kangaroo Island :—"Concerning the nomenclature for these intermediate or island forms, it is difficult to prescribe. I would suggest the specific name *halmaturina* . . . . and should subsequent research and more material warrant it, that the same name be also sub-specifically applied to . . . ." Then on page 143 he writes, "*Zosterops halmaturina* (new sub-species)," though this is the bird (others also named similarly) which he concluded should be considered *specifically* distinct.

Such inconsistent naming is quite obviated by the use and recognition of the trinomial system of nomenclature.

Australian ornithologists are agreed that there are such things as island forms and representative races, which are now generally called sub-species. As stated by one of the "old school" of British ornithologists, "no careful student of animals can deny that sub-species really do exist in nature, but the question is whether it is advisable to give them a special name." The necessity of some method of terminology for distinguishing sub-species is now accepted by Australian workers, but they have consistently used binomials.

A. J. North, in "Austr. Mus. Special Catalogue," No. 1, vol. i., pp. 288, 289 (1904), transcribes a paper by Dr. Dwight, jun., from *The Auk*, vol. xxi., p. 64 (1904), of which I attach sentences :—"Another, but less potent, cause for the rise of the sub-species is found in the unnecessary prominence accorded to it in our books and other publications. *Wherever we turn, we find it*, to all appearances, *on equal terms with full species*. . . ." North then adds :—"Trinomial nomenclature has not yet been adopted by Australian ornithologists, although that does not protect Australian ornithological literature from the hair-splitting of the most ardent sub-species maker resident elsewhere. Comparatively very few British and Continental ornithologists make use of the sub-specific distinction. It is useful, however, and has this advantage—one knows at a glance that the added trinomial refers only to a geographical variation of a typical form, whereas in binomial nomenclature one may possibly discover, after the loss of much time in searching out an original description, that the supposed specific value does not exist, and that a name has been given to a form that very often does not merit even sub-specific recognition."

Here is the opinion of a worker who, though not using trinomials, can perceive the benefits accruing from their usage. The benefit North points out, however, is only one of many. Nomenclature is only an aid to scientific knowledge, and its correct use is such that by means of it relationships can be easily expressed. The use of binomials for sub-species is misleading, as thereby the relationships are completely hidden, whilst trinomials, as North notes, show at a glance the value and status of a form. Since North wrote, British and Continental ornithologists have almost unanimously approved of the trinomial system, the only exceptions being the last remnant of the Stricklandian school.

By means of trinomials we can show the connections of the Australian avifauna in an easily understood manner, which otherwise is not practicable. In this connection I will quote Von Ihering (*Auk*, xxi. (1904), p. 313), who thus expresses my views :—

"These facts of geographical distribution show us that the only system of nomenclature well applicable to the discussion of zoographical problems is the trinomial.

"The use of binomials as employed in the excellent 'Hand-list' of Dr. Bowdler Sharpe may be more advantageous for collection purposes, but it combines in a very inconvenient manner well-defined species with local races. Such facts as the vast distribution of *Pitangus sulphuratus* (L.) and *Myriozetetes similis* (Spix.) are completely hidden by the use of binomial nomenclature."

I have hitherto accepted that the Australian ornithologist thoroughly understands how the trinomial is used, and what is considered a sub-species. It may not, however, be out of place to emphasize the point that a sub-species is considered as a representative race—that is, two birds living together in the same districts cannot be considered sub-species, however slight the differential features might be; these must be permanent to make the two birds specifically distinct, otherwise the differences must be put down to individual variation. If two birds, referable to the same species, but inhabiting different areas, be found to show constant slight separable characters, these are ranked as sub-species, even though certain individuals in each area may be inseparable.

A good instance in Australian ornithology may be quoted as an example. In my "Hand-list" I read :—

Oreocichla cuneata, De Vis.
,, *heinei*, Cabanis.
,, *lunulata*, Latham.
,, *macrorhyncha*, Gould.

I have here four binomials which may represent four species, or four sub-species, or four species and sub-species—no one can tell which without examination of the four birds.

By the terminology I propose adopting we should have instead—

Turdus lunulatus cuneatus, De Vis.
,, ,, *heinei*, Cabanis.
,, ,, *lunulatus*, Latham.
,, ,, *macrorhynchus*, Gould.

This shows at once that one species of Thrush is recognizable, and that four races inhabiting different areas have been adopted, and that the oldest-named form is *lunulatus*, Latham.

The changing of well-known names is, of course, upsetting, but that Australians will refuse to accept them I do not admit. There are many workers sufficiently interested in their avifauna to wish to give every bird its correct name. It is surprising how quickly one takes on a new name. The alterations pointed out by Sharpe a few years ago are now accepted.

Now let me explain "virtual tautonymy." The Linnean genera are usually complex, and no indication as to the typical species is evident. Linné himself made it known that the best-known species should be regarded as the type; but then the question arises, Which was the best-known species of Linné? The only method of ascertaining the type has hitherto been that of elimination, which, of course, selects the least-known species to Linné. That of necessity proved unsatisfactory, more especially through the fact that Brisson's independent creation of genera influenced later authors.

Recently, the selection of types by the designation of subsequent writers was approved of; but here again nothing satisfactory could be attained.

When Linné introduced his genera, the birds had been usually known by a single Latin name. Very often previous authors had differed, and two names would be current. Linné strongly objected to the idea of using the same name for the genus and species, or, as we now call it, "tautonymy." Therefore, when he selected for the name of a genus a name previously used for a species, he combined with it a new specific name. When there were two names current he combined the two for his new name. Thus the Wryneck had been known as *Iynx* to some authors, by others it had been called *Torquilla*. Linné made of this bird a new genus, which he called *Iynx*, and the bird itself he called *I. torquilla*. Brisson called his genus *Torquilla*.

Instances as simple as the above are rare, but this will show the reasoning simply.

It is the opinion of the Nomenclatorial Commission that if the species having in its synonymy the same name as Linné's generic name be selected as type it will save much confusion. I am prepared to endorse this opinion.

Thus, Linné created a genus *Charadrius*, and included a number of species. The species *Hiaticula* was known previously as *Charadrios sen. Hiaticula*. I would certainly accept this species as Linné's typical species. It is only reasonable to suppose that Linné was more familiar with this bird than with the bird that has passed duty as type—viz., *Pluvialis*. That has nothing

much to do with the matter, but I believe it a justifiable suggestion.

Then, as regards *Tringa*, the species *Ocrophus* (wrongly spelt *Ochropus*) is indicated as having been known as *Tringa*, and I would accept this as type. Linné notes that the prior name of the (at present) type was *Canutus*. Here, again, it seems to me that Linné would be more familiar with *Ocrophus*, a Swedish breeding bird, than with *Canutus*.

The acceptance of this "virtual tautonymy" will fix the types of some genera which otherwise would be a source of great trouble, and I consider it a most scientific method of selecting the types of the Linnean genera.

In explanation of my inability to admit so many genera, I write the following *re* the genera *Charadrius* and *Tringa* as accepted by me:—

Charadrius, as I use it, includes *Charadrius*, *Ochthodromus*, *Ægialites*, *Peltohyas*, and *Eudromias* of the Cat. Birds, xxiv.

It is admitted, even by ornithologists who separated the genera *Charadrius* and *Ægialites* (including *Ochthodromus*), that "structurally there is no difference between *Ægialites* and *Charadrius*," and that there is a complete passage from forms with a distinct nuptial garb to those which have none, through species like the Kentish Plover (*C. alexandrinus*), so that it is impossible to separate genera on that account.

I cannot follow my late friend, Bowdler Sharpe, in separating *Charadrius australis* widely from *Eudromias morinellus* (*auctorum*). The only structural difference is the scaling in front of the metatarsus, which is covered with hexagonal scales in front in all other species of *Charadrius* (as defined above), but with larger transverse scutes in the so-called *Peltohyas*.

Even if it were admitted as a generic character, I cannot see how so much importance can be attached to this difference as to make a sub-family on account of it. That such undue importance cannot be attached to this peculiarity is clearly shown by the figures on pages 91 and 308 of the Cat. Birds, xxiv., where the front of the metatarsus is covered in the middle with unbroken transverse scales, while towards the tibia the scales are broken up into small hexagonal scutes.

Tringa, as I use it, includes *Totanus*, *Helodromas*, *Heteractitis*, *Tringoides*, *Terekia*, *Glottis*, *Pseudoglottis*, and *Rhyacophilus* of the Cat. Birds, xxiv.

This genus—according to the most modern rule of fixing genotypes, to be called *Tringa* and not *Totanus*—is divided into no fewer than eight genera by Bowdler Sharpe, as above. The reasons for this division are, however, in my opinion, not valid. The comparative lengths between the bills and feet, metatarsus and feet, or bills, &c., are artificial characters, which need not be of any taxonomic value, and in the present case certainly are not. Also, the other characters relied upon in the "Catalogue of Birds" (xxiv., pp. 338, 339) are of minor importance, as they are bridged

over from one supposed genus to the other by intermediate ones. There is no other course than to unite them.

Erolia, as I use it, includes *Pelidna*, *Pisobia* (*Limonites*), *Ancylocheilus*, and *Heteropygia* of the Cat. Birds, xxiv.

The species here united are distinguished from the genus *Tringa* (above) chiefly by the entire or almost entire absence of connecting webs between the anterior toes, and in life a more flexible, softer bill.

On account of slight differences in the comparative length of the bills and feet, or legs, shape of the bill, and colouration, the birds obviously belonging to this genus have been placed in four different genera—a proceeding which only adds to the difficulty of their study, and has no advantage whatever.

Of course, colour cannot be considered as of generic value, or else what will one do with an albino ?—I am, &c.,

GREGORY M. MATHEWS.

Langley Mount, Watford, Herts., England, 7/4/11.

[Australian authors have been following the British Museum Catalogues. Are they wrong in doing so ? It is interesting to note Mr. Mathews' conversion from the binomial to the trinomial system since the publication of his "Hand-list" (*Emu*, Suppl., vol. vii., 1908). In the interests of Mr. Mathews' new and important work on "The Birds of Australia" (the initial parts of which, however, although in subscribers' hands, have not yet reached the editors of *The Emu* for notice), and of an Australian "Check-list" of birds, now being compiled by the R.A.O.U., Mr. Mathews' letter is published at length.—EDS.]

THE BIRDS OF LORD HOWE AND NORFOLK ISLANDS.

To the Editors of "The Emu."

SIRS,—In his "Alterations in the Nomenclature of 'Hand-list of the Birds of Australia,'"* Mr. Gregory M. Mathews, with ruthless pen, strikes 21 species from his "Hand-list," and gives this curt note in his explanatory remarks :—"I do *not* include the avifaunas of Norfolk and Lord Howe Islands, as these certainly are not Australian."

Why this sudden and remarkable change of opinion on the part of Mr. Mathews ? So far as I can ascertain from my small collection of authors, Mr. Mathews was the first to incorporate, without any reservation, the birds of these two islands in a "Hand-list"† that purported to relate exclusively to the "Birds of Australasia" (not "Australia," as quoted in the recent "Alterations").

Gould says ‡ :—"I think it will be well to append an account

* *The Emu*, vol. x., p. 318.
† *The Emu*, vol. vii. (Jan., 1908).
‡ "Handbook Birds Aust." (1865), App., p. 523

of the species pertaining to other countries, about twenty-four in number, which have been figured in the folio edition . . . . as I believe that the interest of the present volumes will thereby be enhanced to those who possess the illustrated work. The species alluded to comprise the curious *Diduncolus strigirostris*, *Semioptera wallacei*, *Strigops habroptilus*, and a few others from New Zealand, Norfolk and Lord Howe Islands, &c." Eight species of birds peculiar to Lord Howe or Norfolk Islands were included in this appendix.

In 1888 Dr. Ramsay included in his "Tabular List of all the Australian Birds at Present Known to the Author" a list of species found on Lord Howe and Norfolk Islands. Although the two pages containing this list are headed "List of Australian Birds," the fact that they are placed at the end of the volume, and include not only the species peculiar to, but also the mainland species recorded from these islands, already included in the preceding pages, warrants the conclusion that Dr. Ramsay regarded the island species as belonging to a region separate from Australia.

North,* under the heading "Nests and Eggs of Birds Found Breeding on Lord Howe and Norfolk Islands," says:—"These remote insular dependencies of New South Wales, situated in the Pacific Ocean, possess a great interest to students of Australian ornithology, as within their limited areas several genera of birds are found that are represented in the Australian and New Zealand regions. Both islands, however, in regard to their avifauna, decidedly belong to the Australian region. . . ." This list comprises twelve species peculiar to these islands and three common to the mainland also.

In my "Birds of Lord Howe and Norfolk Islands"† I remarked that "it may be said that the whole avifauna of these islands is more distinctly Australian in character, although the Wood-Hen (*Ocydromus sylvestris*) and the extinct *Notornis alba* and *Nestor productus* may be regarded as of greater value in determining the original route of migration."

From a zoogeographical point of view these islands would appear to belong to separate regions, neither of which can be regarded as originally Australian. In his "Zoogeographic Scheme for the Mid-Pacific,"‡ Hedley places Lord Howe Island on the extreme south-west and Norfolk Island on the eastern extremity of his "Limit of Continental Area," and the route of migration of fauna from Antarctica is shown as passing through New Zealand and Norfolk Island, with a lateral branch to Lord Howe Island. If this scheme were adopted for the avifauna of these islands they would more properly be assigned to the Neo-Zelanic region. Recent discoveries in the terrestrial mollusca of Norfolk Island

* "Nests and Eggs of Birds Found Breeding in Australia and Tasmania" (1889), p. 407.

† *Proc. Linn. Soc. N.S.W.* (1909), vol. xxxiv., p. 640.

‡ *Proc. Linn. Soc. N.S.W.* (1889), p. 391.

and the Kermadec group, however, will probably result in altering this arrangement. Lord Howe Island may still be regarded as Neo-Zelanic, while Norfolk Island will probably be separated entirely, and classed, with the Kermadecs, as Oceanic.

New Zealand authors do not appear to have regarded Lord Howe and Norfolk Islands as belonging to their region. On the other hand, Australian authors have in several cases "tacked" them on to the mainland, while Mr. Mathews bodily incorporated them, only to unceremoniously eject them again!

I am strongly of opinion that the avifauna of Lord Howe and Norfolk Islands should be included in any list of Australian birds. Both politically come under the control of Australia—Lord Howe Island being a dependency of New South Wales, and forming part of the State electorate of East Sydney! while Norfolk Island, though not a dependency in the proper sense of the term, is under the administration of the Governor of New South Wales, and will, in all probability, shortly be placed under the control of the Commonwealth.

The continent of Australia, with Tasmania, has been divided into regions or sub-regions by various writers. For example, Professor Spencer * proposed the Eyrean, Torresian, and Bassian faunal sub-regions. Hedley † proposed four regions for the marine fauna—viz., the Adelaidean (from Melbourne along the south coast of Australia), the Peronian (east coast of Tasmania, Gippsland, and New South Wales), the Solanderian (from Moreton Bay to Torres Strait), and the Dampierian (from Torres Strait to Houtman's Abrolhos). For the avifauna, Hall ‡ subdivided each of Spencer's regions into three areas.

There appears to be no valid reason why the two groups—Lord Howe Island with the Admiralty and other islets, and Norfolk Island with Phillip Island, Nepean Island, and the smaller islets—should not be attached to Australia as an avifaunal sub-region, for which I propose the name Phillipian, in honour of Captain Phillip, first Governor of New South Wales, under whose administration Norfolk Island was settled, and Lord Howe Island was discovered by the settlement party, in charge of Lieutenant Henry Lidgbird Ball.

A check-list of the birds of Australia should certainly include all species found in any of the dependencies of Australia. In 1908 Mr. Mathews adopted the title of "Hand-list of the Birds of Australasia." This, in a geographical sense, should include a far wider region than even the continent of Australia, Tasmania, and their respective dependencies. If, as now appears to be the case, he proposes to amend the title by substituting "Australia" for "Australasia," the lesser region still should include all the dependencies of the Commonwealth, and amongst these are Lord Howe, Norfolk, and the Macquarie Islands. The latter, from a

* "Horn Scientific Expedition Report" (1896), vol. i., p. 197.
† *Proc. Linn. Soc. N.S.W.* (1903), p. 880.
‡ "Key to the Birds of Australia" (1899).

zoogeographical standpoint, are certainly Neo-Zelanic, and not Australian, but no one has hitherto suggested that they should be separated from Tasmania.—I am, &c.,

A. F. BASSET HULL.

Sydney, 26 5 11.

THE PROHIBITION OF EXPORTATION.

To the Editors of "The Emu."

SIRS,—I have noticed in the *Commonwealth Gazette* of 25th March, 1911, a proclamation prohibiting the export of Australian birds, and, in addition, their feathers, eggs, &c. The idea is an excellent one, and some such measure of protection should long ago have been adopted for the preservation of our birds. There are one or two species, however, mentioned in the schedule of the *Gazette* the exportation of which, in the interests of a large number of other more useful birds, should not be stopped. If the prohibition as regards these birds be insisted upon it will certainly have disastrous results. The first of these is the Galah (*Cacatua roseicapilla*), and another the Sulphur-crested Cockatoo (*Cacatua galerita*). The Galah occurs in New South Wales and Southern Queensland in such numbers that it is a real pest to wheat-growing farmers. Unless the bird-trapper is on the spot, the farmer, station-owner, or manager will simply poison the lot, and with them large numbers of Pigeons, Parrots, Black-breasted Plovers, and many other species.

It is impossible for the wheat-grower to overlook the ravages of the flocks of Galahs which infest the standing wheat crops, as the damage done is very considerable. Knowing the value of many of the birds which will inevitably be destroyed, the farmer will not use poison if the bird-trapper is coming around periodically. Hence, if the exportation is stopped, the trapper is unable to make a living, and no corresponding good results. One very beautiful species, the *Polytelis barrabandi*, is almost extinct, through the poison laid for the Galahs, and unless the poisoning is stopped the poor bird is gone for ever. The "Green-Leek" was very plentiful a few years ago, but now it is hardly to be found. In fact, on the Murray and Murrumbidgee it has almost completely disappeared.

If the exportation of the Galah and Sulphur-crested Cockatoo be allowed to continue it will mean the saving of these birds and many others from total extinction, while there can be no fear that they themselves will suffer such a fate. I am well aware that the Galah has its good qualities—every bird has—but they are practically *nil* in comparison with the damage the bird does.—I am, &c.,

MAX EGGER.

Jerilderie, 10th April, 1911.

Obituary Notice.

Mr. Kendall Broadbent died on the 16th January last at his residence, Stoneleigh-street, Albion, at the age of 73 years. Mr. Broadbent was born in Yorkshire, England, in 1837. He arrived in Victoria some 58 years ago, and was first engaged with his father in contracting work. Relinquishing this, however, Mr. Broadbent turned his attention to ornithology, and he was recognized as an authority on the Australian avifauna. For the last 30 years he had been attached to the Queensland Museum staff as collector and taxidermist. He visited New Guinea as a member of the Stone expedition about 38 years ago, contracting fever, which practically never left him. On one occasion he suffered shipwreck near Hinchinbrook Island, suffering severe privations. The Queensland Museum has lost a tried and trusty friend, a naturalist of no mean order, and one who will be sorely missed and difficult to replace. Out of respect to his memory the institution was closed on the day of the funeral. Mr. C. W. De Vis, the former Curator, writes :—"It would be difficult to find Mr. Broadbent's superior, even at 60 years of age. He had every qualification for the work, was only happy in exercising it ; he was thoroughly honourable and intensely loyal to his friends. I miss him very much, and shall always hold his memory in deep respect and with affection."

Members of the R.A.O.U. who visited Brisbane during the annual session last year will recollect Mr. Broadbent's kind and courteous bearing when showing the visitors through and explaining the ornithological collections. They little guessed that was to be the last function of the kind he would attend.

The late veteran collector has traversed the whole of Eastern Australia and Tasmania, besides making several visits to New Guinea. His principal trips and the dates thereof are :—Portland Bay (1858), Gippsland (1862), Brisbane Scrubs (1864), Darling Downs (1865), Cardwell and *Maria* Expedition to New Guinea (1873), Cape York, Gulf of Carpentaria, and New Guinea (1874-5), Cairns and New Guinea (1878-9), Tasmania and South Australia (1879-80), five trips to Cardwell (between 1880 and 1889)*, Charleville (1883), Cape York and Gulf of Carpentaria (1883-4), Barcaldine and Central Queensland (1887), and Bellenden-Ker Range (1889).

South Australian Ornithological Association.

The annual meeting of the above-mentioned Association was held at the rooms of Dr. R. H. Pulleine, Adelaide, on the evening of 31st March, Captain S. A. White presiding. There was a good attendance.

* "Birds of Cardwell and Herbert River Districts (N.Q.)" published in *The Emu*, vol. x., pp. 233-245, comprises the field observations of the last trip, and for that reason, perhaps, the value of the contribution is now enhanced.

The hon. secretary, Mr. J. W. Mellor, read the twelfth annual report, which showed that during the year one of the members, Mr. A. G. Edquist, had been most energetic in working up a Gould League for the protection of birds, and that 135 public schools in that State had formed clubs, with a membership of 5,000 children, all pledged to study and protect native birds. A regrettable action during the year was the placing of the Pelican on the totally unprotected list, and a strong protest was being made to the Commissioner of Crown Lands by various scientific bodies.* The report showed that the most noteworthy work of the Association during the year was the liberation of Mallee-Fowl (*Lipoa ocellata* † on the National Reserve at Cape Borda, Kangaroo Island, which had been successfully carried out by the secretary (Mr. J. W. Mellor) on 24th February last. Representatives of the Association had attended the Royal Australasian Ornithologists' Union Congress in Brisbane in October, had visited the Capricorn Islands, and other places in Queensland, and had done good work in ornithology, while several members had been successful in finding new birds during the year, and describing and naming them. The financial statement showed a credit balance, and Mr. J. W. Mellor was congratulated upon his energy and ability in so successfully piloting the institution from its infancy to date. Mr. E. Ashby gave some notes upon several interesting birds, with illustrations. Captain S. A. White read a paper upon a trip recently taken to Mount Tambourine, in Southern Queensland, in which he graphically described the ascent and descent in a "buckboard," and gave interesting notes taken of the various birds seen in this naturalist's paradise. Captain White showed a number of birds to assist him in bringing before his hearers the gay scenes of plumage to be met with in the tropics. The annual election of officers for the ensuing year resulted thus :—President, Captain S. A. White ; vice-president, Mr. E. Ashby ; hon. secretary and treasurer, Mr. J. W. Mellor ; these officers to form the general committee of management.

The following monthly meeting was held at the rooms of Dr. R. H. Pulleine on the evening of 28th April, Captain S. A. White presiding. Mr. E. Ashby reported having arranged with the Royal Society for the use of their rooms in the Institute, North-terrace, for future meetings of the Association, and a vote of thanks was carried to the Royal Society for their generosity in granting the request. A vote of thanks was also accorded Dr. Pulleine for past favours in the free use of his rooms for meetings. Mr. J. W. Mellor reported having, with several other members of the Association, recently visited Yorke Peninsula, and identified 60 species of native birds in three days. Mr. F. R. Zietz stated that the first Flame-breasted Robin (*Petroica phœnicea*) this season had returned from its southern breeding grounds, and had been observed at Kingswood, near Mitcham, on 23rd April, which was considered early. Dr. A. M. Morgan noted the Swallow (*Hirundo neoxena*) building its mud nest on 1st April in Adelaide. Mr. A. Crompton stated that great numbers of Blue Wrens (*Malurus cyaneus*) had taken up their abode at Stonyfell, Magill, where they were so tame that they would eat bread crumbs thrown to them each day at certain hours. Mr. E. Ashby made some interesting remarks regarding some rare and peculiar birds from the Northern Territory and from Mount Dandenong (Victoria). Amongst specimens from the former place were the Black-tailed

* See p. 45 this issue. † See p. 35 this issue.

Tree-creeper (*Climacteris melanotus*), White-bellied Cuckoo-Shrike (*Graucalus hypoleucus*); and Cinnamon Ground-Thrush (*Cinclosoma cinnamomeum*), and Desert Wren (*Calamanthus isabellinus*), from Central Australia, and others; while from Victoria the Coachwhip-Bird (*Psophodes crepitans*), Red-browed Tree-creeper (*Climacteris erythrops*), and the Olive-coloured Thickhead (*Pachycephala olivacea*), and various Flycatchers and Honey-eaters, were of exceptional interest when their habits and actions were explained by Mr. Ashby.

Notes and Notices.

Papers for Bird Day.—Brief ornithological articles, illustrated if possible, are invited from members of the R.A.O.U. who are willing to contribute, for the departmental *School Papers* of New South Wales, Victoria, and South Australia respectively. The articles should be in the hands of the hon. secretary, Mr. H. W. Wilson, Teachers' Training College, University Grounds, Carlton, Victoria, by about the end of August.

Buckland Bird Protection Fund.—Recognizing the great work Mr. James Buckland has done in keeping the Plumage Prohibition Bill before the British Parliament and public, his friends desire to tender him a practical testimonial. Subscriptions may be sent to the hon. treasurer, R.A.O.U., Mr. Z. Gray, Bridport-street, South Melbourne.

Corrections.—In the list of members of the R.A.O.U. published in the last issue of *The Emu* the following amendments are necessary:—

"Dytiscus" is a *nom de plume*, not the name of Capt. Henry Brew's house, Ballarat.

HORDTEN, C. H. VON DER (Broome), should read PFORDTEN, C. H. VON DER.

A. HAMILTON (Wellington, N.Z.), not H. HAMILTON.

MRS. ROBERTS, "Beaumaris," Hobart, is the only lady who enjoys the distinction C.M.Z.S. (Corresponding Member Zoological Society, London).

A Wise Minister.—Application was made to the Acting Minister for External Affairs (Senator Findley), on behalf of a projected bird-canning company, with a capital of £25,000, for permission to slaughter birds on the Alligator River, Northern Territory. The company asked immunity from any restrictions upon their hunting for a period of six years. It was proposed to kill about 300 birds per day during the season, or a total of about 35,000 birds a year. It was claimed that Wild Ducks and similar game birds were so plentiful that this number would not be missed. The Minister has refused the application. He said that, instead of granting any such privileges as were sought, he would rather favour a policy of protecting game.

YELLOW SHRIKE TIT.

(FALCUNCULUS WHITEI.)

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

VOL. XI.] 2ND OCTOBER, 1911. [PART 2.

Bush-Birds of New Zealand.

BY J. C. M'LEAN, M.B.O.U., GISBORNE, N.Z.

PART II.

Nestor meridionalis—KAKA PARROT.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 151.

ALTHOUGH a few Kakas, generally single birds, were noticed through April in different parts of this bush, it was not until the winter, when the tawari ripened, that they became common. In the middle of May they appeared, and increased in numbers, the birch ridges being well populated for the next eight or ten weeks. This was on the northern side. On the south there was no great number of these trees, and, as they did not bear much fruit in 1907, the Kaka, though perhaps a little more plentiful in winter than in autumn, was never there such a common bird.

Though of rare distribution in the Dominion, and local in its habitat, the tawari (*Ixerba brexioides*) was a feature in this bush, at about 2,500 feet, and, growing to about one-third the height of the tallest birch, constituted, with that tree, practically the whole of the forest vegetation on the highest parts. It is a handsome tree, rarely exceeding 2 feet in diameter; and its spreading branches, with long leaves, produce in midsummer, at their tips, bunches of beautiful flowers of waxy whiteness. The resulting fruit, a five-seeded capsule, about one-half inch in diameter, begins to open in May, and reveals the shining black seeds which the Kaka so much enjoys. In fine weather the trees around the first and second camps resounded, in the early morning, with the soft and pleasing whistle of these birds. All along the ridge the birds were numerous, and each more favoured tree, in different parts, had its small party of four or five. The Kakas spent the night some distance down the sides, but by daybreak were busy in the trees, and for an hour or two fed eagerly, retiring during the heat of the day to the shade of the birch trees, where they digested the meal, and, with occasional soft notes, appeared to be quite happy. During the afternoon they would again visit the trees, where they fed until almost dark before retiring for the night. In dull weather and in rain they fed more or less all day, and were then perhaps a little quieter than on sunny days. On

The Tawari (*Ixerba brexioides*) and opening Seed-pod.
Food of the Kaka Parrot (*Nestor meridionalis*).
(DRAWING BY C. C. BRITTLEBANK.)

this food they soon became fat. Many were obtained by the bushmen, and were excellent in soup or pie. As the trees went down the birds visited the felling in search of the fruit, but found great difficulty—or showed little aptitude—in obtaining the seeds, now all more or less involved amid the mass of twigs and leaves. After this crop was over, in July, the birds disappeared from the ridges; but a few could be seen in different parts during the following months. With their powerful beaks they search the rotting timber for insects, and it was not unusual to see a Kaka, as if simply through force of habit, tear a chip from the branch as soon as he lighted upon it. A good deal of investigation is carried on upon the ground, and in the more open country they have been seen, on the edges of the bush-patches, busy about the surface amid the common fern or bracken (*Pteris*), but their object was unknown. In the bush, however, they are usually noticed in such a position during showery weather, when, no doubt, part of their business is the investiga-

tion of rotting stumps and logs. They feed on various bush-fruits, and when on the miro their bills become quite sticky with the gum. But, besides these foods, the Kaka is fond of visiting the flowers of certain trees, and with its brush-tipped tongue sipping the nectar. When feeding, besides their soft whistlings, a low musical "Karrunk" is frequently audible; but when the cry becomes harsher a change for the worse in the weather can almost be relied upon. The harsh scream, "Karrunk" (which resembles the sound produced by scratching with a piece of iron upon the striking surface of a tin matchbox), was always much in evidence before a southerly, and all would prepare to leave this high ridge some hours before the storm arrived. Then four or five birds might be seen to collect on some outstanding tree, all facing the direction they intended to take. After much calling and several short, wheeling flights out and back to their starting-point, they would at last start off together, and with discordant cries—as if to warn their fellows—wing their way to a place of shelter, often some miles away.

In the winter Kakas, in parties of two to five, may be seen at times in the open country making their way high in the air, and with harsh cries, to fresh feeding quarters. They have been known to visit the flowering blue gums (eucalypts, introduced from Australia) of the more settled parts, but such is by no means a common practice.

Chalcococcyx lucidus—SHINING CUCKOO.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 130.

The Shining Cuckoo, which is supposed to winter in New Guinea,* comes each summer to New Zealand to breed. In 1906 it was heard at 6 a.m. on 6th October, and on 8th October in the following year, but was not often observed or heard about this bush. Whenever seen, my attention had been called to it by the behaviour of the smaller birds, by whom it was not regarded with much favour. Unlike the Long-tailed Cuckoo (*Eudynamis taitensis*), it does not seek the shade, but rather exposes itself at times in the sun, when the Tui and Bell-Bird notice it and keep it fairly well on the move. In the open country, however, it seems to fare far better, and is there more plentiful, being found in the patches of sheltered bush and scrub, where it makes use, as a rule, of the pensile nest of the Warbler (*Pseudogerygone flaviventris*) in which to deposit its egg, and to whose care it entrusts the rearing of its young. The bushmen called it the "Zebra-Bird," because of the striped markings of the under surface. It is to be seen also in the gardens of the settlers near

* The expedition which the British Ornithologists' Union lately despatched to the Charles Louis Mountains, in Dutch New Guinea, will probably confirm this supposition.—J. C. M'L. [It possibly comes down the north-eastern coast of Australia before diverging towards New Zealand. The expedition of the R.A.O.U. observed these Bronze-Cuckoos on the Capricorn Islands, at the southern end of the Great Barrier Reef, October, 1910—*Emu*, vol. x., p. 197.—EDS.]

the towns, where it does much good. But it is especially plentiful in this district amid the kowhai (*Sophora tetraptera*) flats and faces of our creek and river valleys There parties of the displaying males may be viewed in spring; and there, too, in summer and early autumn, the Cuckoo feeds upon the larvæ of the kowhai moth, and becomes very fat ere leaving for its winter home.*

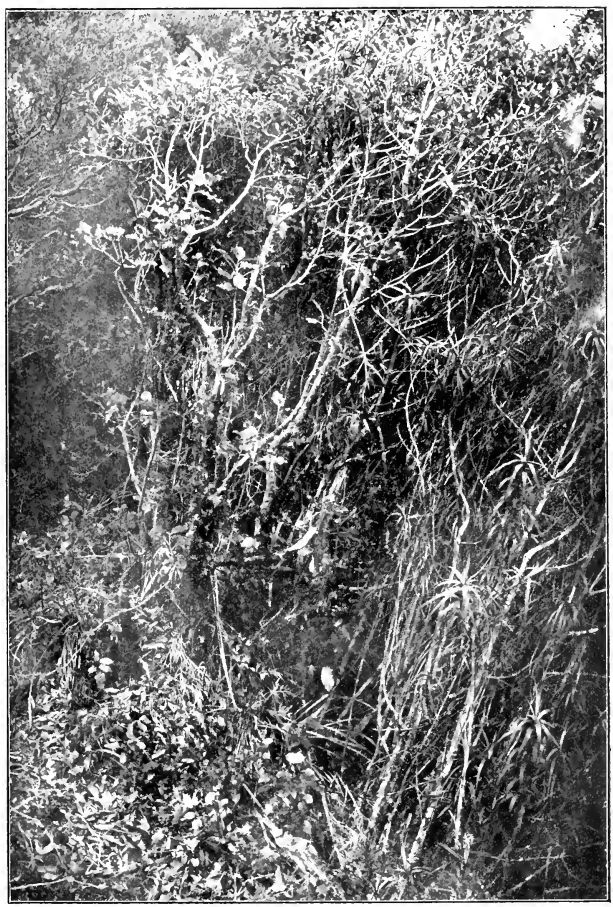
Miro australis—NORTH ISLAND ROBIN.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 33.

It was a pleasant surprise when, in April, 1906, my acquaintance with the Robin was renewed. For some years, in gradually lessening numbers, it had been watched in another part of this district, which had been considered its last retreat in the Island; and when it came to meet me, as it were, in the midst of this virgin bush, and sang its cheerful song, many recollections came to mind. A walk or two in the tawhera country soon made it clear that the bird was, comparatively with its localization, present in fair numbers. To be more definite, there were at least twelve pairs that, inside an area of perhaps 400 acres, were known of, and each of these pairs could generally be found at any time about its own domain. Then, in the country further up the valley, contiguous to but outside this year's felling, there dwelt quite as many more. Judging by the extent of tawhera and lighter timber in this outside country, which was only partially examined, it is more than probable that it was tenanted by considerably more pairs than my estimate of the number. It had been the writer's impression that the Robin did not frequent the higher, heavy bush, but rather the open-bottomed lower country and flats of manuka and other trees near creeks and streams. So the surprise consisted rather in the finding of this large sheltered valley of poorer soil amid the ridges of Maunga-Haumia, clothed, as it was, in smaller trees of manuka, tawhera, and nei-nei, and intersected by numerous creeks—ideal Robin country in the midst of heavy bush. But this class of country is very local, and, from inquiries made from surveyors and others, it is thought there is no more of it in this particular area. Although there were so many of this species in this open-bottomed scrub, none was seen outside its confines, either in the tawa country of the slopes or in the birch of the ridges; so that, with its destruction, the Robin, too, has gone. But little grew below the 6-inch tawhera and manuka, which reached in long poles to 30 or 40 feet in height. It was easy travelling here; in fact, had it not been for an odd creek-bank, and that the trees grew just a shade too close together, one could have ridden over the greater part of the Robin's home. Where the soil was very poor the 6-foot grass-tree grew in belts of denser scrub, affording a secure nesting-place and shelter from the storm. This grass-tree—nei-nei of the Maoris—is one of the smaller varieties of

* Cuckoos shot off the kowhai in January and February had their crops crammed with these caterpillars, and were too fat to make good skins.

PLATE VI.



Tangle of Nei-Nei Scrub.
Haunt of North Island Robin (*Miro australis*).

FROM A PHOTO. BY J. C. M'LEAN.

Dracophyllum. It is called "spider-wood" by the bushmen, not on account of any external peculiarity, but because the stem, when cut diagonally, shows a fanciful resemblance, in its pith and radiations, to a spider in its web.

The charm of the Robin lies in its tameness and in its song. As one enters its domain, the bird, with soft, silent flight, flits to some low branch near by, and, after a moment's gaze, drops to the ground, and, tripping about in front of the observer with short, elastic steps, soon stops to pick among the fallen leaves, where, judging by the frequent captures made, much insect life lies hidden. At lunch-time it is occasionally an interested onlooker, and has been seen to pick up crumbs and pieces of biscuit thrown towards it. It was amusing to see a bird one day raising itself on its long legs to peer over my boots as if to ask for more. But it has not the inquisitiveness of the Pied Tit, and, once satisfied with its inspection, resumes its avocations in the scrub. Neither does it wander through the bush in the restless manner so peculiar to that bird, but is, perhaps, our quietest and most stay-at-home species. Although occasionally seen as a solitary onlooker, after the crowd has dispersed, it never takes any part in the disturbances of other birds. I have seen the Robin about my spring camp, which was on the edge of its country, but it was not the frequent visitor I should have wished. It sang in the trees near by, but never, so far as I could see, came close to our tents or visited the scraps as other species did. It was almost invariably seen in pairs, each having its own particular stretch of scrub; and it allowed no intrusion whatever of others of its kind. This was rather remarkable from so quiet a bird. Passing through the scrub one day a Robin came and settled close by. Shortly after another came to see me, and was at once set upon by the first-comer, who seized it by the feathers of its neck and forced it, with many painful cries and the loss of some of its plumage, to leave the spot. Other species, too, are driven from its home.

Most of its food, which, so far as I have ever found, consists of insect life, is obtained upon the ground. There, or within a few feet of it, the bird is generally observed; and only when singing does it mount to any height, when it shows itself upon the outstanding branch of some higher tree to catch the sun. The warbled trill of the Robin is rarely heard; and perhaps this is not so remarkable, for it is believed they pair for life. It was first heard here on 6th September, but has been noted earlier elsewhere. It is not unlike that of the Pied Tit, but is delivered more deliberately, in a somewhat lower key, and without its frequent repetition. It is softer, too, but quite as musical. The alarm note is a fairly rapidly repeated spluttering note, not unlike that of the introduced Californian Quail; and one somewhat similar note, but uttered for long stretches at a time, seems to constitute an evening lullaby, for it is generally heard when the birds are retiring for the night. Its song, however, is of ex-

ceptional sweetness, is loud and clear and long-sustained. As a rule only heard in early morning, up to about 10 a.m., the song may sometimes be listened to at a later hour; and in the breaks between the showers, when the sun gets through, the Robin is induced to mount to the top of some taller shrub and there, in the afternoon, to sound its melody. Though rarely heard in winter, the clear notes of this bird were audible in the distance from many parts of the valley throughout the spring. The song has been recorded in my note-books; but for the present it will suffice to state that the bird opens with a fairly high note—like "Toit," repeated five or six times in quick succession—then drops it half a note for another set of five or six, then drops again, and so descends the scale. Here and there short breaks occur when trills and spluttered notes are interspersed. But there is little pause, and the piece, with some variation, but always in this descending scale, is repeated again and again.

In a small patch of nei-nei scrub amid the tawhera two nests were taken—one with three much-incubated eggs on 27th September, and one with two fresh eggs on the following day.* This is much earlier than I have noted eggs elsewhere; and, judging by the condition of the three taken on the 27th, these must have been laid about the 18th of the month. These nests were very handsome, for in their damp surroundings the moss had kept its colour and harmonized perfectly with that about the trees; but they were similarly constructed to others observed elsewhere, and had the characteristic flakes of bark and leaves dabbed about them, and also that lining of bleached grass-blades which has always been present in all I have examined. The photograph (Plate VII.) is of a nest in a creeper on a dying manuka bush, taken at Waikohu on 8th November, 1898. The three incubated eggs were similar in colour and markings to those found elsewhere, but were slightly larger. They weighed, unblown, 105 grains—an average of 35. The two fresh eggs, however, were considerably larger than typical eggs, weighed 39 grains each, and were more heavily marked than any I had previously seen. Except in the ground colour, which is creamy, the eggs of *Miro australis* resemble those of the Yellow-breasted Shrike-Robin (*Eopsaltria australis*) of Australia. As to the finding of the nest in Maunga-Haumia, I transcribe part of my notes:—"27th September, 1906. —As I left the track skirting a chain above the tributary of the Manga-maia, I entered open tawhera scrub (typical of this part of the bush), and, after going about 15 chains, crossed the small creek on my right to the face the men were at work upon. Here the scrub changed to a very stunted tawhera about 15 feet high, the old trees knotted and gnarled in their struggle on this poor soil, and with short branches 6 to 8 inches in diameter. Here and there were rotting stumps, and all were heavily festooned with dark green moss. One to two-inch tawhera

* This, as written, corrects a transposition of dates which occurs in the article in *The Ibis*, 1907, p. 528.—J. C. M'L.

PLATE VII.

Nest (*in situ*) of North Island Robin (*Miro australis*) in creeper on Manuka tree.

FROM A PHOTO. BY J. C. M'LEAN.

saplings, with their clean, white bark, contrasted strongly with these dark old stagers. Intermixed with all grew the handsome-headed grass-tree, and all was here and there overtopped by honeysuckle and tarata (*Pittosporum eugenoides*). The men were busy scrubbing the smaller stuff: two following up with axes for the few scattered larger trees—none over 12 inches. As I skirted up through the scrub I noticed a Robin in the denser nei-nei, &c., flying about my dog. While we chatted and boiled the billy—it was 2 p.m.—the Robin was very near us all the time. One of the men remarked that it was after crumbs: but I thought otherwise—it was too much concerned about my dog. I had not gone half a chain from the fire when I noticed a somewhat larger patch of moss than usual in a tawhera fork, and, looking in—it was only 5 feet up—was delighted to see a nest, upon which was a female Robin. Instantly the birds became most excited, both flying about the tree, and on one occasion one actually attacked my hand and pecked it when, with my attention elsewhere, I grasped a neighbouring branch. They were both very much concerned—more so than at any previous nest I have seen. On my leaving the nest and going down among the scrub for further investigation, the female flew to the ground, and, trailing her wings along, did all she could to attract attention. There were two eggs, and I concluded, from the birds' behaviour, that they were incubated. Everything was left, and instructions given to the men not to fell near it. They will be up to it to-morrow, and I must hurry and photograph it in the morning." Further on in the same patch the other nest was found, in much the same situation, but in another kind of tree. At this nest, which contained three much-incubated eggs, the birds were not quite so demonstrative. On the following day—28th September—I was early on the scene to get a picture, and found the female on the nest. A photograph, at some distance, of her on the nest was taken, but on moving closer up the bird became alarmed, and never entered the nest again. At this time the male appeared—fully an hour after my arrival. I had heard him singing a chain or so away, and a short "Tweet-tweet" which the female uttered seemed to have brought him. He was much darker in colour than his mate. The men were now close up, and, as the bird would not again visit the nest, some scrub was cleared to let in more light, and a photograph of the nest obtained. Then the nest and eggs were taken, and the tree left to its fate. There was one consolation in all this: the patch of scrub was near the standing bush, and, as these birds did not remain about the felled country, no doubt they retired to it and there rebuilt and reared their young, for that year at least, in peace.

The Robin is almost gone from this district. Where I knew it as common some years ago the scrub and bush have now all disappeared. There is one valley in which it still remains—I will not mention where—but another year or two will see the end.

[It is hoped that the Dominion Government will proclaim sanc-

tuaries to preserve the last retreats of this tame and tuneful bird ere it be too late.—EDS.]

Petrœca toitoi—NORTH ISLAND OR PIED TIT.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 39.

The Pied Tit was in autumn fairly common throughout all the bush, but less so in winter, showing some preference for the more open, sunny parts. It was at all times particularly plentiful about the edges, and appeared quite at home amid the logs of the adjacent "burns," and in the neighbouring grassed country was a conspicuous object as it played about the rotting timber and scrubby second growth. Although they were more or less paired, these did not keep in very close company; so the female, of sombre colours and unobtrusive habits, was easily passed over, and was far less frequently observed than her conspicuous black-and-white consort. Neither does she possess the somewhat startling "See-see-see" of the male, with which to proclaim her presence. He is a lively little bird, and, like his relation, the Robin, is ever anxious to make one's acquaintance, but is bolder and more inquisitive, becoming quite excited if suddenly discovered, circling round the intruder in short flights, from stem to stem, with much mixed curiosity and alarm. Usually, however, he throws himself, as it were, against the side of a handy bole, and, clinging, often with head downwards, transversely to the bark, remains intent, and with his bright little eye observes the stranger, occasionally giving a spasmodic twitch as if undecided whether to remain or not. Or perhaps he alights upon a stump or branch near by in more easy attitude, there to sound his call and remain a while with tail cocked up and wings a little down; but that undecided air is ever present, and, after a short scrutiny, he is gone, to repeat his cry some distance further on. It is at these times that one obtains a good view of what may be termed the wax and wane of the white spot situated immediately over the bill. When first he settles this mark is not noticeable, for, in his excited state, the black feathers of the forehead are somewhat raised, and appear to depress and hide the few white ones below, but as he slowly resumes his tranquillity, and the feathers assume their normal position, the white spot gradually appears, and, with varying intensity, glows until at last, with confidence regained, it is quite conspicuous. This spot is also present in the female, but, through want of contrast with the surrounding colours, is not so apparent. She, too, is rarely inquisitive, and a single hushed "See" is, I think, her only note. But she is quite as active as her partner, and the call "See-see-see," if softly sounded, rarely fails to produce some slight curiosity, and often brings her close to the observer. Strange, though, the male is absolutely indifferent to this imitation.

The clear, penetrating call of the male Pied Tit is unmistakable and of peculiar sweetness. It may be heard fairly frequently throughout the day during autumn and winter about

its haunts, and on wet or foggy days is often almost the only sound that breaks the silence of the bush. It consists of the one note "See" repeated deliberately though rapidly three times—"See-see-see." Generally this single call is heard, and some minutes may elapse before it occurs again, but sometimes it is uttered twice or even three times at intervals of a second or two. Rarely is the call of two notes—"See-see"—and only occasionally does it appear in four or five-syllabled form. It is sounded while the bird is at rest, and the effort of producing it often exposes the bright orange interior of the mouth. As noted elsewhere, it is an autumn and winter call, but young males use it, in a weak form, when they first begin to call in summer. The only call I know of the female is rarely heard—a soft "See't" of one note only.

The trill (see Music Plate, No. 1), confined to the male, is its song, and while it lasts the winter call is noticeable by its absence. Although in a record, as possessed by the writer, extending over a number of years, it might be possible to find a note of its use under every month of the year, the utterance of this trill at any other time than in spring or summer would be quite exceptional. It consists of the eight warbled notes, rarely sounded except when at rest. Occasionally the whole trill is duplicated without any pause; sometimes only the last four notes are repeated, and as a rule there is a slight weakening towards the end of the bar, and a note is lost.

These birds always frequented the cleared space made around each camp, and came close about the tents, but never entered; and only once have I seen one attempt to make use of the scraps of food lying near. On 8th August, 1907, after rough weather, a male was seen to peck once or twice among some litter, but even then I could not say what he took; and the sudden appearance of a very active cat induced him to hurriedly depart without further examination. He must have forgotten all about the scraps, for he never visited that spot again. At times the Pied Tit seems quite sociably inclined, and has been known to accept a crumb elsewhere;* but, although many invitations have been issued, I am still looking forward to the day when one will condescend to share a meal with me. However, in autumn and winter, among themselves, they appear sociable enough, and often a few might be seen enjoying the sun as they played about in some sequestered spot; but even then I always imagined I could detect, in the eye of each, some lurking distrust of his neighbour.

Local only in so far as the destruction of the scrub and bush has forced him to become, the Pied Tit is to be found at all times, just as often on the highest ranges, where snow is sometimes seen, as in the warmest valleys and creek-bottoms; but it cannot prosper without its native trees. Upon the "burns" and

* "Animals of New Zealand," p. 73.

grassed country which edged the Mauga-Haumia bush they were always present; and on the severest winter morn they seemed to rather enjoy the cold, and played among the clumps of scrubby second-growth, pausing now and then to call from a thickly-frosted log or stump, then dashing, with the very best of spirits, after insects in the air. There, on the log-strewn southern spurs, I saw much of them, where, as in the bush, they remain each pair about its own particular patch, and quick to resent the appearance of any small bird, like the Fantail or Warbler, which may be loitering in the vicinity. The Pied Tit seldom responds to the Whitehead's summons, but rather takes it upon himself alone to abuse; and I have seen a male thus engaged, for fully twenty minutes, persistent in his attack upon a Morepork (Owl), without another bird to help him.

The Pied Tit is purely an insectivorous bird, obtaining most of its food upon or near the ground and from among the lower branches, rarely ascending to any height in the trees for that purpose. From its low perch it is quick to locate anything in the moss or leaves upon the ground below, and quickly drops upon the insect, which, if a large one, is soon killed with a smart blow or two and carried off to some branch above. Both sexes also display dexterity in taking slow-flying insects on the wing. I was much amused at the antics of a Tit which had pounced upon one of our larger moths: and his task almost proved too great, for he could not hold the big fluttering creature. In the struggle both came to the ground, and then an extraordinary exhibition was witnessed. The moth was evidently injured, and could not rise, but fluttered strongly, as moths do, in all directions, while the Tit, in his endeavours to catch and hold the insect, was tripping and falling into ludicrous positions. The moth was so large that on occasions, as they tumbled about, it looked as if it were the aggressor I fully expected the Tit to give in, but he was quite game, and, after about a minute of this rough-and-tumble, got the upper hand, killed the moth, and flew off with it into a neighbouring tree On examining the ground I found a wing, which proved to be that of *Hepialus virescens*, whose extent of wing is about 3½ inches. When visiting a party at work in the bush I sometimes noticed one or two Tits close at hand in the stuff just felled, often only a few yards from the axes. Attention would probably be drawn to them by their skipping out to avoid a falling tree; but back they would go, until frightened out again, loth to leave such a feast of dislodged grubs and insects as was there. Naturally, they were fond of thus attaching themselves to the gangs, and would remain near amid the felled timber for the greater part of the day.

The good-fellowship which seemingly exists among the males during the winter months entirely disappears in the spring, and the reverse side of their character is most pronounced when pairing starts. Then they become perfect little demons. Pairing, with its inevitable combats, becomes general about the end of

July, but I saw a little of it as early as 21st May, in 1906. The trill, too, became common about the end of August, and later on had practically taken the place of the winter notes. As spring advanced the males wandered, in the most restless manner, all over the country, in search of rivals; and their little beaks snapped in anger when they met and chased each other, with peevish twitter, while conflicts in the air, usually ending on the ground, were of daily occurrence. All day long, at this season, for some weeks, they could be seen and heard trilling, often at an unusual height, in the larger trees, but ever in that state of seemingly nervous anxiety to reach some one of the many defiant rivals trilling further off. This trill, which had now become so general, was very rarely indeed heard in winter, and then only on some unusually fine day; and it seemed to the writer as if, at this later period, it was the song, used rather as the serenade to the female, busy with domestic cares in the vicinity, than as the challenge of the earlier part of the season.

I felt sure the Pied Tits were breeding in the early spring; but the wandering male and his unassuming mate made it as difficult as they could for me to locate the nest, and only one was found. A male was frequently singing about our camp in October; and his favourite perch was the grindstone, from which he used to fly, at intervals, to a large rata (*Metrosideros robusta*), about 100 yards away across the creek. I used to watch him, and lie in wait at the rata, but could never make anything of him. However, on 9th October I saw a male fly from a stump some distance up the face, and on looking found the nest, which both birds were building, and which was almost completed. It turned out to be our friend of the camp who was a partner, but I must say that, as far as I could see, he spent more time down at the tents than he did with his mate. Still, although the nest was almost finished, I did see him giving some help that afternoon, and also next day, when I purposely watched the pair. As little was required, they did not do a great deal, and when the male did come he passed the material over to the female, who was always within call of the site. On 12th October the nest was complete, but contained no eggs; and as I was leaving the bush next day I took a couple of photographs of it. I have seen the nest elsewhere, and this one was fairly typical as regards the site, but the open character of the cavity in which it was placed did not allow of so much concealment as usual. However, it was placed about four feet up in the hollow side of a decaying stump in a steep face of open tawhera. It was composed wholly of fine greenish moss, well packed, with just a patch here and there of web and leaf-skeletons. Inside was a single leaf-skeleton pressed well down amid the moss of one side. The nest measured about 5 inches across, and the cavity, $2\frac{1}{4}$ inches wide, was about an inch in depth. At its back a small accumulation of moss and leaves gave it a slightly domed appearance, but this, I fancy, was not intentional, but simply meant to fill up a crevice.

To those who are in touch with the bush of the North Island the Pied Tit is probably the best known of our native birds. In the rougher, unimproved fern country, when patched with bush and scrub or broken by rocky gorges draped in ferns and moss and fringed with shrubs, it is plentiful enough; but when the settler comes, and fern gives way to grass, and only a few of the larger trees escape the fires, it disappears. But should some patch of bush be preserved a few Tits will make it their home and daily wander in its vicinity. In many of what are now "bush districts" in name only it is seldom seen, and the one or two I have noticed on the cultivated plains could only be lost birds; in their actions, too, they seemed to know that they were out of place. Nevertheless, I think we can safely predict that, so long as some of our larger bushes remain, there is no fear of its extinction. It is essentially a bird of the native bush: and it seems to the writer that there is something of vital consequence to the Tit in the rotting timber of our woods, which ensures the rearing of its young, and it can never accept the change to exotic trees. But why? The domestic economy of the Tit, the Warbler, and the Fantail is very similar, and each is purely insectivorous; but I feel certain of this: that when the logs and stumps of the mountain slopes have all decayed away, the Fantail and the Warbler will still be there, but the Pied Tit, once their superior in battle, will have disappeared.

EXPLANATION OF MUSIC PLATE.

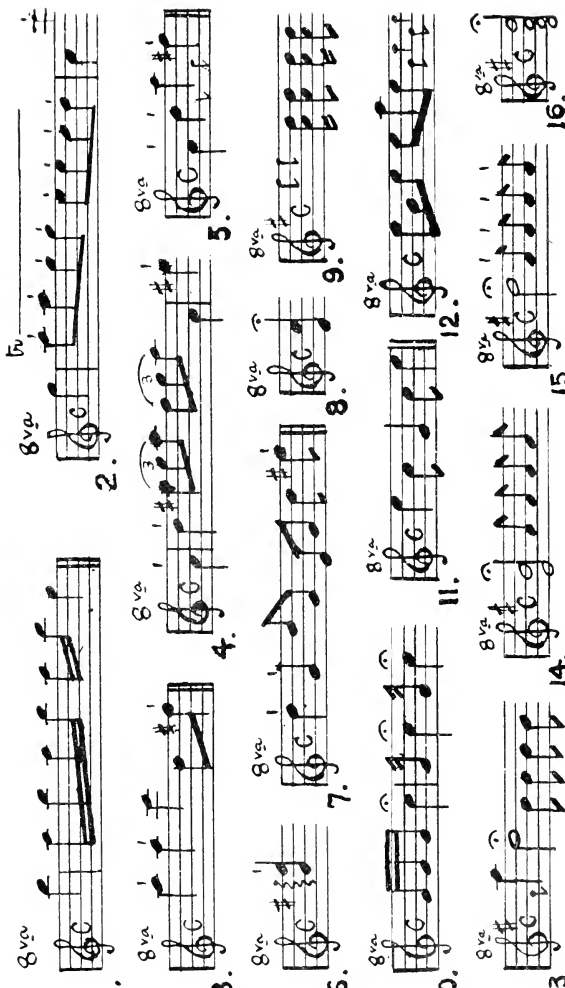
Fig. 1.—Pied Tit (*Petroica toitoi*).—Spring song or trill.
Fig. 2.—Whitehead (*Clitonyx albicapilla*).—Spring trill.
Fig. 3.—Bell-Bird (*Anthornis melanura*).—Characteristic chime.
Figs. 4, 5.—Bell-Bird (*Anthornis melanura*).—Common chime.
Fig. 6.—Bell-Bird (*Anthornis melanura*).—Reiterated note.
Fig. 7.—Bell-Bird (*Anthornis melanura*).—A chime.
Fig. 8.—Tui (*Prosthemadera novæ-zealandiæ*).—Dominant note, repeated in measured sequence.
Fig. 9.—Tui (*Prosthemadera novæ-zealandiæ*).—A common set.
Fig. 10.—Tui (*Prosthemadera novæ-zealandiæ*).—Local dominant.
Figs. 11, 12.—Tui (*Prosthemadera novæ-zealandiæ*).—Local sets.
Fig. 13.—Blue-wattled Crow (*Glaucopis wilsoni*).—Music of line A.
Fig. 14.—Blue-wattled Crow (*Glaucopis wilsoni*).—Music of line B.
Fig. 15.—Blue-wattled Crow (*Glaucopis wilsoni*).—Music of line C.
Fig. 16.—Blue-wattled Crow (*Glaucopis wilsoni*).—Organ-like note—appears as last of line H.

Pseudogerygone flaviventris—GREY WARBLER.

Buller, "Birds of New Zealand" (2nd edition), p. 44.

Among the skins sent to England, and kindly identified by Mr. W. R. Ogilvie-Grant, were two of a Warbler obtained in 1906 at an elevation of 2,000 feet in the Maunga-Haumia bush. Mr. Ogilvie-Grant has referred these two skins to a new species, and, under the name of *Pseudogerygone macleani*, describes it in *The Ibis* for 1907, at page 545.

In the specimens obtained the iris was, in two examples, a dull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yellowish-pink, and in another reddish-gold—not at all the bright crimson of that of the common Warbler of this district, which I take to be *P. flaviventris*. Mr. Ogilvie-Grant, while pointing out the differences, and expressing himself satisfied as to the distinctness of *P. macleani*—with blackish lores—from the examples of *P. igata* from Dusky Sound (South Island), thinks that there is a possibility of seasonal changes in the plumage accounting for the difference noticeable between my specimens—shot in winter, and in freshly-moulted plumage—and those of *P. flaviventris*—in worn plumage—which he has at his command for comparison. To settle this point, Mr. Ogilvie-Grant requires further specimens of our lowland form, in winter plumage. In this, I am sorry to say, I have, up to the present, been unable to assist him; for our Warbler has been declared a protected species, and should not be killed. However, I hope ere long to obtain such examples, and forward them to him, together with, if possible, summer skins of the higher bush form, so that he may clear up the confusion which exists with regard to the genus in New Zealand.

I may say that the only Warblers shot appeared at the time wilder than those I had been accustomed to, and one—the only one of them heard singing—seemed to have a louder, sharper song. I distinctly noted, on the southern side, in the following year, a note superior to that of the ordinary bird, but on investigation found the bird too wild to allow a close view; and I was unable at a distance of about 30 yards to detect any difference in its plumage. To my mind, there is a form which is uncommon in the higher Maunga-Haumia; but I think the lowland form, to which the following notes may, for the present, be referred, is also there.

The Warbler was fairly common all over the bush, where it could be seen, generally in pairs, in the low scrub or hunting high in the tops of the larger trees. Its creaking song of four or five warbled notes was seldom audible during the winter, but became a familiar sound in spring. They were observed building their pear-shaped, pensile nests in the beginning of October in the scrubby country, and one pair, on the outskirts of the bush, had their nest completed on 20th October, but either a Morepork or Cuckoo (*Chalcococcyx lucidus*) pulled the side out a little, and the birds deserted it. Their nesting seemed a little later here than in the lower country.

The Grey Warbler is fairly common in the open country, and nests in our shrubberies and gardens near the towns. (For nest see Plate VIII.)

A Correction.—Mr. Mathews writes concerning his article in *The Emu*, vol. x.:—"On p. 320, for 'Genus lxviii.—Omit. *Hydroprogne* is not separable from *Sterna*,' read 'Not separable from Genus lxvii. Unite genera lxvii. and lxviii. under the name *Thalasseus*.'"

PLATE VIII.

Nest of Grey Warbler (*Pseudogerygone flaviventris*) in Lawyer Vine (*Rubus australis*).

FROM A PHOTO. BY J. C. M'LEAN.

Examination of Contents of Stomachs and Crops of Australian Birds.

By J. BURTON CLELAND, M.D., Ch.M., Principal Assistant Microbiologist, Bureau of Microbiology, Sydney, N.S.W.

IN 1910, in *The Emu* (vol. ix., p. 219), and in the *Agricultural Gazette of New South Wales* for May, were published the results of examinations of the stomach contents of 57 birds. This system of examination has been continued from that date as specimens presented themselves, and the following communication embraces the results from 143 more birds, bringing the total thus far published to 200. As indicated in the previous paper, the birds were not obtained with the direct object of examining their stomach contents, but were obtained by various collectors for other scientific purposes, the most important being research for parasites of various kinds. Mr. W. W. Froggatt, F.L.S., Government Entomologist, and Mr. J. H. Maiden, F.L.S., Government Botanist, have again kindly made the identifications as regards insects and seeds respectively. The immense value of their contributions can be easily understood. In addition, thanks are due for special identifications to the authorities of the Australian Museum, especially to Mr. Charles Hedley, F.L.S., Assistant Curator, and Mr. A. R. M'Culloch. I have also to thank Mr. A. J. North, C.M.Z.S., for the identification of some birds about which I was doubtful, and Mr. Launcelot Harrison for the identification of a number of others.

Appended to this account is a short one of the examination of the contents of stomachs from birds from Lord Howe Island, made in that locality by my colleague, Dr. T. Harvey Johnston.

M., followed by a numeral, indicates the number of the bird in Mathews' "Hand-list of the Birds of Australasia," published as a supplement to *The Emu*, vol. vii., 1907–8. H., followed by a numeral, indicates the number of the bird in Robert Hall's "A Key to the Birds of Australia and Tasmania" (1st edition). The uninitialled results are those obtained by myself while sorting the stomach contents for identification by an entomologist or botanist. The initials "W.W.F." indicate that the following memorandum is the result of the examination of the insect remains by Mr. Walter W. Froggatt, Government Entomologist, New South Wales. Similarly, the initials "J.H.M." indicate the botanical results of an examination by Mr. J. H. Maiden, Government Botanist, New South Wales.

The date when shot is followed by the locality. When more than one specimen of a species has been examined, these are denoted by (*a*), (*b*), &c.

Phaps chalcoptera (M. 37, H. 550). Bronze-wing Pigeon.

(*a*) Middle Harbour, Sydney, 27th December, 1909.

Numerous oval brownish and oval olive-coloured seeds.

(J.H.M.) *Cassia*, sp. (Leguminosæ). The brownish seeds are

certainly leguminous, and probably *Cassia*, but they do not agree exactly with any of the three Port Jackson cassias. They come nearest to *Cassia lævigata*, and may be from that species.

(*b*) Murray Flats, near Blanchetown, S.A., May, 1911.

Seeds and a leaf.

(Mr. Mackinnon, per J.H.M.) Seeds of *Kochia*, perhaps *K. sedifolia*, F. v. M., together with pieces of the leaves.

Ocyphaps lophotes (M. 46, H. 560). Crested Pigeon.

(*a*) (*b*) Rowena, near Collarenabri, 4th November, 1910.

Numerous small seeds of several kinds.

(J.H.M.) I recognize none of the small seeds. Some of them are leguminous seeds—*Trifolium*—and one seems to be a *Vicia*.

Leucosarcia picata (M. 47, H. 561). Wonga-Wonga Pigeon.

Hawkesbury River, 1st November, 1910.

Seven small land snails; large seeds of several kinds.

(C. Hedley, F.L.S.) The snails are *Nanina marmorata*, Cox. The species frequents decaying leaves, cracks in bark, &c. In wet weather it might ascend trees, but I should not call it of arboreal habits.

(J.H.M.) The seeds are—(1) *Exocarpus cupressiformis*, Labill., native cherry; (2) *Elæocarpus cyaneus*, Ait., fruit of "blue-berry" tree; (3) seeds of a cyperaceous plant; (4) a large quantity of unknown seeds (Rubiaceæ); (5) two unknown seeds, flat and curiously serrated.

Zonifer tricolor (M. 149, H. 606). Black-breasted Plover.

(*a*) Hallett's Cove, near Adelaide, 20th May, 1910.

A hymenopterous insect; portions of a cricket (?); numerous beetle fragments and other insects; several small leaves (? saltbush); several minute yellow seeds; a minute brown seed and a small elongated grass-like seed; a little sand.

(W.W.F.) Remains of common mole cricket, legs and heads, and ants. Chief food, ants.

(J.H.M.) Leaflets of a small leguminous plant, probably a *Trifolium* or *Medicago*. The seeds were identical with those found in *Ægialitis melanops* (M. 158, Port Adelaide). They are not the perfect seed, being covered with a dark testa, which peels off when they swell in liquid. I could see the remains of the testa on several seeds.

(*b*) Hallett's Cove, near Adelaide, 20th May, 1910.

Numerous fragments of beetles, &c.; a grub; several minute yellow seeds.

(W.W.F.) Chiefly remains of ants, wing-covers of beetles, and a small caterpillar.

(J.H.M.) For the small yellow seeds, see *Zonifer tricolor* (*a*) and *Ægialitis melanops* (M. 158)

Charadrius dominicus (M. 151, H. 608). Lesser Golden Plover.

Cronulla, Sydney, 2nd March, 1910.

Remains of winged ants; other insect remains; a small shell.

(W.W.F.) Winged ants, worker ants; slender caterpillar of moth; elytra of a number of different ground beetles.

Ægialitis melanops (M. 158, H. 615). Black-fronted Dottrel.

(*a*) Port Adelaide, 19th May, 1910.

Fragments of beetles and skins of larvæ of insects; a complete insect larva; four small round yellow seeds.

(W.W.F.) Small lepidopterous larvæ; heads of ants and remains of wing-covers of beetles.

(J.H.M.) The small yellow seeds could not be identified. See under *Zonifer tricolor* (M. 149).

(*b*) Port Adelaide, 19th May, 1910.

Fragments of insects; sand.

(W.W.F.) Nothing definite; wing-covers of beetles.

Himantopus leucocephalus (M. 161, H. 618). White-headed Stilt.

Tailem Bend, S.A., 31st May, 1910.

Several small freshwater shells of two kinds; mud, with diatoms, &c.

(C. Hedley, Esq., F.L.S., Australian Museum.) The larger shell is *Isidora waterhousii*, Clessin; the smaller, *Isidora aculispira*, Tryon.

Notophoyx novæ-hollandiæ (M. 204, H. 711). White-fronted Heron.

Hawkesbury River, 6th August, 1910.

(A. R. M'Culloch, Australian Museum.) Crab (*Brachyura*), nipper prawn (Alphæidæ), prawn (Penæidæ), inhabitants of estuarine mud-flats.

Butorides stagnatilis (M. 211, H. 718). Thick-billed Bittern.

Hawkesbury River.

(A. R. M'Culloch.) Fish (*Gobius*, sp.), shrimp (*Leander*, sp.) (?), inhabitants of estuarine mud-flats.

Biziura lobata (M. 236, H. 763). Musk-Duck.

Hawkesbury River.

(A. R. M'Culloch.) Mud crabs (*Macrophthalmus*, sp.), inhabitants of estuarine mud-flats.

Phalacrocorax carbo (M. 237, H. 724). Black Cormorant.

Hawkesbury River, 6th April, 1910.

Portions of several catfish; fragments of dead shells.

Astur fasciatus (M. 258, H. 24). Goshawk.

Hallett's Cove, Adelaide, May, 1910.

Remains of small bird, about size of *Anthus*.

Haliastur sphenurus (M. 267, H. 5). Whistling Eagle.

Adelaide, May, 1910.

Feathers of small bird.

Glossopsittacus porphyrocephalus (M. 308, H. 473). Purple-crowned Lorikeet.

Mount Lofty Range, S.A., May, 1910.

Several stamens of *Eucalyptus cosmophylla*, and masses of pollen of this species, which was in bloom at the time.

Platycercus elegans (M. 334, H. 498). Pennant Parrakeet.
Slopes of Mt. Kosciusko, 12th December, 1910.
The crop contained a large number of whitish insect larvæ.
(W.W.F.) The larvæ appear to be those of some beetle. They are legless, and many seem to have been attacked by a fungus or other matter.

Platycercus adelaidæ (M. 336, H. 500). Adelaide Parrakeet.
Mount Lofty Range, S.A., May, 1911.
Seeds (not identifiable).

Dacelo gigas (M. 386, H. 447). Laughing Jackass.
Thredbo River, near Mt. Kosciusko, 12th December, 1910.
Portions of cockchafers, &c.; some minute portions of quartz.
(W.W.F.) Chiefly lamellicorn beetles (*Onthophagus*, sp.); larvæ of beetles, probably *Anophlognathus*, sp.

Halcyon sanctus (M. 391, H. 452). Sacred Kingfisher.
Bathurst, January, 1910.
Remains of a freshwater crayfish. (Mr. M'Culloch, of the Australian Museum, has kindly identified the specimen as *Thelphusa*, sp.)

Cacomantis flabelliformis (M. 407, H. 457). Fan-tailed Cuckoo.
Berry, 10th August, 1910.
Portion of a large grub; remains of many insects.
(W.W.F.) Remains of larva of saw-fly (*Philomastix* (*Glaber*) *macleayi*); specimens of two species of plant bugs (*Dindymus versicolor* and *Lygæus*, sp.); and small moth caterpillar.

Hirundo neoxena (M. 429, H. 385). Swallow.
Cronulla, near Botany Bay, 2nd March, 1910.
Some fragments of insects.
(W.W.F.) Fragments of undetermined beetle.

Micrœca fascinans (M. 433, H. 86). Brown Flycatcher.
(*a*) Cronulla, near Botany Bay, 2nd March, 1910.
Fragments of insects.
(W.W.F.) Heads of ants; remains of various ground beetles; a small butterfly (? lycænid); a spider.
(*b*) Bowral, April, 1910.
Remains of large insects; a grub.
(W.W.F.) Ants, small maggots, diptera, wings of gnats.

Petrœca leggei (M. 438, H. 90). Scarlet-breasted Robin.
Adelaide, 14th May, 1910.
Numerous fragments of beetles, &c.
(W.W.F.) Heads of ants, small caterpillars, and wings of moths.

Petrœca phœnicea (M. 440, H. 92). Flame-breasted Robin.
(*a*) Adelaide, 14th May, 1910.
Portions of beetle and numerous minute fragments of insects.
(W.W.F.) Nothing definite among beetle remains.

(*b*) Adelaide, 14th May, 1910.
Portions of beetles and insect larvæ (?), and numerous fragments of insects.
(W.W.F.) Termites (white ants, *Coptotermis lacteus*) and wing-covers of beetles.
(*c*) Bowral, April, 1910.
Numerous remains of insects.
(W.W.F.) Remains of small ants; apparently nothing else.
(*d*) Slopes of Mt. Kosciusko, 12th December, 1910.
Fragments of beetles; a grub.
(W.W.F.) Wings of flies (Diptera); a small moth; larva of a moth; small ground beetles.

Petrœca goodenovii (M. 444, H. 93). Red-capped Robin.
(*a*) Tailem Bend, S.A., May, 1910.
Numerous small fragments of insects.
(W.W.F.) Remains of small flies (Diptera), and some ant remains.
(*b*) Adelaide, 14th May, 1910.
Portions of beetles and numerous fragments of insects.
(W.W.F.) Wings of moths; leg of grasshopper.

Petrœca bicolor (M. 446, H. 97). Hooded Robin.
Port Adelaide, 19th May, 1910.
Remains of a large spider; beetles and other insect remains.
(W.W.F.) Spiders, small ants, legs of cricket, wing-covers of beetles.

Smicrornis brevirostris (M. 449, H. 100). Short-billed Tree-Tit.
(*a*) Tailem Bend, S.A., May, 1910.
Numerous minute fragments of insects.
(W.W.F.) Indefinite fragments of the wing-covers of beetles.
(*b*) Tailem Bend, S.A., May, 1910.
Numerous minute fragments of insects.
(W.W.F.) Indefinite fragments of the wing-covers of beetles.

Pseudogerygone fusca (M. 459, H. 106). Brown Fly-eater.
Berry, 13th July, 1910.
Fragments of insects.
(W.W.F.) Chiefly the remains of small Diptera (*Tipula*, sp., and others). Remains of ants and one wing-cover of beetle.

Rhipidura albiscapa (M. 476, H. 133). White-shafted Fantail.
Hawkesbury River, 13th August, 1910.
(G. P. Darnell-Smith.) Insects.

Myiagra rubecula (M. 488, H. 143). Leaden Flycatcher.
(*a*) Hawkesbury River, December, 1909.
Portions of several large insects; a small vegetable capsule containing little round seeds.
(W.W.F.) Small froghoppers (Homoptera) taken on foliage, several species; *Cicada*, sp.; remains of several species of beetles; chiefly homopterous insects (Cercopidæ).

(*b*) Hawkesbury River, 20th November, 1909.
Fragments of beetles and other insects.
(W.W.F.) Syrphid flies, a number; several muscid flies; a native bee; few, if any, beetle remains. Flies and small Hymenoptera the chief food.

Myiagra nitida (M. 490, H. 144).
Slopes of Mt. Kosciusko, 10th December, 1910.
Fragments of beetles, &c.
(W.W.F.) Remains of small beetles.

Sisura inquieta (M. 493, H. 148). Restless Flycatcher.
Tailem Bend, S.A., May, 1910.
Remains of a number of insects.
(W.W.F.) Remains of small moths (Lepidoptera) and spiders.

Coracina robusta (M. 504, H. 78). Black-faced Cuckoo-Shrike.
(*a*) Berry, 9th August, 1910.
A large seed like a small loquat seed; portion of a large greenish grub.
(W.W.F.) Two specimens of the spiny stinging slug or cup-moth larvæ (*Doratophera lingerans*); larva of green hawk-moth (?); another small moth larva; wing-covers of chrysomelid beetle (*Paropsis*); fragments of eucalyptus leaves.
(J.H.M.) A single seed-pod, which looks like a pod of *Gompholobium*, but no seeds inside. I am not sure about it, but can give no better explanation.
(*b*) Hawkesbury River, 16th October, 1910.
Stomach dyed purple; three large kinds of beetles and many fragments of insects.
(W.W.F.) One buprestid beetle, perfect; one clerid beetle (*Trogodendron fasciculatum*); lamellicorn beetles; and various weevils.
(J.H.M.) The seeds are—(1) *Exocarpus cupressiformis*, Labill., native cherry; (2) small seeds of an unidentified plant.

Cinclosoma punctatum (M. 515, H. 212). Spotted Ground-Thrush.
Sydney, 3rd October, 1910.
A number of seeds, amongst them seeds like wheat, small yellow seeds, small speckled seeds; a few small pieces of stone.
(J.H.M.) Seeds of two leguminous plants, probably *Trifolium* and *Medicago*.

Psophodes crepitans (M. 526, H. 223). Coachwhip-Bird.
(*a*) Hawkesbury River, November, 1909.
Numerous fragments of insects.
(W.W.F.) A large quantity of the heads and legs of ants, chiefly *Ectatomma metallicum* the "green-head"; a few dipterous maggots; wings of small ground beetles; small bundles of vegetable fibre, like the tips of some small weed; other seeds; vegetable and animal matter about equal.
(*b*) Hawkesbury River, 20th November, 1909.
Numerous fragments of insects; small yellow seeds.

(W.W.F.) Chiefly vegetable matter, as in (*a*); remains of the same green-head ant; and one or two beetles.

(*c*) Middle Harbour, 2nd April, 1910.

Remains of beetles, &c.

(W.W.F.) Several spiders, and remains; heads of ants; head of small plant-bug; bits of legs and wing-cases of beetles; plant tissue similar to that in (*a*) and (*b*).

Pomatostomus frivolus (M. 529, H. 226) Babbler.

(*a*) Rowena, near Collarenabri, N.S.W., November, 1910.

Remains of insects.

(W.W.F.) Remains of beetle wings.

(*b*) Rowena, near Collarenabri, N.S.W., November, 1910.

Remains of insects.

(W.W.F.) Remains of small locust and bits of wing-covers of beetles.

Pomatostomus superciliosus (M. 530, H. 227). White-browed Babbler.

(*a*) Tailem Bend, S.A., May, 1910.

Portions of a cockroach; a young grasshopper.

(W.W.F.) Cockroach (*Panesthia*, sp.); remains of shield bugs (*Eumecopus australasiæ*)—these bugs are found on the foliage of young gum-trees; wing-covers of heteromerous beetles.

(*b*) Tailem Bend, S.A., May, 1910.

Portions of a cockroach.

(W.W.F.) One cockroach; small red ants; plant bugs; beetle remains; legs of small mole cricket.

(*c*) Hallett's Cove, near Adelaide, 20th May, 1910.

Portions of beetles and other insects.

(W.W.F.) Remains of small click beetles, earwigs, and other beetles.

Origma rubricata (M. 557, H. 185). Rock-Warbler.

Hawkesbury River, November, 1909.

Some minute fragments of insects; some oval, dark olive seeds, microscopically with tubercular surfaces.

(W.W.F.) Dipterous larvæ chiefly; a few bits of beetle wings. (Suggests feeding on the ground among horse or cow droppings.)

Acanthiza nana (M. 559, H. 188). Little Tit.

Sydney, 19th October, 1910.

Small fragments of insects, many pink-coloured; a small beetle.

(W.W.F.) Remains of various small beetles; wings of gnats

Acanthiza pusilla (M. 561, H. 190). Brown Tit.

Hawkesbury River, 6th April, 1910.

Fragments of insects; (?) part of a grub.

(W.W.F.) Several lepidopterous larvæ; wings of small flies; wing-cases of small beetles.

Acanthiza pyrrhopygia (M. 568, H. 193). Red-rumped Tit

Tailem Bend, S.A., May, 1910.

Some fragments of insects; a small piece of green leaf.

(W.W.F.) Nothing definite: fragments of the wing-covers of beetles; green-head ants.

Acanthiza lineata (M. 569, H. 194). Striated Tit.

(*a*) Sydney, 15th October, 1909.

Numerous fragments of insects.

(W.W.F.) Small Coleoptera, weevils, Chrysomelidæ, &c., that were probably taken upon the foliage of young gum-trees; small Neuroptera; also remains of Diptera.

(*b*) Middle Harbour, Sydney, 1st August, 1910.

Stomach full of insect fragments, amongst them the skins of some insect pupæ.

(W.W.F.) Remains of small spider; wings of flies; small larvæ and beetle remains.

(*c*) Adelaide, S.A., May, 1910.

Fragments of beetles, &c.

(W.W.F.) Plant bugs; dipterous larva; small caterpillar; remains of beetles.

(*d*) Middle Harbour, Sydney, 3rd October, 1910.

Small fragments of beetles.

(W.W.F.) Remains of small beetles and small Hemiptera.

Acanthiza chrysorrhoa (M. 574, H. 196). Yellow-rumped Tit.

Berry, 10th August, 1910.

Fragments of insects.

(W.W.F.) Remains of beetles, wing-covers and legs; small moth grub.

Acanthiza reguloides (M. 575, H. 197). Buff-rumped Tit.

Bowral, April, 1910.

Numerous fragments of insects.

(W.W.F.) Wings of small moths; heads of ants and small grubs.

Sericornis frontalis (M. 582, H. 207). White-browed Scrub-Wren.

(*a*) Middle Harbour, Sydney, 2nd April, 1910.

Remains of a spider (?) and grub (?); some small, white, oat-shaped seeds and a curved black one.

(W.W.F.) One spider; a large lepidopterous larva; a May fly (Neuroptera), and wings of another neuropterous insect; a few remains of Coleoptera.

(J.H.M.) *Panicum marginatum*, R. Br. (Gramineæ). I am not quite sure about the species, but it is certainly *Panicum* seed.

(*b*) Middle Harbour, Sydney, 11th June, 1910.

Numerous remains of insects; several small seeds, of three kinds.

(W.W.F.) Egg capsule of cockroach; remains of small beetles, and a book scorpion.

(J.H.M.) A few grass-seeds, evidently *Panicum*, but I do not recognize the species; a seed of a leguminous plant, but I do not recognize the genus; a seed of a plant that seems to be compositous, with all the traces of the pappus gone.

Sericornis maculata (M. 586, H. 205). Spotted Scrub-Wren.

Port Adelaide, 19th May, 1910.

A number of very small shells and their fragments; several small, narrow, yellowish seeds; some fragments of insects and (?) grubs; some vegetable fragments.

(W.W.F.) Cut-worms (*Agrotis*, sp.)

(J.H.M.) The seeds are grass-seeds, probably a species of *Eragrostis*.

(C. Hedley, Esq., F.L.S., Australian Museum.) The shells are *Assiminea tasmanica*, Ten.-Woods.

Malurus cyanochlamys (M. 593, H. 117). Silvery Blue Wren.

(*a*) Port Adelaide, 19th May, 1910.

Numerous remains of beetles, &c.

(W.W.F.) Heads of plant bugs; wing-covers of beetles.

(*b*) Port Adelaide, 19th May, 1910.

Numerous remains of beetles, &c.

(W.W.F.) Nothing definite. Two small cocoons.

Stipiturus malachurus (M. 610, H. 174). Emu-Wren.

Sydney, 3rd October, 1910.

Portions of insects; a long, green leg of an insect.

(W.W.F.) Remains of green mantis; wing-covers of small lamellicorn beetles; elytra of Heteromera (beetles).

Artamus tenebrosus (M. 634, H. 398). Wood-Swallow.

Narrabeen, N.S.W., 26th March, 1910.

Remains of beetles and other insects; some small seeds.

(W.W.F.) Elytra and legs of small beetles; heads and remains of small bees; one small fly; bee remains most abundant.

(J.H.M.) *Cladium*, sp. (Cyperaceæ), probably *C. mariscus*, R. Br., a tall coast plant producing seeds in abundance.

Grallina picata (M. 646, H. 67). Magpie-Lark.

Rowena, near Collarenabri, November, 1910.

Small beetles and portions of other insects.

(W.W.F.) Plague locusts (*Chortoicetes terminifera*); ground-feeding beetles.

Gymnorhina tibicen (M. 647, H. 243). Black-backed Magpie.

(*a*) Sydney, 2nd March, 1910.

(W.W.F.) Dipterous larva; one cut-worm; two small grubs; ground spider; remains of a number of locusts and grasshoppers. Chief food, locusts and grasshoppers.

(*b*) Berry, 9th August, 1910.

Stomach full of remains of insects, amongst them a number of small black beetles.

(W.W.F.) Remains of small heteromerous beetles, small ground weevils, and a few carabid beetles; chiefly fragments of beetles.

(*c*) Bowral, April, 1910.

Numerous portions of large insects.

(W.W.F.) Remains of bulldog ants (*Myrmecia*, sp.); legs of

grasshopper: remains of small ground beetles (*Anothophagus*, sp., and other Scarabæidæ).

(*d*) Hawkesbury River, 13th August, 1910.

(G. P. Darnell-Smith.) Two soldier ants; one wild fig.

Pachycephala pectoralis (M. 667, H. 265). White-throated Thickhead.

(*a*) Hawkesbury River, 6th August, 1910.

(G. P. Darnell-Smith.) Insects; insect larvæ; one spider.

(*b*) Hawkesbury River, 6th August, 1910.

(G. P. Darnell-Smith.) Small seeds.

(*c*) Hawkesbury River, 13th August, 1910.

(G. P. Darnell-Smith.) Insects.

(*d*) Hallett's Cove, near Adelaide, May, 1910.

Portions of large beetles.

(W.W.F.) Remains of ants, earwig, and beetles.

Pachycephala rufiventris (M. 674, H. 271). Rufous-breasted Thickhead.

(*a*) Hawkesbury River, January, 1910.

Portions of insects: empty seed-vessel of a plant.

(W.W.F.) Spiders, two species; homopterous insects (Cercopidæ): head, body, and damaged wings of weevil beetles; small plant bugs. Food obtained upon low shrubs, probably eucalyptus.

(*b*) Hawkesbury River, 20th November, 1909.

Fragments of beetles and other insects.

(W.W.F.) Nearly all remains of beetles; small Homoptera.

Eopsaltria australis (M. 683, H. 259). Yellow-breasted Shrike-Robin (Yellow Robin).

Middle Harbour, Sydney, 1st August, 1910.

Bulldog ant; remains of small beetle; numerous other insect remains.

(W.W.F.) Chief food, ants of various species—bulldog ant (*Myrmecia gulosa*), wood ant (*Polyrhachis*, sp.), green-head ant (*Ectatomma metallicum*); moth caterpillar and wing-cover of beetle.

Aphelocephala leucopsis (M. 689, H. 239). Whiteface.

Hallett's Cove, near Adelaide, 20th May, 1910.

Numerous fragments of beetles, &c.; portion of a seed, and some chlorophyll-containing vegetable fragments; a little sand.

(W.W.F.) Remains of wing-covers and legs of beetles.

Climacteris picumna (M. 704, H. 281). White-throated Treecreeper.

(*a*) Narrabeen, 26th March, 1910.

Smell of ants; fragments of insects (?); ant eggs.

(W.W.F.) Chief food remains are ants of several species, with a few remains of the elytra of small beetles. I see no ant eggs (larvæ ?).

(*b*) Mount Lofty, Adelaide, 17th May, 1910.

Large portions of several beetles and numerous fragments of insects.

(W.W.F.) Remains of one of the ground weevils, *Cubicorrhynchus*, sp.

(*c*) Bowral, April, 1910.

Numerous remains of beetles, &c.

(W.W.F.) Ants and wing-covers of small ground beetles.

(*d*) Tent Hill, Northern New South Wales, 16th December, 1910

Portions of insects.

(W.W.F.) Pupa of cicada, small moths, and remains of bark-hunting beetles.

Zosterops cœrulescens (M. 712, H. 301). White-eye.

(*a*) Middle Harbour, Sydney, 5th February, 1910.

Stomach stained a crimson-lake; remains of blackberries; wings of insects.

(W.W.F.) Wings of the passion vine froghopper (*Scolypopa* (*Phochazia*) *australis*).

(*b*) Middle Harbour, 2nd April, 1910.

Fragments of insects; a minute reddish seed.

(W.W.F.) Two lepidopterous larvæ; part of wing of fly and few fragments of beetle wings.

(*c*) Middle Harbour, 2nd April, 1910.

Fragments of insects and seeds; some minute grains of quartz.

(W.W.F) Remains of very small spider.

(*d*) Middle Harbour, 6th August, 1910.

Portion of a grub and small spider.

(W.W.F.) Wings of *Psylla*; small jumping spider; looper caterpillar; and remains of small lace wings (Neuroptera).

(*e*) Middle Harbour, 6th August, 1910.

Portion of a grub; several minute coral-pink, oval eggs.

(W.W.F.) Small moth grub; other remains indefinite.

(*f*) Mount Lofty, Adelaide, 17th May, 1910.

A few fragments of beetles and other insects.

(W.W.F.) Several small moth caterpillars and a beetle.

(*g*) Mount Lofty, Adelaide, 17th May, 1910.

Legs of yellowish spider (?); about half a dozen whitish grubs, about ½-inch long.

(W.W.F.) Small caterpillars and a spider.

(*h*) Middle Harbour, Sydney, 11th June, 1910.

Some insect remains; stomach nearly full of small flowers.

(W.W.F.) Small caterpillar of moth; a number of thrips; a staphylinid beetle and remains of small beetles; all these insects probably captured on the flowers.

(J.H.M.) See (*i*).

(*i*) Middle Harbour, Sydney, 11th June, 1910.

Some insect remains; stomach nearly full of small flowers.

(W.W.F.) Insect remains few and indefinite; only two or three fragments of beetles.

(J.H.M.) Flowers of *Leucopogon* identical with those of (*h*)

(*i*) Middle Harbour, Sydney, 11th June, 1910.

Some insect remains; stomach nearly full of small flowers.

(W.W.F.) Wing-covers of small beetles and legs of a spider, probably taken on the flowers.

(J.H.M.) Flowers of the *Leucopogon*, identical wtih those of (*h*).

(*k*) Middle Harbour, Sydney, 11th June, 1910.

Stomach stained a deep purple; intestinal contents deep purple; portion of an insect; pale yellowish skins of some fruit.

(W.W.F.) Remains of one beetle.

(J.H.M.) Skins of the inkberry (*Phytolacca octandra*, L.) The note that the stomach was stained a deep purple gave me the hint as to the origin of the skin, and I find that the stain is identical with that of berries in this herbarium.

(*l*) Neutral Bay, Sydney, 19th October, 1910.

Vegetable fragments, apparently of a berry; a few minute fragments of insects.

Pardalotus punctatus (M. 726, H. 379). Spotted Pardalote.

Jindabyne, N.S.W., 12th December, 1910.

Minutely comminuted fragments of a metallic beetle.

(W.W.F.) Remains of wing-covers of Coleoptera.

Melithreptus brevirostris (M. 741, H. 313). Short-billed Honey-eater.

(*a*) Sydney, 15th October, 1909.

A few insect remains: (?) part of a spider.

(W.W.F.) Coleoptera.

(*b*) Middle Harbour, 28th March, 1910.

Several small grubs; remains of a small brownish spider with a number of small white young ones.

(W.W.F.) Six spiders of different species; a number of small ones, probably on the back of one of the adult spiders when eaten; head of a froghopper (Homoptera); a number of lepidopterous larvæ of various moths. This is, by the contents of its stomach, one of our good insectivorous birds.

Acanthorhynchus tenuirostris (M. 752, H. 299). Spine-billed Honey-eater.

(*a*) Hawkesbury River, December, 1909.

Small fragments of insects.

(W.W.F.) Many of the fragments are the bits of wing-covers of small homopterous insects: a few beetles and two ants.

(*b*) Mount Lofty, Adelaide, 17th May, 1910.

A few small fragments of insects.

(W.W.F.) Nothing definite in beetle remains.

(*c*) Hawkesbury River, 3rd October, 1910.

A large hymenopterous insect.

(W.W.F.) Chiefly remains of dung beetles (*Onthophagus*, sp.); also remains of wasp (*Thynnus*, flower wasp ?).

Glyciphila melanops (M. 756, H. 317). Tawny-crowned Honey-eater.

Middle Harbour, 9th April, 1910.

Two small Hymenoptera; remains of other insects.

(W.W.F.) Two braconid wasps (Braconidæ) and the remains of a number of small flies (Diptera).

Ptilotis chrysotis (M. 770, H. 329). Yellow-eared Honey-eater.

(*a*) Hawkesbury River, 20th December, 1909.

Some fragments of insects; a number of small, kidney-shaped seeds, sculptured with pits.

(W.W.F.) Remains of Coleoptera. Are not the seeds those of trefoil clover?

(*b*) Hawkesbury River, December, 1909.

Some fragments of insects; some small, kidney-shaped seeds, reddish-brown, in a reddish-brown matrix.

(W.W.F.) Remains of two spiders; several ants; the head and broken elytra of small beetle.

(*c*) Hawkesbury River, 6th April, 1910.

Stomach stained purple; a number of large purplish seeds.

(J.H.M.) *Stephania hernandifolia?* (*Menispermeæ*). I failed to identify the purple fruits which stained the stomach. Amongst this fruit was a single but unmistakable seed of *Stephania hernandifolia*, a slender vine very common on sandy sea-coasts.

Ptilotis sonora (M. 772, H. 334). Singing Honey-eater.

(*a*) Tailem Bend, S.A., May, 1910.

Numerous portions of ants and other insects; two seeds surrounded by white fluffy "flesh"; on section show green cotyledons.

(W.W.F.) Ants chiefly; remains of several moths.

(J.H.M.) Vegetable remains not recognizable.

(*b*) Murray Flats, near Blanchetown, S.A., May, 1911.

Purplish fruits (?) of a salt-bush.

(Mr. Mackinnon, per J.H.M.) Seeds of *Kochia*.

Ptilotis leucotis (M. 778, H. 339). White-eared Honey-eater.

Middle Harbour, 28th March, 1910.

Fragments of insects.

(W.W.F.) Remains of wing-covers of small beetles, probably obtained in the flowers of the eucalypts. All the Honey-eaters are known to feed upon the small insects they find when sucking up the honey of the flowers, but are only insectivorous in a minor degree.

Ptilotis melanops (M. 781, H. 342). Yellow-tufted Honey-eater.

Middle Harbour, 1st August, 1910.

Some minute fragments of insects.

(W.W.F.) Insect remains small and indefinite; only some wings of aphids can be determined.

Meliornis pyrrhoptera (M. 797, H. 353). Crescent Honey-eater

(*a*) Mount Lofty, Adelaide, 17th May, 1910.

A few small fragments of insects.

(W.W.F.) Nothing definite: a few fragments of the wing-covers of beetles.

(*b*) Mount Lofty Range, Adelaide, 23rd May, 1910.

A few small fragments of insects; some minute fragments of green vegetable matter.

(W.W.F.) Remains of beetles.

Meliornis novæ-hollandiæ (M. 799, H. 354). New Holland Honey-eater.

(*a*) Hawkesbury River, 20th November, 1909.

Small fragments of insects.

(W.W.F.) Chiefly remains of wings of small flies (Diptera) and small ichneumon wasps; a few elytra of beetles.

(*b*) Middle Harbour, 9th April, 1910.

An anthomyid fly: fragments of many other insects.

(W.W.F.) An almost perfect specimen and wings of several small flies.

(*c*) Middle Harbour, 16th July, 1910.

Portions of small gnats (?).

(W.W.F.) Remains of very small flies (Diptera).

(*d*) Middle Harbour, 1st August, 1910.

A small hymenopterous insect; remains of other insects.

(W.W.F.) Remains of small flies (Diptera); wing-covers of beetles

(*e*) Middle Harbour, 1st August, 1910.

Stomach full of minute fragments of insects, amongst them a small hymenopterous insect.

(W.W.F.) Nearly all the remains consist of small midges and mosquitoes.

(*f*) Middle Harbour, 6th August, 1910.

A small gnat.

(W.W.F.) All the insect remains indefinite, with the exception of a bundle of legs of gnats.

(*g*) Mount Lofty Range, Adelaide, 23rd May, 1910.

Numerous portions of small beetles, &c.

(W.W.F.) Remains of ants and wing-covers of beetles.

Meliornis sericea (M. 801, H. 356). White-cheeked Honey-eater.

(*a*) Middle Harbour, 28th March, 1910.

Remains of insects.

(W.W.F.) Remains of wings of small flies (Diptera); a few bits of beetle wings.

(*b*) Middle Harbour, 16th July, 1910.

Several flies (Diptera).

(W.W.F.) Two small moths; remains of muscid flies.

Anthochæra carunculata (M. 808, H. 363). Red Wattle-Bird.

Jindabyne, N.S.W., 12th December, 1910.

Stomach full of metallic fragments of a beetle.

(W.W.F.) Remains of Coleoptera, apparently wing-cases of small metallic lamellicorn on wattle trees (*Diphucephala*, sp.)

Anellobia chrysoptera (M. 810, H. 365). Brush Wattle-Bird.
Middle Harbour, 28th March, 1910.
Some fragments of beetles.
(W.W.F.) Remains of heads and elytra of beetles; the fangs of several spiders.

Anthus australis (M. 822, H. 390). Ground-Lark.
(*a*) Bathurst, January, 1910.
Fragments of beetles; wings, &c., of insects; a small grass seed.
(W.W.F.) Ants (Formicidæ); heteromerous beetle; ladybird beetle (*Coccinella*); small carab beetle; more ants than beetles.
(*b*) Summit of Mt. Kosciusko, 10th December, 1910.
Fragments of insects.
(W.W.F.) Remains of ground-hunting spiders, with a few wing-cases of beetles.

Ægintha temporalis (M. 838, H. 412). Red-browed Finch.
(*a*) Narrabeen, 26th March, 1910.
Small oval white seeds.
(*b*) Middle Harbour, Sydney, 9th April, 1910.
Fragments of small white seeds.
(*c*) Middle Harbour, Sydney, 9th April, 1910.
Fragments of small white seeds.
(*d*) and (*e*) Berry, 10th August, 1910.
A number of small whitish seeds and minute orange or brown seeds.
(J.H.M.) Three small kinds of seeds, probably all grasses. The narrow seed is probably an *Eragrostis*, but I cannot give the genus of the other two.
(*f*) and (*g*) Berry, 10th August, 1910.
A number of small seeds as in (*d*) and (*e*).
(J.H.M.) The same three seeds as in (*a*) and (*b*). In addition, another small flat seed, which is not a grass, and belongs to the Dicotyledoneæ.

Oriolus sagittarius (M. 850, H. 62). Oriole.
Berry, 10th August, 1910.
A seed like a small date seed; portions of large grub.
(W.W.F.) Looper caterpillar (fam. Geometeridæ).
(J.H.M.) Stone of the white cedar (*Melia azederach*, L.)

Corvus coronoides (M. 872, H. 44). Crow.
(*a*) Rowena, near Collarenabri, N.S.W., November, 1910.
A number of maggots, with remains of dead sheep.
(W.W.F.) Maggots of *Calliphora rufifacies*, one of the blow-flies that infest wool; beetles and ants.
(*b*) Jindabyne, N.S.W., 12th December, 1910.
Stomach full of comminuted fragments of grasshoppers.
(W.W.F.) Tail bones of a lamb; beetle remains; remains of locusts (grasshoppers).

Corone australis (M. 874, H. 45). Raven.
Jindabyne, N.S.W., 12th December, 1910.

Stomach crammed full of maroon-coloured fragments of grasshoppers.

(W.W.F.) Apparently this bird has been feeding on locusts (grasshoppers); hardly any other food.

Strepera versicolor (M. 878, H. 49). Grey Crow-Shrike.

Slopes of Mt. Kosciusko, 12th December, 1910.

Metallic fragments of a large beetle.

(W.W.F.) The remains of our golden stag beetle (*Lamprima latrellei*). It has evidently made its breakfast of these large and very hard-bodied beetles.

INTRODUCED BIRDS.

Passer domesticus. House Sparrow.

(*a*) Adelaide, 14th May, 1910.

Several small white seeds.

(J.H.M.) This seed seems to be identical with *Eragrostris*, found in *Sericornis maculata* (M. 586), Port Adelaide, but is more digested.

(*b*) Adelaide, 14th May, 1910.

A few fragments of grain, and a number of small pieces of quartz, &c., gravel.

Fringilla chloris. Greenfinch.

Narrabeen, 26th March, 1910.

Some small seeds of two kinds; some remains of black seeds.

STOMACH CONTENTS OF BIRDS FROM LORD HOWE ISLAND, OCTOBER, 1910.

(Collected and identified by T. Harvey Johnston, D.Sc.)

Ocydromus sylvestris (not in Mathews' List; in Basset Hull's List, placed after Mathews' 52). Flightless Rail.

(*a*) (*b*) Insect remains.

Puffinus tenuirostris (M. 84, H. 675). Short-tailed Petrel (Mutton-Bird).

(*a*) (*b*) (*c*) (*d*) Squid beaks and remains.

(*e*) Oily contents from squid.

Sterna fuliginosa (M. 128, H. 650). Sooty Tern.

Fragments of a small crab.

Procelsterna cinerea (M. 132, H. 654). Grey Noddy.

(*a*) (*b*) (*c*) Stomachs full of "whale food," a small red crustacean somewhat like *Mysis*.

Anous stolidus (M. 133, H. 655). Noddy.

(*a*) (*b*) (*c*) (*d*) Fish fragments in all.

Charadrius dominicus (M. 151, H. 608). Lesser Golden Plover.

(*a*) Foraminifera, shells (gastropod), beetle.

(*b*) (*c*) Isopods (a common crustacean along the beach, devouring *débris*, &c.) in each.

(*d*) Gastropods (periwinkles); beetle remains.

Limosa novæ-zealandiæ (M. 167, H. 624). Barred-rumped Godwit.
(*a*) Grass and a few small seeds.
(*b*) Cut-worm and earthworm; shell fragments.

Heteropygia aurita (H. acuminata) (M. 181, H. 634). Sharp-tailed Stint (Marsh Tringa).
(*a*) (*b*) Gastropods; grass; insect larvæ.

Sula cyanops (M. 244, H. 731). Masked Gannet.
(*a*) Flying-fish.
(*b*) (*c*) Fish remains.

Halcyon vagans (M. 393). New Zealand Kingfisher.
(*a*) Caterpillars; also many short-horned grasshoppers.
(*b*) Spiders; beetles.
(*c*) Short-horned grasshoppers.

Zosterops strenua (M. 718).
Fruit (not recognizable).

Aplonis fuscus (M. 855).
Land mollusc; a native fruit.

Strepera graculina (M. 875, H. 46). Pied Crow-Shrike.
(*a*) (*b*) (*c*) (*d*) (*e*) (*f*) (*g*) Fruits in all; pandanus fruit in one.

Australian Birds in Siberia.

By SERGIUS A. BUTURLIN, F.M.B.O.U., WESENBERG, RUSSIA.

I HAVE studied our birds from 1887—first on the middle Volga (where lies the home of my parents), then about Lake Ladoga and in the Baltic Provinces, and made several trips to Arkhangelsk Government, Kolguev, and Novaia Zemlia, and on the middle Irtysh and upper Ob valleys, central Siberia. All the year 1905 I studied the bird-life in the Kolyma and Indigirka basins, and collected about 7,000 specimens (skins) and 700 eggs in Yakutsk Government. Besides, I have studied all or most collections in the museums of St. Petersburg, Moskwa, Warsaw, Kiev, Tiflis, Semipolatinsk, Krasnoyarsk, Irkutsk, Yakutsk, and Vladivostock. Therefore I may claim to know the birds of the Russian Empire well enough—only too well to know what immense gaps in our knowledge still exist.

So far, I know we have 48 forms in common with Australia. Among them, three are only exceptionally rare visitors to Russian limits: *Puffinus griseus* (Sombre Petrel) is even not yet trustworthily recorded, *Sula piscator* (Masked Gannet) was once procured in De Castries Bay, and *Antigone australasiana* (Australian Crane) in Yakutsk Government.* I have carefully studied this last specimen. It is without doubt an adult (at least two years old) of this species, though much smaller in all dimensions than

* This "Native Companion" may have escaped from some Zoological Gardens.—EDS.

an Australian adult bird with which I compared it in St. Petersburg Academical Museum. The skin was received in Moskwa from a Polish exile, who sends many birds to Moskwa Museum from Yakutsk. It was of the same build as the last, and the man was not aware of the exceptional value of it. There cannot be the slightest doubt that the bird was actually obtained near Yakutsk, though it was not labelled—indeed, he did not label any birds he obtained from local Yakutsk shooters.

Another 10 or 11 species breed not only within our limits, but also, perhaps in slightly different forms, in Australia: *Podiceps cristatus* (I use mostly names of Dresser's "Manual of Palæarctic Birds"), *Sterna sinensis* (White-shafted Ternlet), *S. anglica* (Gull-billed Tern), *S. caspia* (Caspian Tern), *Hydrochelidon hybrida* (Marsh Tern), *Strepsilas interpres* (Turnstone), *Ardetta sinensis* (Little Yellow Bittern), *Plegadis falcinellus* (Glossy Ibis), *Ardea cinerea* (Grey Heron), *Phalacrocorax carbo* (Black Cormorant), *Puffinus tenuirostris* (Short-tailed Petrel or "Mutton-Bird").

One species, *Diomedea albatrus* (Short-tailed Albatross), is only a wanderer near our shores. Other 31 species do breed in our limits, and winter in or accidentally wander to Australia, namely:—*Stercorarius pomatorhinus* (Pomarine Skua), *S. crepidatus* (Richardson Skua), *Hydrochelidon leucoptera* (White-winged Tern), *Numenius cyanopus* (Curlew), *N. variegatus* (Whimbrel), *N. minutus* (Little Whimbrel), *Limosa melanuroides* (Black-tailed Godwit), *L. novæ-zealandiæ* (Barred-rumped Godwit), *Terekia cinerea* (Terek Sandpiper), *Heteractitis brevipes* (Grey-rumped Sandpiper), *Actitis hypoleucus* (Common Sandpiper), *Totanus glareola* (Wood-Sandpiper), *T. stagnatilis* (Little Greenshank), *T. glottis* (Greenshank), *Calidris arenaria* (Sanderling), *Tringa crassirostris* (Great Sandpiper), *T. canutus* (Knot), *T. subarquata* (Curlew Stint), *T. subminuta* (Middendorff Stint), *T. ruficollis* (Little Stint), *T. acuminata* (Sharp-tailed Stint), *Ægialitis mongolus* (Mongolian Sand-Dottrel), *Ægialitis geoffroyi* (Large Sand-Dottrel), *Eudromias veredus* (Oriental Dottrel), *Squatarola helvetica* (Grey Plover), *Charadrius fulvus* (Lesser Golden Plover), *Glareola orientalis* (Oriental Pratincole), *Cuculus saturatus* (Oriental Cuckoo), *Acanthyllis caudacuta* (Spine-tailed Swift), *Cypselus pacificus* (White-rumped Swift), *Hirundo gutturalis* (Eastern Swallow).

The geographical distribution of most of these birds within our limits, furnished by me, has been published in Mr. Henry Dresser's work on "Eggs of Western Palæarctic Birds," just finished, and I can give fuller details if required. The following species are not mentioned in Dresser's work:—

Numenius cyanopus (Curlew).—Breeds in southern parts of Eastern Siberia, as far west as southern Baikal and upper Olekina (tributary of Lena), and as far north as about 56–57° N. on (Lena) Olekina.

Numenius phæopus variegatus (Whimbrel).—Breeds in Eastern Siberia as far west as Lena and Baikal. In the north it breeds in large numbers on Kolyma as far as 69° N., on the borders of

the tundras. On Ob and Yenisei no Whimbrels breed, and the only straggler that I have seen from Yenisei belongs to the typical form (*N. phæopus*).

Numenius minutus (Little Whimbrel).—Breeds evidently on upper Yana (near Verkhojansk, about 67½° N.) and middle Lena. Not further south than about 59° N. I have specimens shot in summer near their nests, but nests were not seen. Not met with on Kolyma or further east.

Limosa melanuroides (Black-tailed Godwit).—Breeds in Eastern Siberia as far north as Kamchatka (perhaps Commander Island), shores of Okhotsk Sea, Baikal, and as far west as upper Yenisei valley (rare). Series collected by me in Smeinogorsk district (Altai) belong to western species (*melanura*).

Limosa lapponica novæ-zealandiæ (Barred-rumped Godwit).—Breeds in Eastern Siberia as far north as Taimyr Peninsula and tundras at the mouth of Kolyma. Breeds in colonies, and is very noisy. I brought back some downy young. Seems not to breed in the region of true "taiga."

Heteractitis brevipes (Grey-rumped Sandpiper).—During summer is met with from middle Lena (once procured at Yeniseisk) to Kamchatka, and as far north as about 68° N. on Indigirka (but not on Kolyma). Have not observed it in its nesting haunts.

Tringa crassirostris (Great Sandpiper).—Common in the end of July and in August on shores of Okhotsk Sea. Was met with on Commander Island and Anadyr. An adult male shot in May near Verkhojansk (67½° N., on Yana River) by one of my party, but certainly does not breed in arctic parts of Siberia (perhaps goes to alpine tundras of Stanovoi Mountains to breed).

Tringa subminuta (Middendorff Stint).*—Also not an arctic bird. Breeds in eastern *and central* Siberia, not further north than 66° N. in easternmost parts of its range, and much less northerly further inland. Seems to breed as far south as Saghalien, southern parts of Yeniseisk Government (Minusiusk district), and as far west (in small numbers) as lower Irtysh valley. Eggs and young not yet procured.

Tringa ruficollis (Little Stint).—Breeds in tundras of lower Lena, Yana, and New Siberian Archipelago. Not met with on Indigirka and Kolyma (rare, and perhaps only straggling, to Yenisei), but seems to breed commonly in Chuckchi Land and on Anadyr. I have found that its eggs were brought home by Dr. Bunge under the name of *T. minuta*, and my friend Mr. H. Dresser figured these eggs in *The Ibis* several years ago.

Ægialitis (*Ochthodromus*) *mongolus* (Mongolian Sand-Dottrel).—Breeds on Commander Island, shores of Okhotsk Sea, and westwards into eastern Dauria.

Eudromias (*Ochthodromus*) *veredus* (Oriental Dottrel).—In our limits, and once met with near Samarkand, in Turkestan.

* The Middendorff Stint has not yet been recorded as an Australian bird, although it has been found in the Malayan Archipelago.—EDS.

Glareola orientalis (Oriental Pratincole).—Breeds in southern Dauria.

Apus (*Micropus*) *pacificus* (White-rumped Swift).—Breeds from steppes of Akmolinsk Government, in south-western Siberia, through Siberia, and as far north as at least 58½° N. on Yenisei and 60° N. on Lena.

Hirundo gutturalis (Eastern Swallow).—South-eastern Siberia. (All my specimens from Kolyma, Yana, middle Lena, and *south-eastern* part of Yeniseisk Government—basins of Chuna and Mura, left tributaries of Angara or upper Tunguska—belong to *H. tythleri*: and specimens from Yeniseisk Government, west of 96° E. from Greenwich, to *H. rustica typica*).

I may add that *Acanthyllis* (*Chætura*) *caudacuta* (Spine-tailed Swift) breeds from upper parts of Yenisei as far north as Yeniseisk, and in Amur Land to the northern parts of Amur basin.

Descriptions of a New Petrel and of Some Nestlings.

BY A. F. BASSET HULL, R.A.O.U., SYDNEY.

Puffinus intermedius, n. sp.—SOLITARY PETREL.

Adult Male.—General colour above blackish-brown, feathers of the back narrowly margined with lighter; crown of the head black; throat, sides of the neck, and entire under surface greyish-brown, the shafts of the breast feathers black; bases of all the body feathers grey, darker towards the tip; wing coverts and secondaries blackish-brown, margined with lighter; primaries darker; under wing coverts ashy-grey, with black shafts; rump and upper tail coverts black, broadly margined with dark grey; outer tail feathers sooty-black, the central feather distinctly longer than the others.

Bill lead colour; tarsi lead colour in front, bluish behind; toes black; interdigital membrane bluish-black above, darker beneath; iris black.

Total length, 17 inches; wing, 10.5; tail, 3.5; bill, 1.25; tarsus, 2; middle toe and claw, 2.5.

Compared with *Puffinus brevicaudus* (Gould), this bird is larger (4 inches longer), more robust, has a stouter bill, and is generally lighter in colour. It differs from *P. griseus* (Gmelin) in its slightly smaller size, much smaller and slighter bill, darker colour, and the absence of the white under wing coverts.

The type specimen was taken by me, in company with Mr. Thos. P. Austin, at Cabbage Tree Island, at the entrance to Port Stephens, New South Wales, on the 4th December, 1910 (*vide Emu*, vol. x., p. 257). The bird was discovered in a burrow beneath a boulder in the scrub about half-way towards the top of the island. Quite close to this burrow a male Wedge-tailed Petrel was also found in a similar retreat. Both birds appeared to be merely in hiding, and there was no apparent intention of using the hiding-place as a nest.

White-winged Petrel (*Œstrelata leucoptera*) in Nesting Site, Cabbage Tree Island, New South Wales.

FROM A PHOTO. BY A. F. BASSET HULL.

Nestling White-winged Petrel (*Œstrelata leucoptera*), Cabbage Tree Island, New South Wales.

FROM A PHOTO. BY S. W. JACKSON

This bird (*P. intermedius*) was very savage, and made several vicious dashes at my hand, hissing and making a wailing cry at intervals.

Œstrelata leucoptera (Gould)—WHITE-WINGED PETREL.

Nestling.—About four weeks old :—Head and the whole upper surface covered with bluish-grey down, extending on to the flanks ; chin, throat, and upper breast white ; centre of breast, abdomen, and under tail white. Bill black : interdigital membrane fleshy white and basal half black. Total length, 8 inches.

Younger birds, about 5 inches in length, show more of the white on the under surface. Both taken on Cabbage Tree Island, 30th January, 1911. (See Plate IX.)

Puffinus sphenurus (Gould)—WEDGE-TAILED PETREL.

Nestling.—About two weeks old :—Covered with down, the upper and most of the under surface ashy-grey, throat and upper breast greyish-white. Bill black, with horn-coloured tip. Feet yellowish-white. Total length, 6 inches. Broughton Island, 30th January, 1911.

About ten weeks old :—True feathers on back and wings sooty-black, ashy-grey on the breast ; throat darker. Bill black ; feet and toes yellowish-white. Total length, 10 inches. Broughton Island, 13th March, 1911.

Avifauna of New South Wales Islands.

BY A. F. BASSET HULL, R.A.O.U., SYDNEY.

PART I.

THE superior greenness of distant hills is proverbial, and the same attraction of remoteness appeals to the average ornithologist, who will accomplish long journeys to visit distant islands in search of something new, passing by unsuspected treasure-spots near home. Generations of naturalists have gone far afield from Sydney, neglecting the numerous islets dotted along the coast of New South Wales, unaware of the riches that lay so close to hand.

In my last contribution to this journal (*Emu*, vol. x., p. 253), I gave a brief account of the results of three visits to the islands in the vicinity of Port Stephens, and I propose now to continue the narrative of other expeditions taken since, and (I hope) to be taken from time to time as opportunity permits.

With the valuable co-operation of Mr. H. L. White, of Belltrees, N.S.W., I have made two more expeditions, and look forward to many more visits to our coastal islands during the remainder of this year.

A brief glance at previous expeditions and results may be permitted as a preface to this series of notes. In September, 1907, I visited Montague Island, 150 miles south of Sydney, where the Silver Gulls (*Larus novæ-hollandiæ*) were found breeding in great

numbers, and the Little Penguins (*Eudyptula minor*) were discovered and recorded as breeding—the farthest north record up to that date. My notes on this trip were published in this journal for October, 1907. In October, 1909, I visited several of the islets off Wollongong, known as the Five Islands. Here I discovered the White-faced Storm-Petrel (*Pelagodroma marina*) breeding, thus establishing another "farther north" record for this species, and also brought the Little Penguin's breeding record a farther stage north. In October and December, 1910, I visited Cabbage Tree and Broughton Islands, off Port Stephens, and took the eggs of both of the last-named species at a still farther north stage, besides re-discovering the White-winged Petrel (*Œstrelata leucoptera*), and taking the type egg of that species.

My next excursion took place in January last. Accompanied by Mr. S. W. Jackson, Mr Robert Grant (Taxidermist to the Australian Museum) and his wife, and my son, I left Sydney on the 26th January and journeyed overland to Saltash, at the head of Port Stephens, and proceeded thence by launch down to Nelson's Bay. The day was stormy, with frequent tropical rain, but we fared through without mishap, only to find that the sea at the entrance to the Port was too heavy to admit of our getting out on the following morning. We decided to make the best use of our time inside the Port, and went up by launch to Boondabah, or Middle Island, a well-timbered and high islet about 8 miles from the bay It was still raining at intervals, but we thoroughly explored the islet, finding no trace of breeding sea-birds, and but few land-birds *Coracina mentalis*, *Malurus cyanochlamys*, *Halcyon sanctus*, *Micrœca fascinans*, *Artamus sordidus*, and *Ptilotis chrysops* were noted. The scrub was in some parts very thick, and in its wet state made exploration somewhat unpleasant.

We then proceeded to Schnapper or Cabbage Tree Island, a few miles further up the Port, where the Nankeen Night-Heronry described in my last article is situated. Here we found a considerable number of adult and young birds in all stages of plumage flying about the tree-tops, squatting on the rough stick nests, or perched in more or less statuesque attitudes on the branches. Sad to relate, however, very many dead birds were discovered scattered about on the ground, where some ruthless "sportsmen" had left them after killing them for the mere lust of destruction. It was interesting to note the variation in colouring of the legs of the living birds. Greyish to vivid green characterized the young birds, while the adults varied from yellow to bright vermilion-red.

On the following morning we were informed by the signalman at Nelson's Bay that the sea was going down, so we essayed the trip to Broughton Island. Crossing the bar was a trying experience, and the further we proceeded the worse the sea became. Our little 30-foot launch was tossed like a cork on the huge green rollers, and benzine cans and other loose articles went careering from side to side. Some of our party were soon incapacitated,

and our general comfort was not increased by the sight of several sharks cruising in close proximity to the launch. On reaching Cabbage Tree Island (the large one outside the Port) a black squall came up from the north-east, making such a dangerous cross sea that the skipper decided to turn and run for home. The day turned out wet and unpleasant, but we crossed over to the sandspit off Corrie Island, where the White-faced Ternlets were found breeding on 6th December last. These graceful little birds were still in evidence, and a young bird was secured. Five ungainly Pelicans observed our approach, and as we came within a few hundred yards they waddled down to the water's edge and swam off out of danger. Several Skuas (*Stercorarius crepidatus*) were pursuing their nefarious trade, robbing the Crested Terns of their hard-earned gains.

Sunday, 29th January, broke finer, and by 6.30 a.m. we were on our way to Broughton Island again, reaching Esmeralda Cove at 9.15. The entrance to the Cove was rough and dangerous, but we got through without mishap, and at once set out to explore the Mutton-Bird (Petrel) rookeries. There are four inhabited areas on the western end of the island, where the sandy nature of the soil allows the birds to excavate their burrows. Thick tussocks, creepers of the genus *Kennedya*, and convolvulus form a tangled growth under which the burrows lie. All the entrances to the burrows of *Puffinus sphenurus* were well trodden down, and no fresh earth was noticed in front. These burrows contained either young birds in full down or (in very few instances) heavily-incubated eggs. The latter were probably laid by birds that had been robbed earlier in the season by the Greek fishermen who reside on the island during the crayfish season.

A few newly-commenced burrows were found, having little heaps of fresh sand at the entrance or scattered on the leaves of the convolvulus.

A stick inserted in the first burrow resulted in disturbing a bird, which gave lively demonstrations of disapproval at the intrusion. Mr. Jackson deftly wielded a hoe, and, after opening up about 2 feet of the burrow, I was able to withdraw a fine Petrel, which made strenuous attempts to bite, and uttered a wailing cry somewhat like that of *Puffinus sphenurus*, but of a deeper and more guttural tone. This bird appears to be *Puffinus griseus* (Gmelin), not previously recorded as taken on Australian soil. It is the common New Zealand "Mutton-Bird." We then opened up the remainder of the burrow, and found that it extended fully 3 feet from the entrance, and terminated in a chamber, rounded and arched, containing some short pieces of grass. There was no egg, and the bird proved to be a male. Although many other burrows were examined, no more specimens of this bird were found; most of the burrows showing fresh earth at the entrance were incomplete.

We took several nestlings of *P. sphenurus* for description, as well as a couple of adults, and, after thoroughly examining the

four Mutton-Bird rookeries, testing a burrow here and there, we returned to camp.

In the afternoon we visited the White-faced Storm-Petrels' breeding-place. This is a sandy hill in the centre of the island, and the burrows are literally in thousands. We investigated a dozen or so of those that had recent footprints at the entrances, and obtained three young birds in varying stages of plumage. These were the only inhabited burrows, the young birds having flown from the others. We then proceeded to explore the eastern end of the island, which is high and rocky, the boulders being almost hidden amongst tussocks. No trace of bird or burrow was found, and on reaching the highest peak we looked out on a steep declivity falling about 250 feet to the ocean. A narrow channel separated us from Little Broughton Island, which is very difficult of access, and in the sea then prevailing landing was clearly impossible. The island was most attractive in appearance, sloping up to about 300 feet, ending in an abrupt cliff; but the whole slope was covered with tussocks and low scrub, amongst which we could make out some stunted banksias.

This completed our day's work, and we turned in early, rising at 4 a.m., and after breakfast packed up and left for Cabbage Tree Island, the home of the White-winged Petrel. We arrived there at 7.30 a.m., and effected a comparatively easy landing, the sea having moderated during the night. I climbed up to the spot where I had found my new Petrel in December, 1910,* but could find no trace of any more specimens of the species. The White-wings, however, were there in numbers, and I secured several nestlings in varying stages of growth None of the birds we had robbed of their eggs in December appeared to have laid again, and the old nests were deserted. A good many adult birds, in pairs and singles, were found in crevices, but without either eggs or young birds under them.

On the lower slopes the ubiquitous *Puffinus sphenurus* was in evidence, nearly every burrow containing a young bird. Mr. Grant and his wife landed further down the island, where the Little Penguins had their breeding-places, and obtained a few young birds and one adult. We then returned to Nelson's Bay, and caught the steamer for Newcastle.

It was disappointing to fail in the search for specimens of the new Petrel. I had anticipated finding a colony of this bird, of which I thought my specimen was a sort of advance agent. There was only one course open—to pay another visit later. Therefore, on the 11th of March last, accompanied by Mr. L. Harrison and Mr. Grant's adopted boy Douglas (a North Queensland native), I left Sydney at 6.30 p.m., arriving at Nelson's Bay at 5.20 a.m. The launch was soon ready, provisions taken on board, and a start was made before 6. We had comparatively smooth water, and, escorted by a sportive band of porpoises (or, rather, dolphins),

* See preceding article.

which gave us a most gratifying exhibition of their marvellous powers of swimming and shooting out of the water, we arrived off the western end of Broughton Island about 8.15. West Islet was visited, the landing proving practicable, but there was not much ground available for nests, the islet being mostly bare rock. However, amongst the tussocks and scrub on the top we found a number of burrows, two of which contained young *Puffinus sphenurus* about ten weeks old, the true feathers replacing the down to a great extent. No other birds were seen on this islet, which is barely an acre in extent. We then proceeded to North Islet, about half a mile distant, but, after several attempts at landing, we had to abandon it as impracticable, the surge running all round and the sharp rocks showing their teeth in every direction. This islet is rather larger than West Islet, but even more rocky, and with less scrub on the summit. The water in the vicinity was wonderfully clear, the huge boulders on the bottom and the shoals of fish swimming about making a most attractive sight.

We then left for Little Broughton Island, at the extreme eastern end of the group. This is a large island, about a quarter of a mile in length, and over 300 feet in height. After circumnavigating the island we effected a landing where the cliffs were lowest, quite close to a curious tunnel in the rock into which the sea rushed with the noise of an exploding cannon. We had a tough climb to reach the top, the cliff sloping steeply upwards. The top was covered with either tussocks, low scrub, or masses of convolvulus. All this growth was from waist deep to over our heads, and the labour of getting through it and at the same time searching for nests can be well imagined. At the outer edges of the scrub we found countless burrows, empty, and mostly showing no signs of recent occupation, but under some *Westringia* scrub I heard a muffled wailing that indicated the presence of *Puffinus sphenurus*. After wrenching away some of the bushes I discovered three birds—two together in one burrow and one in another. They were all *P. sphenurus*, and the two companions proved to be both males.

Crossing a belt of thick scrub, consisting of *Westringia*, *Monotoca elliptica*, and *Banksia integrifolia*, we came out on the north-western slope. This is a very steep hillside, sandy, and densely clothed with convolvulus, about 10 acres in extent. It was positively riddled with burrows, and the entrances to many were marked by fresh sand, scratched out evidently on the previous night; but, although we dug out quite a number of burrows, we found no occupants. The main ridge or saddle of the island was thickly covered with low *Banksia* trees, with sparse undergrowth, and here were no signs of burrows or tracks of birds. This was a puzzling result. Nearly half the island deserted and showing no trace of recent occupation, and another large part showing signs of active "clearing out" operations in the burrows, but no birds visible! I had confidently expected to find either the new Petrel

(*P. intermedius*), *P. griseus*, or at least *P. sphenurus*, in occupation; but, with the exception of three of the last-named species, not a bird was discovered. What caused the fresh sand to be thrown out on the convolvulus leaves was a mystery. These burrows were of great length, and wound about in all directions, leading one into another in many cases. The sand was very soft and loose, but thick roots and occasional stones deflected the course of the burrowing bird to such an extent, and the lower tiers broke into the upper so often, that it was impossible to determine what was the natural end of any particular excavation. After spending three hours in the fruitless search for living inhabitants, we descended to the waiting dinghy and boarded the launch. A short run brought us to Esmeralda Cove, on the main island, where we had a most refreshing bathe, much needed to remove the grime from the burrows, and then pitched camp.

After lunch we walked over to the western end of the island, where the *P. griseus* was taken, but a most exhaustive search revealed nothing but a pair of adult *P. sphenurus* in a recently-constructed burrow, and numbers of nearly fledged young birds of the same species in the burrows we had seen on the former visit. I took two of these nestlings, and at sundown gave up search for the "Sooty Shearwaters."

After a late dinner we essayed to sleep, but the mosquitoes declined to allow us to do so. At midnight Mr. Harrison and Douglas cleared out to the other side of the island and slept on the beach, the breeze keeping the insects away. At 4.30 we rose, had breakfast, and left for Cabbage Tree Island, where we arrived at 7.30. Here we conducted a vigorous search on the south-western slope for the new Petrel. The country was thickly covered with tussocks and *Kennedya* vines growing over big boulders, but there were very few tracks or burrows. One of the latter only was tenanted by a young *P. sphenurus*. The scrub was very wet, and we were soon soaked to the waist, but persevered until every likely spot had been examined right up to the highest point on the south end of the island. Here a natural cairn of upright rocks is piled, and from the summit a magnificent view of the surrounding country was obtained.

We then proceeded to the White-winged Petrels' breeding-ground among the palms, but I saw only three young birds, one of which I took. All the other nests were empty, the young birds having flown. Three old Penguins were found in rock-crevices near the water, and Mr. Harrison found a deserted nest of the Sooty Oyster-catcher on the rocks. It contained two eggs, one of which was broken.

We returned to Nelson's Bay, had a much-needed bathe, and caught the Newcastle steamer in the afternoon.

The result of this trip was therefore negative as to specimens, but positive as to the rarity of the two Petrels I went in search of. Whether they breed at all in the vicinity, or were only chance visitors, I cannot now say. Further investigation is still needed.

Falcunculus frontatus whitei.

BY GREGORY M. MATHEWS, F.R.S. (EDIN.), WATFORD, ENGLAND.

(COLOURED PLATE D.)

(*Falcunculus whitei* (Campbell), *Emu*, vol. x., p. 167.)

THE examination of the type of this sub-species has afforded me much pleasure. Unfortunately, this is a young bird, and the features of the sub-species are somewhat obscure. However, it seems certain that this bird differs from the eastern *F. frontatus* in its browner colouration, thereby approaching the Western *F. leucogaster*. As Mr. Campbell notes, it seems to have the upper colouration of the latter with the under colouration of the former. Its small size is, however, due to immaturity, and I feel convinced the fully adult will more probably equal the other two sub-species.

As I treat them trinomially, the three forms will be—

Falcunculus frontatus frontatus (Latham), East Australia.
,, ,, *whitei* (Campbell), North-West Australia.
,, ,, *leucogaster* (Gould), South-West Australia.

By means of this nomenclature we are enabled at once to recognize the affinities of the three forms.

The discovery of this bird is of extreme interest, as before its recognition the Western sub-species had been considered so isolated and distinct. Mr. Campbell drew attention to its smaller size, and it would be as well to here draw attention to the bird described by Gould as *Falcunculus flavigulus* in the Syn. B. Austr., part iv., App., p. 2 (1838), from Australia. The chief features were its small size :—Wing, $3\frac{3}{8}$; tail, $2\frac{7}{8}$; tarsus, $\frac{3}{4}$. Colouration of the wings brownish-grey, margined with pale brown ; tail the same ; entire under surface yellow. Gould later reduced this doubtfully as a synonym of *F. frontatus*, querying it as a young bird. I have no specimen here that agrees with this diagnosis, and therefore can only ask Australian ornithologists to solve the problem and fix *F. flavigulus* in its proper place.

Honey-eaters of the Cleveland District, Tasmania.

BY (MISS) J. A. FLETCHER, R.A.O.U.

THE forests surrounding Cleveland are composed chiefly of banksias, white gum and stringy-bark (eucalypts), and wattle (*Acacia*) trees. These in many places have a tangled undergrowth of mimosa, bracken, and pimelea. This latter has the extraordinary local name of "snakes' bread and butter," but how such a name arose I could never ascertain. On the more barren sandy rises many flowering herbaceous plants thrive, the whole forming a splendid hunting-ground for Honey-eaters. I identified the following species (all, by the way, that are endemic to Tasmania), and in most instances observed their nests and eggs

Strong-billed Honey-eater (*Melithreptus validirostris*).—Though I observed these birds in the district, I was not able to watch them at all, and only once came across a nest, which was, however, destroyed before completion. The birds were sometimes to be seen perched on the telegraph wires, but, as a rule, I consider them rare in the district.

This **Black-headed Honey-eater** (*Melithreptus melanocephalus*).—species, like its forerunner, is rather scarce, several pairs only being seen in certain favoured localities where were a few acres of gum saplings. I found one nest built at the end of a pendulous branch, but, alas! the Crows also found and destroyed it. The Honey-eaters forsook the locality.

Fulvous-fronted Honey-eater (*Glycyphila fulvifrons*).—I was interested to find this little bird in our district, but it was very local. It was only seen in a limited area of banksia scrub which extended along the railway line for a few miles. Owing to its shy, almost mouse-like nature, observation of its habits without field-glasses was difficult, for it invariably flitted out of sight amongst the undergrowth as soon as a near inspection was made. I was pleased to record it for our district, because I believe it generally prefers the banksian and boobyalla areas around the coasts.

Whilst spending the last Christmas holidays at Swansea, on the East Coast, I frequently flushed these birds from the shrubs on the sand-hills.

At Cleveland I discovered the nest of this species twice. Whilst examining the railway banksias I noticed a nest in the heart of one. On parting the branches a Fulvous Honey-eater slipped quickly off and disappeared through the twigs on the other side. The nest was deep, and made of strips of a wild "thyme," which is the favourite nesting material of most of the birds in this district. The inside was lined with soft shredded bark, also having some cocoons and feathers interwoven. This snug cradle contained two eggs. Date, 10th October, 1908. The following year (30/10/09), I found another nest of same species a few yards away from the site of the above, but the ragged nest showed that a tragedy had taken place. From appearances the brooding bird had been torn off her nest, most likely during the night. Feathers on the ground below showed what had been her end. As the nest was just above easy inspection, I climbed up, and when examining the torn-up lining was amazed to discover the two eggs still there unharmed

Yellow-throated Honey-eater (*Ptilotis flavigularis*).—This merry bird was most plentiful, and more particularly so on the lighter-timbered belts towards Epping, where, among the brackens, it seems to spend a happy time. The nests were easily found, sometimes several within a few yards of one another. The situations varied from the low centre of a sword-grass clump to the top of a native cherry tree, from a fallen tangle of twigs to the thick green growth surrounding a burnt gum trunk, in one instance quite 20 feet high.

On one occasion a Pallid Cuckoo's (*Cuculus pallidus*) egg was placed in the nest just prior to the Honey-eater's eggs hatching, and on another after the first egg was laid.

I have watched the male bird feeding his sitting mate. He called to her as he approached; she answered with a purring sound, hopped on to a twig near the nest, received the food he brought, and returned to her charge, while he flew away.

When one bird is sitting the other keeps near the locality, and by its frequent and excited callings gives a good idea as to the whereabouts of its nest. They are close sitters, but, owing to the open and careless situations in which the little home is frequently placed, these birds suffer severely from predatory enemies.

Crescent Honey-eater (*Meliornis australasiana*).—Also plentiful, in situations similar to the preceding birds. Most of the Crescents' nests I found were placed in centre of sword-grass clumps in a damp locality. Two nests I found on 10th October, 1909, were quite close to one another, and near, in other tussocks, were the ruins of the last year's homes. From the first nest the female flew, then fluttered on the ground, apparently in great distress. I left her and examined the cradle she had left. It contained a chipped egg and two recently-hatched young—blind, and naked except for tufts of greyish down on top of head, tips of wings, and on the abdomen. When the female bird saw her efforts were in vain, she, to my great astonishment, picked up, or, rather, snapped up, a minute fly, and returned to the nest, giving the morsel to one of the little ones, then covered them. And all the while my sister and I were standing by the clump.

A yard or two away I found another nest containing three young covered with down and with their wing feathers showing. Their parents were away, and did not return while their young were being inspected.

White-bearded Honey-eater (*Meliornis novæ-hollandiæ*).—These lively and entertaining birds were particularly fond of one locality—a range of low, rocky hills, sparsely covered near their summits with sheoaks (*Casuarina*) and black wattle (*Acacia*), while around their bases grew a tangle of banksia and saplings, the ground underneath being hidden by bracken.

The chief nesting-sites of the White-bearded Honey-eaters were among the silky foliage of the sheoaks, but the banksia and mimosa were also chosen. Though their nests are generally hard to detect, they nevertheless constantly have them robbed or destroyed by other birds.

Spinebill (*Acanthorhynchus tenuirostris*).—These charming little birds often visited the flower gardens in the township in search of honey, but I seldom came across them in the bush. In fact, it was only in the hills mentioned in previous paragraph that I saw them, and once, on 9th November, 1908, I noticed a nest containing two eggs.

Miner (*Myzantha* (*Manorhina*) *garrula*).—This part of Tasmania appears to be one of the strongholds of this species, consequently they are very numerous. In whatever direction a ramble is taken, the jolly Miners are sure to be there, though very often their persistent alarum cries create a strong dislike in the mind of the observer to his grey-feathered watchers. In several parts of this district were tracts of country so barren of bird-life that I called them "Saharas." Strange that these should be the chief nesting districts of the Magpie (*Gymnorhina hyperleucus*) and the Miner. Generally, a nest of each bird was in the same tree.

Last season two Miners drove a pair of Yellow Wattle-Birds from their partly-finished nest, padded it a little more, and occupied it. The pair of eggs laid was remarkably long for Miners'.

For the last three winters a flock of 30 Miners came regularly to the kitchen window for food. After a while the more venturesome ones flew on to the table and took food there. Once three perched on my sister's hand and ate the crumbs from her palm. By August, however, the call of the wild life was too strong, and all departed.

Yellow Wattle-Bird (*Acanthochæra inauris*). **Brush Wattle-Bird** (*Acanthochæra mellivora*).—Both species of Wattle-Birds are constant residents of our banksian tracts, though the latter is in greater numbers. My experiences with them at Cleveland tend to show that they are very local—that is, one pair will generally be found in its favourite hunting-ground throughout the year. When the banksia blooms were exhausted the flowers of the white gum or stringy-bark were resorted to. In the cracks and crevices of the black wattles they often obtained the tiny black beetles, of which they seem very fond.

During nesting season Hawks, Crows, and Butcher-Birds were relentlessly chevied from the special group of trees. The loud call of the Wattle-Birds made the finding of the nest an easy matter, and even before the season commenced it was possible to note the location where in all probability the home would be built.

The winter and early spring of 1910 proved an exception to the three former years. Both species of *Acanthochæra* suddenly left the district, and did not return until the third week of October, when their noisy voices made the forest lively again. As the year 1910 was, according to residents of Cleveland, the wettest for 26 years, this would probably be the reason, particularly as the banksia blooms failed. Nesting operations were therefore very late compared to the previous year, the earliest record of which showed Brush Wattle-Bird's nest with two eggs found on 10th September. One could not help noticing how untidily made were the nests found last season. I suppose the late return of the birds to their nesting haunts was the cause. I remember noticing three nests during the third week of November last. So untidy and neglected was their appearance that I mentally classed them as

old or deserted. A climb up the trees revealed in one a beautiful pair of Wattle-Bird eggs, and of the other two one contained two eggs of the Brush Wattle-Bird, while the second had a pair of young with a little down upon them.

During one ramble in the past season I found a nest of the Brush Wattle-Bird with three fully-fledged young ones. One seldom comes across three in a clutch.

In all the nests of the Yellow Wattle-Bird which I have found the builders have exhibited a great fancy for sheep's wool, not as lining, but in the construction of the nests; and it was woven in most untidily. Pieces of all lengths and sizes could ofttimes be seen hanging from sides and bottom, the sterner fabric of the nest being branchlets of wild "thyme," with shredded bark and fine rootlets for the lining. Only in one instance did I find a Brush Wattle-Bird using wool as building material. This species delights in soft shredded bark as the inner lining, which is built into a framework of "thyme" twigs. Both species of birds are very "touchy," and they frequently desert their nest if it is inspected during the process of building. Twice last season there came under my notice the remarkable instance of the Brush Wattle-Bird removing the nest completely because it had been touched by me. The first nest was taken piece by piece and rebuilt some distance off. The second nest removed was added to the top of another nest in the next tree, the whole forming a most remarkable structure. In the bowl of this strange pyramid the usual pair of eggs was laid.

Both species are close sitters, and do not readily leave their nests. In fact, when sitting on chipping eggs or young they will almost permit of being touched by the hand. They fly off with a quick, nervous call, to which the mate speedily answers.

Both male and female birds assist in the incubation of the eggs, which, from my observations, lasts 12 days, and also in the feeding of the nestlings. I also noted the second egg was laid after the interval of a day, and the bird generally commences to sit that evening. Three weeks was the longest period which I observed a finished nest to be left before it was used, but generally only a few days pass ere the first egg is laid.

These general observations, unless specially mentioned under a particular species, refer to both Wattle-Birds. I believe the sitting bird is fed while on the nest by its mate, but could not say with certainty.

Food of Cockatoos. — The Chief Inspector of Fisheries and Game in Melbourne (Major Semmens) would like to know from country members what is the principal food of Cockatoos throughout the year. His address is Railway Buildings, Flinders-street. He wishes to find out whether the good they do in eating the roots of detrimental plants, such as the *Romulea* or onion weed, &c., is compensated by the damage they do in eating freshly-sown grain.

Mallee-Fowl for a Sanctuary.

By J. W. Mellor, R.A.O.U., Adelaide.

One of the most interesting trips that I have made in South Australia was the outcome of a communication from Eyre Peninsula, from Messrs. Henry R. Perry and Frank P. Perry. These two old prospectors, who have settled in the back-blocks of the peninsula, stated that a number of Mallee-Fowl (*Leipoa ocellata*) came every day and picked up the scraps about their dwelling, and if I could make it convenient to go over and catch them they would be willing to let me have the birds for the South Australian Ornithological Association to place on the National Reserve at Cape Borda, Kangaroo Island. They had no desire to get rid of the birds; but, as they wished to sell a part or the whole of their land, consisting of between 6,000 and 7,000 acres, the tameness of the Mallee-Fowl, in all probability, would lead to their destruction. I was sceptical at first, knowing that some bushmen are far from accurate when giving their notes and experiences on natural history subjects. Then the Cleve Ranges are far from Adelaide and general communication, and it looked like a "wild goose chase." However, deciding to take all the chances, I boarded the Adelaide Steamship Company's s.s. *Ruparu* on the afternoon of 13th June, 1911, and arrived at Port Lincoln at 6.30 a.m. next day. I made acquaintance once more with interesting birds, and was much pleased to see how tame the Silver Gulls (*Larus novæ-hollandiæ*) had become, owing to the protection afforded them. They were in the streets amongst the traffic, and on the houses and fences of the town. A pretty scene was noted—a long row of the Gulls perched on the ridge-cap of the local church.

Leaving Port Lincoln at noon, we arrived at Tumby Bay at 3 p.m., and, after a stay of several hours, the steamer once more went ploughing through the waters of Spencer Gulf. At 10.30 o'clock anchor was dropped in Arno Bay, where I landed, after a row of over a mile to the jetty. The water here is too shallow to allow of large vessels coming alongside. The night was beautifully calm, but we could imagine what it would be like when the sea was rough, with a strong wind blowing. The night was spent at the local hotel, kept by Mr. Michael Leonard. I was early astir next morning, so as to catch the mail "coach" inland to Cleve, a distance of about 20 miles. The mail "coaches" are somewhat primitive conveyances, and it was all that we could do to get on the mail matter, the passengers, and the luggage, and I was thankful for having a small travelling kit. The roads are but country tracks, and not too good at that; however, by 11 o'clock we had safely accomplished the journey, and the mail-man, Mr. F. H. Gillings, arranged to drive me to my destination in the Cleve Hills, 10 miles further on. The track was rougher than ever, but finally we reached the summit of the range, and saw the elevated table-land stretching away in a

series of undulations, thickly clothed in verdure, consisting of mallee and various other eucalypts, while here and there patches of broom-bush country relieved the monotony. In the midst of this scenery, on Cumbrutla Creek, in the Hundred of Mangalo, and near to Mount Desperate, we suddenly came upon the lonely "humpy" of the Perry brothers, who live by themselves, for they are bachelors. They have been close observers and lovers of the birds all their lives.

We arrived at the backwoodsmen's "humpy" about 4 o'clock in the afternoon, and I decided that evening to "take my bearings" as to future movements relative to catching the Mallee-Fowls alive, as it was always about sundown that the birds made their appearance. We were discussing the beauties of the place over some "billy tea" when, to my great astonishment, a Mallee-Fowl emerged from the scrub near the humpy door. I held my breath for fear of frightening it, as I well knew the extremely timid nature of these birds; but soon learned that this was not necessary, for with measured steps the bird came on unconcerned, only quickening its pace as Frank Perry called out, "Pheasy! Pheasy! Pheasy! Come along, Pheasy!" The bird followed him down to the bush stable to pick up some scraps thrown out. Even when the food was thrown down with a bang and a rattle it did not move far away. Soon two more Mallee-Fowls came out of the scrub from a totally different direction. The consequential little walk of the birds, as if they had all the business in the world depending upon them, was diverting. They fed close to us—within a few feet; but any strange movement on our part at once aroused suspicion, so we had to be careful not to do anything out of the common. I had to go coatless, as the Perrys, in their bush life, do not wear their coats. On one occasion, when a visitor came to see the Mallee-Fowls, and kept his coat on, they decamped at once.

The Perrys' story of the taming of the Mallee-Fowls dates back over two years, when a single bird, which they called "Old Pheasy," came on the scene, very timidly at first. Gaining confidence, it gradually grew tame, the quiet kindness of these two observant bushmen being the secret of success. For two years the bird came regularly every evening to pick up the tit-bits thrown out, only missing the breeding season, but reappearing directly afterwards. At the end of the two years several other birds put in an appearance, and the number increased to at least 9—the greatest number seen at one time, all feeding and scratching about together. When several pairs met on common ground one that was taken for a male would chase and peck at another male, apparently to keep him away from the others. They would utter low, soft notes, resembling "Moo-moo-mōōōō," made somewhat in the manner of a Pigeon, with the last syllable drawn out in a long, soft strain.

Observing how these two bushmen had won the confidence of such wild and wary birds, I was very unwilling to disturb them;

but as circumstances indicated that in all probability they would be slaughtered in the near future by new settlers, I decided to form a plan for the capture of some, at least. Next day we built a spacious aviary of wire netting, enclosing some small bushy mallee, so as to make thick cover, as my former experience with these birds had taught me that in captivity they will knock themselves about unless properly caged. My foresight was justified, for, after capture, they became extremely frightened, appearing not to see the wire netting, against which they ran or flew blindly and with great force. During my three days' sojourn with the Perrys several pairs were captured, but care had to be taken that no misjudgment was made in catching them, otherwise a frightened bird might escape to warn others, and frighten them away.

One day we paid a visit to a nest of last season, which had been scratched out freshly to allow of the winter rains thoroughly saturating the rotten leaves in the bowl of the mound, which would be eventually covered up, and the eggs laid in the leaves. I was loth to leave the district ; but my main object being to get the captured birds home as quickly as possible, I had to depart, and by the aid of the Perrys we got our pets to Cleve in a small spring dray, and transferred them to a case. We were still 20 miles from the coast, but, by the kind assistance of Mr. I. Rayson, I was driven into Arno Bay to catch the steamer *Investigator*. Unfortunately, the steamer did not go straight to Port Adelaide, owing to the King's coronation festivities upsetting the programme, and I was forced to wait at Arno Bay for a couple of days, with my birds caged up in a close box. However, eventually I boarded the s.s. *Ruparu*, got to Wallaroo (on Yorke Peninsula), and from there took train to Adelaide, where I landed my charges safely at the Reedbeds, after they had been cooped up for 4 days. At "Holmfirth" roomy aviaries were awaiting them, and I was able to watch their movements at leisure while waiting for an opportunity to get them down to Cape Borda by the departmental steamer *Governor Musgrave*.

Having housed and cared for the Mallee-Fowls for a month at "Holmfirth," through the courtesy of the President of the Marine Board, Mr. Arthur Searcy, I was granted a passage on board the *Governor Musgrave* to Kangaroo Island. I despatched the birds to the steamer on the afternoon of 18th July, and at night joined the little boat at the Outer Harbour, where the skipper, Capt. P. Weir, was waiting to meet me. Dr. R. S. Rogers, of Adelaide, and myself were the only passengers. I soon learned that, much as he would like to assist in liberating the birds as soon as possible, Capt. Weir gave no hopes of landing at Cape Borda in such weather as we were experiencing, for a stiff wind and squally seas predominated. The skipper decided to head towards Backstairs Passage, doing the ports of southern Kangaroo Island first, hoping that the weather in several days would moderate : but we were in for a "slopping," and the *Governor Musgrave* kept up

her reputation as a "roller." Our first place of call was American River, where the skipper had to land a boat-load of cargo. Next we proceeded to Antechamber Bay, where an hour or so was spent in "sounding" for a proposed jetty at the mouth of the Chapman River. By noon Cape Willoughby was reached, and some stores landed in the boat for the lighthouse-keepers there. Then we made for the open ocean, where we met the full force of the swell coming in from the south. At D'Estree Bay more stores were landed in the boats, and at night we cast anchor in Vivonne Bay; but there is little or no shelter from the swell, and we spent the night in a constant roll from side to side. The morning broke with the wind still high and a drizzling rain. There was a quantity of timber of huge size to be landed for the construction of a jetty. Owing to the difficulty and danger of the work we were forced to wait for two nights and a day and a quarter. The doctor and I had a little time ashore, but the wet and boisterous weather made it by no means pleasant, and we were glad to get back to the ship and seek a warm corner near the engine-room. My precious charges were my chief anxiety, as the box was small, and I had great difficulty in keeping them dry and warm. They did not seem inclined to eat much. Added to this was the fact that our skipper even now held out very little hope of being able to land at Cape Borda. It looked as if I were doomed to take the birds back to Adelaide, and perhaps lose some through their long and rough confinement.

On Friday morning we weighed anchor in Vivonne Bay, and encountered a tremendous sea as we got out and battled our way to Cape De Couedie, where more lighthouse stores were landed with great risk and difficulty, the ship's boat having to take them off to the small jetty, where a small anchor was dropped, and the goods taken from the boat by means of a crane, thence by a "flying fox" to the top of the cliffs, 400 feet above.

The northerly wind had dropped, and we cast anchor at Harvey's Return on Friday night under calm conditions, and I heaved a sigh of relief to think that in all probability next morning I should be able to accomplish my mission. For the first night since leaving Port Adelaide our little craft ceased her rolling, and we got a welcome rest. Next morning, 22nd July, we were astir at daylight, as the captain had promised to send off a special boat, so that I could attend to my birds and be ready to depart by the time the lighthouse stores had been landed. Accordingly, in the dim, misty light, and an equally misty rain, we were lowered overside, and made for the shore in the bitterly cold atmosphere. Fortune favoured us, as we reached the rocks without a "breaker," which is rather exceptional at this rough and open place. My old friend Mr. H. C. Tyley, the lighthouse-keeper, was on shore to meet me and give me a welcome grip, and, what was equally pleasing, informed me that he had recently seen one of the Mallee-Fowls which he had assisted me to liberate last February. This showed that my belief that

there was sufficient food to sustain these birds on the Reserve was correct. As our time ashore was limited, I quickly broke the bars of the new arrivals' prison and placed the birds in sacks, and, with these on our backs, one of the ship's hands and I started our climb of the almost perpendicular cliffs. In a quarter of an hour we had accomplished the ascent, and tramped into the scrub about a quarter of a mile. A favourable spot was selected, where the dwarf eucalypts and varied undergrowth gave shelter for the Mallee-Fowls, and made an ideal introduction to the land of their adoption. A quantity of food was scattered around, then the bags were opened, and with a rush and a whirr the birds were gone, one staying for a while perched on a small sapling to survey the bush. The steamer's whistle sounded "the retreat," and with a sigh of relief and a load of responsibility lifted off my shoulders we turned and hastened back to the shore, having succeeded in safely carrying out a project that for days previously had appeared an utter impossibility.

After proceeding to Snug Cove, where Dr. Rogers and myself landed for a time, to renew acquaintance with Mr. Hurst and his wife and daughter, we set our course homeward, reaching Port Adelaide at 9 o'clock on Saturday night.

Some Mallee Birds.

By A. M. SULLIVAN, JEPARIT.

THIS paper is little more than the record of about 100 birds in a particular locality. The district treated lies along the last 20 miles of the Wimmera River, from Antwerp to the south shore of Lake Hindmarsh. The country consists mostly of land under wheat cultivation, with strips of low mallee bushes along the roads and division fences. Here and there are sandy ridges timbered with pines, gorse, spinifex, and acacias, while the river flats are thinly timbered with poor specimens of red gum and other eucalypts. The period of my observations extended from April to November, 1910. The nomenclature employed is from "A Descriptive Hand-list of Birds Native to Victoria," by J. A. Leach, M.Sc.

I arrived at Tarranyurk Siding one gloomy Saturday late in autumn. My first view of the district filled me with anything but great joy. The thin lines of low mallee, which might otherwise have served to relieve the monotony of the everlasting stubble and fallow, only added to one's grief, as one sympathized with the poor birds whose fate it may have been to live there. My hopes were somewhat raised on finding that the farmhouse which was to be my home for perhaps a couple of years was fronted by a long grove of young native pines, studded with bulloaks and gums. Nevertheless, I did not go to sleep that night till I had formed a plan to escape from the district as soon as possible.

Sunday morning dawned somewhat brighter, and I threw off my blankets with a determination to defer a retreat at least till I had found out what birds had awakened me. There seemed to be several different kinds, and, though each cry suggested some familiar bird call, I was at a loss to properly recognize any. At times a Pallid Cuckoo seemed to start and stop short; then a Red Wattle-Bird gave a feeble call, then a Babbler was heard and answered by a confusion of gurgling chortles. On going out I found that all these sounds came from one small white gum. I came closer to the tree, and there had a view of a beautifully-plumaged Spiny-cheeked Honey-eater (*Acanthogenys rufigularis*). "A bird of many notes," says my handbook, and well it may. For the whole six months a friend and I have been tracing fresh sounds to this bird. Its notes vary from the harsh cry of the Red Wattle-Bird to a sweet, sustained trill.

I was already interested in my new surroundings, but my feelings may be imagined when an old friend, whom I had known since I was six, whistled to me from the pines. By his appearance, the mallee or the season hardly suited him. His gay vest was shabby, his white shirt-front was so soiled that it could hardly be distinguished from the black binding on his vest collar. He complained about being called a Thickhead, but evidently cared little, for he finished with the merriest dash of song and left Though I heard these birds (*Pachycephala rufiventris*) occasionally all through the winter, it was not till August that their delightful song was regularly heard and their plumage was at its best.

It was not long before I discovered that interesting bird-life existed in every chain of mallee, and spring turned the place into an aviary. Besides the Spiny-cheeked Honey-eater, the following could always be found:—New Holland Honey-eater (*Meliornis novæ-hollandiæ*), White-plumed Honey-eater (*Ptilotis penicillata*), Short-billed Honey-eater (*Melithreptus brevirostris*), White-eared Honey-eater (*Ptilotis leucotis*), Tawny-crowned Honey-eater (*Glycyphila melanops*). I saw one Yellow-plumed Honey-eater (*Ptilotis ornata*), and, though the Red Wattle-Birds (*Anthochæra carunculata*) were at first rare, they appeared in large numbers in the spring. It is remarkable how the short bill of *Melithreptus brevirostris* takes from him the whole characteristic shape of the Honey-eaters. As this bird hops and dives about the mallee bushes in search of blight and larvæ hidden under bark, it might easily be taken for a Tit. The White-eared and Tawny-crowned Honey-eaters seemed to be confined to an area around Antwerp. In this district the birds could always be found, but I saw no signs of them outside 3 miles from the railway siding. The former is the most pert of his family that I have seen, and his sharp, short, ringing "Choo," repeated several times, seems to warn intruders that he is satisfied to be alone. The Tawny-crowned generally frequented the open country, particularly where the mallee shoots were a few inches above the stubble. This bird's long beak and beautifully-marked, slender body surely give it a high place for

gracefulness even among Honey-eaters, and its song is certainly the most delicate bird music one would wish to hear. Its four notes, each repeated three times in an ascending chord, for tenderness and delicacy stand alone. The Noisy Miner (*Myzantha garrula*) does not appear in the district—at least, I observed no signs of it.

Through the six months spent here I have been much struck by the absence of Parrots. The only one that is at all plentiful is the Red-backed Parrakeet (*Psephotus hæmatonotus*). Besides this, I have recognized the following:—One Many-coloured Parrakeet (*Psephotus multicolor*); "Bulloak Parrakeet" (*Psephotus xanthorrhous*), rare; Rosella (*Platycercus eximius*), very rare; Galah (*Cacatua roseicapilla*), rare; Sulphur-crested Cockatoo (*Cacatua galerita*), rare; Cockatiel (*Calopsittacus novæ-hollandiæ*), rare; Ring-neck (*Barnardius barnardi*), rare; Betcherrygah (*Melopsittacus undulatus*) appeared in small flocks at the end of October; Purple-crowned Lorikeets (*Glossopsittacus porphyrocephalus*) have been plentiful all the year. Excepting in captivity, I have not seen a "Smoker" (*Polytelis melanura*). Seeing that Parrakeets were once so numerous in this district, the present state of their small numbers is alarming.

Early in spring the delightful liquid notes of the Crested Bell-Bird were heard, but not frequently. In my "shanghai" days, we Maryborough boys just revelled in the song of *Oreoica cristata*, or "Wack-to-the-rottle," as we called it. The Chestnut-rumped Ground-Bird (*Cinclosoma castanonotum*) was plentiful round Antwerp, and could easily be approached. The Little Dove (*Geopelia cuneata*) was also plentiful along any of the water-courses. These birds provide a most striking example of protective colouration, and they are veritable ventriloquists. It is exceedingly difficult to distinguish a bird resting among the river gum branches, and, even though one may be viewing a bird from a few yards, one hardly realizes that the plaintive "Toodle-too" is coming from the bird under observation. I have often seen these Doves feeding with the Sparrows (introduced) at the wheat stacks, and it is a common thing for them to fly down and pick up wheat when the poultry are fed.

Though I have heard the local sportsmen speak of "Bronze-wings," I have not yet flushed a Pigeon, and the oldest inhabitant informed me that I arrived here about 10 years too late to see any sign of the last Mallee-Fowl (*Lipoa ocellata*). Neither this bird nor the Wild Turkey is now seen south of Lake Hindmarsh.

Magpies (both *Gymnorhina tibicen* and *G. leuconota*) were numerous, and in about equal numbers; Ravens (*Corone australis*) only rarely seen.

On 16th July there came a pair of Wood-Swallows (*Artamus sordidus*). Since then I observed a few specimens, and on 30th October a pair had just completed a nest. On 6th September White-browed Wood-Swallows (*A. superciliosus*) appeared in flocks, and about a month later I noticed the Masked species

(*A. personata*). By the end of October only a few scattered pairs of these birds remained.

Throughout July I saw and heard a Rufous Song-Lark (*Cinclorhamphus rufescens*); at the end of the month it disappeared. At the beginning of October Brown Song-Larks (*C. cruralis*) made their appearance, and in about three weeks could be flushed in the crops almost everywhere. The White-shouldered Caterpillar-eaters (*Lalage tricolor*) appeared about the end of September, and, with their coming, a common plant-eating caterpillar completely disappeared. When these particular larvæ had evidently become exhausted, the birds left the open grass land and retired to the tree-tops of the scrubs.

Bee-eaters (*Merops ornatus*) made their appearance early in October, and soon became as numerous as Swallows. The Bee-eater is a "champion" at catching insects on the wing. When a bird is out for a meal, he selects a clear, dry limb on a tree-top. Here he sits as demurely and as unconcerned as a Kookaburra, with not so much as a turn of the head. Presently he glides off the limb towards a spot which you are sure was the only one he had not been observing, unless his long tail-feathers act as indicators, and with a sharp and graceful curve returns to his perch. A rapid disturbance under his bright yellow bib tells that the flight was not made in vain. The bird wipes his beak on the limb, gives a low, gurgling chuckle, and once more looks as if he would not harm a fly. I have seen several Bee-eaters, when hunting from a perch, fly past their prey and catch it on the return to their station.

The Kookaburra (*Dacelo gigas*) appears rare in this part of the Mallee. From October to November I found four pairs of Sacred Kingfishers (*Halcyon sanctus*). The glorious spring mornings here were seldom awakened by the wild whistling of the Butcher-Bird (*Cracticus destructor*). Only three were seen during the whole season.

Besides the Nankeen Kestrel (*Cerchneis cenchroides*), which was plentiful, other members of the *Falconidæ* were rather scarce.

One night a wretched farm-hand brought in, in triumph, a poor, wounded Owl, which, he declared, was "looking for eggs in the haystack" (mice, he should have said). I identified the specimen as the Lesser Masked Owl (*Strix delicatula*). Two night cries which were frequently heard suggested the presence of another Owl (possibly *Ninox connivens*, if not *Strix delicatula*, already mentioned) and the Boobook Owl (*N. boobook*). I have recognized the following birds along the shores of the lake (Hindmarsh) or on the backwaters of the river (Wimmera):—

Black-tailed Native-Hen (*Microtribonyx ventralis*) appeared in small flocks in September; inhabited secluded woody swamps. Bald-Coot (*Porphyrio melanonotus*).—Common all the period. Grebe.—Unable to clearly identify the species: common on the lake. Silver Gull (*Larus novæ-hollandiæ*).—Large flocks were seen on the Wimmera backwaters during August, September, and

October. Red-kneed Dottrel (*Erythrogonys cinctus*).—Ten birds arrived at the subsiding flood-waters at the beginning of August. The white wing-bars and chestnut thigh coverings of this bird were not mentioned in my handbook, and I had to obtain a specimen for identification. This bird and two other water-birds are the only ones I shot in the district. Spur-winged Plover (*Lobivanellus lobatus*) and the Black-breasted Plover (*Zonifer tricolor*) were numerous in May, June, and July, but afterwards became scarce. Red-capped Dottrel (*Ægialitis ruficapilla*) appeared in October, and in November were still numerous. Black-fronted Dottrel (*Æ. melanops*) could be found all the season near any water. White-headed Stilt (*Himantopus leucocephalus*).—A group of seven birds frequented the flooded flats of the Wimmera from September onwards. Sharp-tailed Stint (*Heteropygia aurita*) —Large flocks appeared round the swamps during October and November.

Straw-necked Ibis (*Carphibis spinicollis*) and the White Ibis (*Ibis molucca*) were always present in small, scattered flocks. On 23/9/10 three great clouds of Ibises approached the lake from the north. They circled round the river backwaters, and then left towards the south I presume they were making for the south-west of the State, where for several seasons I saw Ibises arrive at this time of the year. Black-billed Spoonbill (*Platalea regia*). —One bird spent a fortnight here in June In October I saw three Yellow-billed Spoonbills (*Platibis flavipes*). White Egret (*Herodias timoriensis*).—Occasionally small groups were seen in the swamps. White-fronted Heron (*Notophoyx novæ-hollandiæ*).—Very plentiful all the period. Pacific Heron (*N. pacifica*).—Became rather plentiful from October. Night-Heron (*Nycticorax caledonicus*).—These birds were not seen till the evening of 12/11/10, when I was in a pleasure boat and disturbed several hundred birds roosting in a small clump of river trees. This explained the small flocks of mysterious birds I had previously seen following the course of the river towards the lake of an evening just at dark. Bittern (*Botaurus poeciloptilus*).—Often heard in the swamps of an evening.

Black Swan (*Chenopsis atrata*).—A few seen regularly. Wood-Duck (*Chenonetta jubata*) were rare. Shieldrake (*Casarca tadornoides*).—Two seen. Black Duck (*Anas superciliosa*).—In June the birds were in enormous flocks all among the reedy stretches of the lake. In July isolated pairs, and in November young Ducks in all stages of development, were seen on the surrounding waters, and the old birds were still mating.

Black Cormorant (*Phalacrocorax carbo*), Little Black Cormorant (*P. sulcirostris*), and Pied Cormorant (*P. hypoleucus*).—All three species were occasionally seen, but were never numerous.

Pelican (*Pelecanus conspicillatus*). — Became rather plentiful about the end of October. I never saw these birds take flight off deep water. They seem to prefer to rise from a place where the solid earth enables them to take to the air with a succession of kangaroo-like jumps.

My 6-mile ride to work every spring morning gave me a feast of song and colour. White-shouldered Caterpillar-eaters, White-faces (*Aphelocephala leucopsis*), Rufous-breasted Thickheads, and Southern Fly-eaters (*Pseudogerygone culicivora*), all brilliant songsters, sang along my track, while out of every chain of grass were flushed Yellow-rumped Tits (*Acanthiza chrysorrhoa*), Chestnut-rumped Tits (*A. uropygialis*), Spotted-sided Finches (*Stagonopleura guttata*), and White-fronted Chats (*Ephthianura albifrons*).

The Black-backed Wren (*Malurus melanonotus*) is common, particularly round the lake, but a specimen of the so-called Blue Wren (*Malurus cyaneus*) was not seen. *Re* the article on the Blue Wren of Tasmania (*Emu*, vol. x., 1st Jan., 1910), it is my impression that, in the case of *Malurus melanonotus*, the immature male cannot be distinguished from the female by the colour of the tail feathers, for if the tail feathers of both sexes are not blue I have not seen a female in the district, although I have seen numerous pairs of the species.

The Red-tipped Pardalote (*Pardalotus ornatus*) is common, and I once saw a Yellow-rumped Pardalote (*Pardalotus xanthopygius*).

The Flame-breasted Robin (*Petroeca phœnicea*), the Red-capped Robin (*P. goodenovii*), and the Hooded Robin (*P. bicolor*), were all here in April. The Flame-breasted Robin seemed to leave about August, but a few specimens of the Red-capped species lingered as late as November.

The following fifteen birds conclude the number I have recognized during my stay in the district :—Little Tit (*Acanthiza nana*), Pipit (*Anthus australis*), Pallid Cuckoo (*Cuculus inornatus*), Fan-tailed Cuckoo (*Cacomantis rufulus*), Black-faced Cuckoo-Shrike (*Coracina robusta*), White-shafted Fantail (*Rhipidura albiscapa*), Black-and-White Fantail (*R. tricolor*), Restless Fly-catcher (*Sisura inquieta*), Brown Tree-creeper (*Climacteris picumna*), Black-capped Sittella (*Neositta pileata*), Magpie-Lark (*Grallina picata*), Stone-Plover (*Burhinus grallarius*), Grey Shrike-Thrush (*Collyriocichla harmonica*), White-browed Babbler (*Pomatorhinus superciliosus*), Swallow (*Hirundo neoxena*), and Fairy Martin (*Petrochelidon ariel*).

Notes on the Rufous Bristle-Bird.

By J. A. Ross (Victoria).

(*Read before the Bird Observers' Club, 19th July*, 1911.)

Of the four species into which the genus *Sphenura* is divided, only two (*brachyptera* and *longirostris*) had been described when, in 1865, Gould published his "Handbook to the Birds of Australia," although seven years earlier the late Mr. K. Broadbent, in thick scrub in south-western Victoria, had secured a specimen of *S. broadbenti*. However, it was not described until 1867, when Sir F. M'Coy published particulars of it in *The Annals and Magazine of Natural History*. It has generally been regarded as a very

rare bird, and the fact that Dr. Sharpe, when, some 25 years ago, he compiled the "Catalogue of Birds" for the British Museum, copied the description which had appeared in 1867, suggests that he had no skins in the museum to work upon. My own opinion is that *S. broadbenti* is by no means a rare bird, but the nature of the country it frequents would make the task of procuring skins rather a difficult one. The trouble, for shooting purposes, would be, not to get close enough to the birds, but to be far enough away when they were visible. As far as I know, the south-western part of Victoria, where the country is heavily timbered and covered with a dense undergrowth of scrub, is the only locality where *S. broadbenti* is found.* The fourth species, *S. littoralis*, was somewhat recently discovered, named, and described by a member of the Bird Observers' Club, Mr. A. W. Milligan.

My first acquaintance with *Sphenura broadbenti* was on 21st November, 1906. I had gone to Lorne (Vic.) two days earlier with a letter which my friend Mr. F. E. Howe had secured for me from Mr. C. F. Belcher: and although Mr. Belcher had frequently had the birds under his observation, and ungrudgingly gave me much useful information, I was not able immediately to establish contact with them. After that trip I wrote a short paper while my experiences were fresh in my mind, and I will now draw liberally from those notes and add to them from my subsequent associations. As those who have visited Lorne know, the coach arrives at the township about 2.30 p.m., and I at once made inquiries, but could get no information as to the object of my visit; so I set out for the deep gully traversed by Stony Creek, and spent the remainder of the afternoon listening for notes that sounded like the squeaking of an ungreased cart-wheel. Curiously enough, the first unfamiliar sound which took me off the track was made by a Bristle-Bird, but I did not know that until two days later. Several times I heard notes which were new to me, but, as I could not get a glimpse of the songsters, I had to return to the township without having made much progress. During the evening I made further inquiries, but could find nobody who knew that there was such a bird as the one I was seeking. However, I had a conversation with a lady who had accompanied her son on several excursions undertaken for the purpose of studying birds, and she had been observant enough to notice the ungreased cart-wheel notes, and told me that the only place where they were to be heard was in the gully drained by the Little Erskine River. Consequently, I spent the whole of the next day in that gully, but I had to return to the township in the evening without having caught a glimpse of a Bristle-Bird, although, as I afterwards knew, I heard the birds and followed the calls through the scrubs several times.

The following day I resolved to try in the direction of Stony Creek again, and I was soon invited into the scrub at the identical

* Mr. A. J. Campbell records the Rufous Bristle-Bird as fairly numerous in the coastal scrubs of Guichen Bay, South Australia, where he procured a male and presented it to the Adelaide Museum—*Emu*, vol. vi., p. 137 (1907).—Eds.

spot where I had first left the track on the first day: and here, after a wait of about 10 minutes, I was rewarded by seeing and hearing a pair of birds within a few feet of me. As soon as I saw the birds I had no doubt about their identity, and, after observing them for a while and listening to their calls—calls which once heard should not be readily forgotten—I started to look for the nest, and in a few minutes I had found one, apparently built the previous year. This was a series of fortunate circumstances, for, early in the day, I had obtained a good view of a pair of birds, had heard their calls repeated close to me several times, so that I could not mistake the principal ones, and had been able to inspect a nest and thus get an idea of how and where other nests would be built. I felt confident now of gaining sufficient information to enable me to find the birds easily should I again visit any locality frequented by them, for, from my experience of the first day, I knew where to find at least two other pairs of birds. During the day I had these two pairs and two other pairs under observation, and found seven other nests. All the nests were empty save one, which contained two young birds. The nestlings remained under supervision only for a few seconds, then fluttered from the nest to the ground, and disappeared in the scrub like rats. I tried hard to find them again, without success, but was more fortunate with the parents, for, by making a noise like a young or wounded bird, I brought them repeatedly quite close to me, and was much interested in watching the rapidity of their movements as they worked round me in a circle with a radius of about 12 feet. It was only occasionally, and then not for many seconds, that I could get a really good look at them, for they were almost constantly on the move, and took all the advantages the scrub offered for cover. Once I thought I saw a bird erect the feathers on its head like a crest, but was afraid to record it as a fact. That the species has this habit has, however, since been recorded in *The Emu* by a member of the R.A.O.U. who resides in the Cape Otway Ranges and who is a keen observer, so that what little doubt I had on the subject has been removed. Next day I covered country in the same neighbourhood, heard birds again frequently, saw them occasionally, and found four more nests, all empty. Of the twelve nests found during that trip I failed to note the situations of three, but the following particulars were jotted down regarding the others:—Two in sword-grass, two in native hops (*Goodenia ovata*), one on tussock of grass, two in tea-tree, and two practically in stunted, gnarled gum-trees. In these cases, although there was scrub growing up through the gum-trees, the principal support was the dwarf gum, and both nests were so close to the sea that in rough weather they would be within reach of the wind-blown spray from the waves. Most of these nests had their openings uphill, but at least four, and, I think, four only, had their openings downhill. One of the nests built in native hops contained the young birds mentioned, and the opening faced downhill. (For illustration of nest see Plate XI.)

During October, 1909, I spent about a week at Lorne, renewing my acquaintance with the Bristle-Bird; and I was there again for a little more than a week in November, 1910. During these trips I found several more old nests, one with a pair of young birds, a few with eggs, and two being built. Wiring to Mr. A. H. E. Mattingley that I knew of a nest with young, he made a flying visit and secured photographs (Plate X.) The male bird is a little larger than the female, but otherwise I believe there is no practical difference in appearance between the sexes. The R.A.O.U. member to whom I referred as being a resident of the Cape Otway Ranges has stated that, as far as his experience goes, all nests have their openings towards the east; but I think that the position of the opening is more a matter of the direction in which the shrub or other cover in which it is placed is leaning than of the point of the compass. One nest I found building had evidently only been commenced on the day of discovery. Two days later it was a substantial structure, requiring only a little lining to make it complete. On the seventh day after my finding it it contained two fresh eggs. I would hazard the opinion that, from the start of the nest till the laying of the clutch, usually a little longer period than a week would elapse. Mr. Belcher compared the nest to that of the Babbler (*Pomatorhinus temporalis*) and also to that of the Blue Wren (*Malurus cyaneus*). I think the former comparison the better, from the position of the opening in the side and the general structure of the nest, although it is not so large or composed of such coarse materials as is the nest of the Babbler. Apparently the birds will place their nest in anything dense enough to hold it securely—native hops, wire-grass, sword-grass, tea-tree, eucalypt, grass tussock, and fallen bough are positions noted; but in no case did I see a nest on the ground or more than 3 feet above it. From the fact that I have found what appeared to be the nests for several seasons of the same pair of birds, within a few yards of each other, I conclude that a pair of birds will for years be faithful to a very limited area.

Another comparison made by Mr. Belcher was between the Bristle-Bird and the Pilot-Bird (*Pycnoptilus floccosus*), and this, I think, was most apt. Seen at a little distance, the species are much alike in plumage; both frequent dense scrubs, are nearly always on the ground, over which, when disturbed, they move at a very rapid rate, taking advantage of every bit of cover; and some of the call-notes are very similar. Indeed, I thought in November, 1910, that I would be able to record the Pilot-Bird as a frequenter of the Cape Otway Forest, for I heard a bird calling frequently within a few feet of me, and I could not distinguish the notes from calls I had often heard the Pilot-Bird use. However, a little patience revealed the author of the notes, and then there was no doubt that it was a Bristle-Bird. Two eggs form the clutch, and generally, though not always, one egg is considerably lighter in colour than the other. A peculiarity of this species is that fairly often of the two eggs laid only one will

PLATE X.

Rufous Bristle-Bird (*Sphenura broadbenti*) at Nest.

FROM A PHOTO. BY A. H. E. MATTINGLEY

be hatched, and the other may be taken from the nest after the young bird has flown, or, perhaps, I should say run. The ill-matched eggs in the ordinary clutch, and the hatching of only one of them, are two more links between the Bristle-Bird and the Pilot-Bird; but I think both peculiarities occur more often with the former than with the latter species. One more habit both species have is that of hopping on the highest point of a bit of scrub when a distant noise is heard, and in this manner obtaining a view much less restricted than is to be got from the ground. I might also mention the rapidity of building the nest (two or three days) as a habit common to both species. Between the way the two species construct and conceal their nests there is, however, a great difference; for of all the nests of the Bristle-Bird I have found, the best-hidden was not so hard to find as the least difficult of those of the Pilot-Bird which I have seen. The nests of the latter species harmonize with their surroundings to a far greater extent than is the case with the former. In fact, as a rule the nest of the Bristle-Bird is not hard to find when you are near it; but usually you cannot get near it without having forced your way through a considerable amount of scrub, with disastrous results to your clothing. With the Pilot-Bird the opening into the nest is usually the first object about it to catch the eye, and it is the fact that it is by no means a large opening that makes the nest so difficult to find. Another habit I observed with one pair of Bristle-Birds when I was near a chick was the frequent spreading of the tail in a manner similar to that adopted by a male Pigeon when courting his mate. In this feature it resembles the Coachwhip-Bird (*Psophodes crepitans*), which, like the Pilot-Bird, inhabits the densely scrub-covered ranges of eastern Victoria, similar in character to the ranges in south-western Victoria frequented by the Bristle-Bird. My visits to Lorne have not been sufficiently long for me to ascertain the period of incubation, or how long the young birds remain in the nest after being hatched. As to food, I can speak definitely only of the contents of the stomachs of the birds shot, and for my information as to these I am indebted to Mr. Chandler. The stomach of each bird contained a number of seeds presumably of a species of *Acacia*, a few smaller seeds which were unknown to Mr. Chandler, and young green shoots of some plant or shrub. One of the stomachs also contained a small borer beetle. The green shoots predominated. From the nature of the country the birds frequent, and their keeping to the ground, one would expect to find more insects, and probably at times of the year when seeds and tender vegetation are scarce insects form a more important part of the bird's diet. The call I most frequently heard consisted of about nine notes, the first six being those which resemble the squeak of the cart-wheel, although, in justice to the birds, I must say that I do not like the simile. The odd numbers are all in one tone, and the even numbers all in another, slightly deeper, the three last being most musical, rich in tone, of greater

volume than the earlier notes, and blending together so as to sound almost like one long rolling sound. When one goes near the nest, or a young bird, the parents will sometimes put in an appearance, and then they utter an alarm call, consisting of one note only. It is so keen, and sharp, and vicious that I cannot describe it, unless I say that it seems to cut or stab.

Description of a New Honey-eater.

By F. Erasmus Wilson, R.A.O.U., Melbourne.

Myzantha melanotis, sp. nov.

The whole of the upper surface, except the lower forehead, brownish-grey; lower forehead yellowish-olive; lores, line beneath eye, and ear coverts conspicuously black; wings and tail brown, margined at the base of the external webs with wax yellow, the tail terminating in faded pale brown; chin yellow; throat and lower chest dull grey; the feathers of the sides of the neck and chest light grey, cross-barred with dusky brown lines near the extremity and tipped with white; abdomen and under tail coverts white; yellow patch of feathers on each side of neck; bare skin around eye, bill, and gape maize-yellow; legs and feet dull brownish-yellow. This description refers to an adult male.

Measurements. — Total length, 9.25 inches; tail, 4.5 inches; tarsi, 0.75 inch; and culmen, 0.8 inch.

The above bird was obtained by me, in company with Mr. F. E. Howe, F.Z.S., during a trip to one of the Mallee districts in North-west Victoria. It much resembles the Dusky Miner of Western Australia (*Myzantha obscura*), to which it is closely allied. It differs from that species in having the auricular patch conspicuously black and larger, and the abdomen a clear white, and also the yellow frontal patch less extensive, and an absence of the lighter colouring on the rump. The cross-barring also is different, and the bill and bare ocular patch have a deeper shade of yellow.

I propose the vernacular name of "Black-eared Miner" for the new bird. Three skins were secured.

Description of a New Ptilotis.

By A. W. Milligan, R.A.O.U., Melbourne.

Ptilotis insularis, sp. nov.

Adult Male. — Crown of head and all upper surface distinct uniform dark brown, except the lower back, which is much deeper in colour; wings and tail margined on their external webs with greenish-yellow; lores, space around the eye, and broad line down the sides of the neck black; ear coverts chrome-yellow, behind which is a conspicuous spot of pure silky white; throat greyish-

white faintly washed with yellow; rest of under surface, including abdomen, sides of body, and under tail coverts, dark brown, relieved with yellowish-grey striations; irides dark brown; legs slate coloured; bill black. Measurements in inches:—Total length, 8.25; tail, 4; culmen, .75; tarsi, 1.

Observations.—The habitat of this bird is Rottnest Island, off Fremantle, Western Australia, where it is common. It is very like *Ptilotis sonora* in general appearance and colour markings, but may be readily distinguished from that species by being more robust in all its proportions. The under surface of the new bird is uniformly dark brown, with striations, and lacks the whitish abdomen and under tail coverts of *P. sonora*. There are also many other minor differences in colouration. I have compared a number of the skins of the new species with skins of *P. sonora* from the mainland, Bernier Island, North-West Australia, South Australia, and Victoria. The type is in the Western Australian Museum, Perth, the director of which institution, Mr. Bernard H. Woodward, F.G.S., was kind enough to place the skins at my disposal. In the vernacular I suggest the name Rottnest Honey-eater for the new bird.

Stray Feathers.

Frogmouths and Butcher-Birds.—While reading my brother Harry's notes from Cape York, in *The Emu*, I was struck by the partiality which the Manucodes evince for the Black Butcher-Bird, apparently in almost every case building their nests close to those of the Butcher-Birds. In this connection it may be worth mentioning that some years ago, at "Coomoo.," my brothers noticed a like partiality of the Tawny Frogmouth (*Podargus strigoides*) for the common Butcher-Bird (*Cracticus destructor*). Numbers of the Frogmouths' nests were found one season, and, if not placed directly in the tree where the Butcher-Bird had its nest, were built in close proximity. Recognizing, I suppose, the Butcher-Bird's pugnacious habits, the Frogmouths took the opportunity of building near, so that the Butcher-Birds should defend their neighbours' homes as well as their own.—ERNEST D. BARNARD. Kurrajong, Gladstone (Q.), 29/7/11.

* * *

Scolding Honey-eaters.—I notice some smaller birds have a very keen eye and a good memory for their enemies, the Hawk tribe. Some time ago I shot a Sparrow-Hawk which was making itself a nuisance in the poutry-yard, and, not making good work of the skin, threw it out on to a rubbish heap where the winter's pruning had been deposited. It fell down among the branches for some distance, almost out of sight; but it was not long before it was discovered by some Fuscous Honey-eaters (*Ptilotis fusca*), which assembled round the Hawk-skin, making a

great fuss over their discovery. That was, at the least, two months ago, and I think that almost every day, and sometimes three or four times a day, those half-dozen cheeky little Honey-eaters go right down in the heap of twigs and sit close beside and scold the unresponsive heap of feathers. Their hatred seems to be confined to themselves, for no other birds seem to take any interest in their actions.—ERNEST D. BARNARD. Kurrajong, Gladstone (Q.), 29/7/11.

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Two Nests of Alcyone pusilla.—Dr. Wm. M'Gillivray, Broken Hill, sends the following field-notes received from his collector (Mr. J. M'Lennan) at Cape York :—

" 17/2/11.—Went out to big swamp behind Charo mangroves. Flushed a Little Kingfisher (*Alcyone pusilla*) from its nest in a mass of earth adhering to the roots of a fallen tea-tree in the middle of the swamp. The nest contained five eggs, slightly incubated. Tunnel 6 inches long and a little over an inch in diameter. Egg-chamber circular, about 4½ inches in diameter. Dimensions of eggs in mm. :—17 x 15, 17 x 14, 17 x 14, 17 x 14½, 17 x 14.

" 30/2/11.—Went down to mangroves, Mud Bay, near Somerset Saw a couple of *Alcyone pusilla* in mangroves along the creek. Walking through the mangroves, close to the edge of the swamp I flushed one of these birds from its nest in an old white mangrove stump ; it contained five fresh eggs. Nest, a hole drilled in rotten mould ; tunnel 6 inches long, 1¼ inches in diameter. Egg-chamber 5 inches across, 4 inches deep. The bird returned whilst I was taking the eggs, and sat a few feet away. The nest was 5 feet from the ground. Dimensions of eggs in mm. :—18 x 15, 18 x 15, 18 x 15, 18 x 15, 18 x 15.

" Both clutches are close-grained, smooth, slightly lustrous, though a good deal nest-stained. The eggs are rounded in shape."

* * *

Jottings from the Mersey, Tasmania. — Large numbers of the handsome New Holland (White-bearded) Honey-eaters (*Meliornis novæ-hollandiæ*) have been in this district all the winter. They frequent chiefly the Cape wattles and tree lucernes, both introduced plants, which flower profusely during the cold months, and furnish sustenance to the *Meliphagidæ*. I would recommend those who have fair-sized gardens to plant these trees round the fences, when they will be provided with entertainment by birds during the " dead " season. The lively movements of the " White-beards " as they dash from tree to tree, or hang back downwards under a spike of blossom while engaged in extracting nectar, and their sharp notes, sounding like " Whiss ! whiss ! " are everyday sights and sounds here. A few " Crescents " (*Meliornis australasiana*) also make their appearance, but not in such numbers as their congeners. They seem to remain in pairs, and do not flock like *M. novæ-hollandiæ* on the approach of the cold season. During the cold snap at the end of April I witnessed

the last companies of Swifts (*Chætura caudacuta*) migrating from this coast, the fall of temperature and the rough winds causing Wood-Swallows (*Artamus sordidus*) to disappear at the same time. The Wood-Swallows had, as usual, been congregating for some weeks previously in paddocks near the sea, the company being largely composed of young birds. In the middle of May two pairs of Striated Field-Wrens (*Calamanthus fuliginosus*) were consorting in a friendly way by the roadside, the males of both pairs engaging in song. Early in July these Field-Wrens were singing everywhere, and at the same period numbers of Flame-breasted Robins (*Petræca phœnicea*) were about the paddocks in company with numerous "greys" of the same species, several pairs of Scarlet-breasted (*Petræca leggii*), and some of the engaging little White-fronted Chats (*Ephthianura albifrons*). During the second week of July, while out one sunny morning, I noticed a female *Malurus* fly up from the tangle by the roadside to a telegraph-wire, where she perched and sang a hurried little strain, in the same way as previously noted in my paper on the Blue Wren.* The same morning, almost at the same spot, a Brown-tail (*Acanthiza diemenensis*) was uttering its sweet spring notes. On 30th July a Welcome Swallow (*Hirundo neoxena*) was observed flying about in the sunshine over our little town. Large numbers of the elegant Silver Gulls (*Larus novæ-hollandiæ*) have been feeding in paddocks partly submerged by the rainfall, and during the first week of August parties of Yellow-billed Terns (*Sterna bergii*) were engaged in fishing off the coast.—H. STUART DOVE, F.Z.S., Devonport.

* * *

The Coorong Islands.—The following appeared in the *South Australian Register* for 18th August, 1911:—"The Commissioner of Crown Lands (Hon. C. Vaughan), with a view to prevent the destruction of birds and birds' eggs on the islands of the Coorong—the principal nesting-place in this State for various species—has arranged to place the islands under the care of the Ornithological Association of South Australia, as lessees. This will give the Association the right to prevent persons from trespassing on them, just in the same manner as they would be prevented from entering upon private property. The law does not allow sportsmen and others to traverse private ground with guns, traps, or other means of catching or destroying birds, and the object of the Commissioner in asking the Ornithological Association to take charge of the islands is to place the reserves in the same category as other private property. The Association will take the necessary steps to notify that trespassers will not be permitted on the islands, and the police will also receive strict instructions to see that the notices are obeyed."

Mr. J. W. Mellor, of "Holmfirth," Fulham, states that the idea of securing the bird islands in the manner reported originated

* *Emu*, vol. ix., p. 151.

with him. He got the Commissioner to agree to the leasing of the islands by the Association. Captain S. A. White, of the Reedbeds, S.A., has been making strenuous efforts for the last twelve months to secure legislation for the protection of the Pelicans and to prevent the so-called aborigines from robbing the nests of Black Swans and Pelicans. The name of the R.A.O.U. has been used in urging such legislation.

When in South Australia last July I spent a week on the Coorong, and visited Pelican and Jack's Point Islands. On both islands there were hundreds of old Pelicans' nests, and on Jack's Point Island the birds were commencing to lay. Forty-two nests contained eggs (full clutch of two in most instances). On Pelican Island two fresh eggs (broken open and the contents eaten by Crows) were found. Lying about the island were the headless bodies of a number of Pelicans, evidently victims of the massacre of 1910. During my wanderings among the islands and along the lake shore I observed not more than 300 or 400 Pelicans. Before the slaughter which aroused such indignation among bird-lovers of the Commonwealth there must have been thousands of these birds on the Coorong. The island rookeries will now, thanks to the efforts of the South Australian Ornithological Association, be less liable to receive visits from bird-killers and egg-robbers; but the Coorong is a wild, lonely lake, and it will be difficult to enforce the laws of sanctuary.—CHARLES BARRETT. Melbourne.

From Magazines, &c.

Another Great Kingfisher.—At the monthly meeting of the Linnean Society of New South Wales, held 31/5/11, Mr. A. J. North exhibited an example of a small race of the Great Brown Kingfisher (*Dacelo gigas*) from the Jardine River, Cape York Peninsula, which he proposed to distinguish as a new sub-species, naming it *Dacelo maclennani* (M'Lennan Kingfisher), after Mr. J. M'Lennan, collector for Dr. Wm. Macgillivray.* The bird is said to bear a similar relation to *D. gigas* as the Fawn-breasted Kingfisher (*D. cervina*) does to *D. leachii*.

* * *

Blue "Budgerigar."—In the *Avicultural Magazine* (May and June, 1911), Mr. D. Seth-Smith, F.Z.S., deals interestingly with the keeping and breeding of Parrakeets in captivity. Taken as a tribe, Mr. Seth-Smith states, these birds, as a whole, "are hardy, easy to keep, and very showy." He cites an instance of an extremely rare and beautiful variety of blue Warbling Grass-Parrakeet, or "Budgerigar" (*Melopsittacus undulatus*). Mons. Pauwels, a Belgian aviculturist, exhibited a pair in London last year. In this variety the yellow pigment was absent, the bird being of a most beautiful blue, with a pure white face and black bars over the back.

* See *Agricultural Gazette of New South Wales*, vol. xxii., part 7 (July, 1911), p. 609.

New Australian Birds. — In the *Bulletin of the B.O.C.*, No. clxx., Mr. G. M. Mathews describes the following new birds:—*Meliornis nigra dulciei*, from Albany, W.A.; *Acanthiza albiventris hamiltoni*, from New South Wales: *Acanthiza iredalei*, from Lake Way, W.A.; and Mr. Tom Iredale describes as new *Cincloramphus rufescens mathewsi*, from Yalgoo, W.A.

In *Bulletin* No. clxxi. Mr. Mathews describes:—*Piezorhynchus nitidus wardelli*, from Cooktown, North Queensland; *Diaphorillas striatus howei*, from Kow Plains, Victoria; *Myzomela obscura harterti*, from Cairns, North Queensland; *Coracina melanops tasmanica*, from Tasmania; *Artamus tregellasi*, from Rockingham, W.A.; *Butorides rogersi*, from North-West Australia.

In the *Novitates Zoologicæ*, vol. xviii., there are described:—*Gerygone albigularis rogersi*, from Derby, North-West Australia (with nest and eggs); *Misterus cyanopygius minor*, from Cairns, North Queensland; and the eggs of *Poephila personata belcheri*.

* * *

Bird League at Belltrees. — In the *Public Instruction Gazette of New South Wales* for 30th June, 1911, is published an interesting article, entitled "How I Formed a Bird League at Belltrees," by Mr. S. A. Hanscombe, who is the teacher at the local public school. Mr. Hanscombe is very enthusiastic, and has the help and advice of Mr. H. L. White, of Belltrees, as well as being able to refer to his magnificent collections and library of ornithological works. He has achieved a signal success in inculcating a love of birds in the young folk of the district. An extract from his article will give an idea of the work accomplished:—"Having obtained the active support of the manager of Belltrees Station, Mr. H. L. White, and other local residents, I drew up the rules for our League, and obtained the signature of each pupil wishing to join. In this course no pressure was used, and none was needed. I admitted children only, as I had by now the active support of all the residents. . . . My task was now a most enjoyable one, as immediately I had the necessary charts drawn out for the wall I had many willing volunteers to subscribe thereon the information they already had. I provided a day-book for miscellaneous notes, and at the end of the week the older pupils would, in turn, take this day-book and enter up all bird notes on the wall charts. Any doubtful notes had to remain over for further observations. The pupils, I found, soon preferred to give their observations orally, and then be questioned on them. I allowed much freedom, and allowed trustworthy boys to bring me two nests and eggs of any species they saw; but I never allowed, on any conditions, a boy to take half a clutch of eggs. By so doing, birds were saved from rearing half-broods, and those whose nests were taken rebuilt and reared full clutches. Two nests and eggs of each species were taken, if possible—one from a green tree and one from a dead tree. Why? To illustrate the wonderful methods Nature devised for protection of nest and

eggs; how in each case the nest suited its location, and how the eggs varied in shades according to their location. The first week we located 42 birds in the locality, and this gradually increased with the return of the migratory birds, and gradually crept onward; and now, after two years, we have reached the grand total of 130 birds in our own locality, with the complete lives of 120 of the species. During the last six months we have only increased our total by six. The League now runs well; and the secretary of our League is a little girl only 12 years of age. I acted as secretary myself for the first year. That I might retain the interest of the pupils, I encourage them to bring pictures and clippings from illustrated papers dealing with bird-life, and these the secretary places in our school scrap-book, always open to the children. Local residents, now appreciating the friendship existing between the children and the birds, often present books and articles on birds to the school library, and I often have the pleasure of roaming the hills and valleys with the children, who are now thorough bird-lovers."

* * *

Nomenclature of Birds.—Mr. Gregory M. Mathews has contributed Part II. on this exceedingly technical subject to *Novitates Zoologicæ* (vol. xviii., June, 1911). Part I. was mentioned in *The Emu* (*ante*, pp. 46 and 51).

In Part II., as in the previous portions, Mr. Mathews deals almost entirely with Australian birds, but in some cases the generic terms are of more interest to students in general ornithology. In many instances the author has apparently good premises for the establishment of certain names of Australian birds not at present used, but in as many instances it appears to be a matter merely where "doctors differ." For example, the author is "inclined to question the correctness of the ruling of 'Opinions rendered by the International Commission of Zoological Nomenclature'" itself on an important point. Then, with a positive prioretist like Oberholser he (the author) states in another case his (Oberholser's) "decision must be reversed." And, further, still more puzzling are some of Watling's old drawings, with which the late Dr. Sharpe sought to establish the priority in nomenclature of certain Australian birds. Now Mr. Mathews states there is room for doubting the identification of the names given by Sharpe to several of the drawings. Well may Australians ask—"Why rely on the doubtful drawings of a botanist as against the life-like coloured figures of so great an ornithologist and author as Gould?" Bed-rock priority run riot, people are apt to say.

The following may be taken as a sample of Mr. Mathews' research and argument, and how he proposes another name for the Brown-headed Honey-eater (*Melithreptus brevirostris*):—

"Page 92: Species 741.—*Melithreptus atricapillus*, Latham, 'Suppl. Ind. Orn.,' p. xxxvii. (1801), replaces *M. brevirostris*, Vigors and Horsf.

"In *The Ibis*, p. 55, 1909, North advocated the adoption of Latham's *atricapillus* for the bird known as '*lunulatus*,' Shaw. He, however, observed that the distinguishing character of the latter species was not mentioned.

"Sharpe ('Hist. Coll. Brit. Mus.,' ii., p. 128, 1906), from a study of the Watling drawings, independently proposed the rejection of '*lunulatus*,' Shaw, and also preferred *atricapillus* for the species previously known under the former name. The absence of the name-character in the description made me dubious as to the correctness of identifying '*lunulatus*' and *atricapillus*. I therefore have carefully studied the Watling figures, and find that the above alterations are necessary. The figure upon which *atricapillus* was founded is quite a good picture of the bird known as *brevirostris*, Vig. and Horsf. It must be remembered that Latham's descriptions were drawn up from these figures only, and consequently the colour values given by Latham depend entirely upon the artists. In the present instance the figure shows a dark head, which Latham concluded was black; but upon comparing specimens of *brevirostris* and *lunatus* (for such is the name Shaw used), it was seen that the colouration of the figure agreed very well indeed with that of *brevirostris*, whereas it disagreed in many particulars with *lunatus*, which, moreover, was thrice well figured in the same set of drawings, Nos. 129, 130, and 131 (*cf.* 'Hist. Coll. Brit. Mus.,' ii., p. 132)."

Australians have learned to know this familiar Honey-eater as the "Brown-headed." To call it *atricapillus* (Black-headed), even if it were correct in accordance with strict priority, would be misleading and not according to nature.

* * *

Tame Wild Birds. — *The Avicultural Magazine* for July, 1911, contains an interesting account of the wild Lorikeets (*Trichoglossus novæ-hollandiæ*) which Mrs. Ella M. Innes, of Mackay, Queensland, has tamed without depriving them of liberty. The article is in the form of a letter to Mr. D. Seth-Smith, who introduces it with a statement that a photograph of the Lorikeets, by Mr. E. M. Cornwall, appeared in *The Emu*, October, 1910, which led him to write to Mrs. Innes. The reply he received, as published in the *Avicultural Magazine*, is as follows:—"Dear Sir,—Your letter of 19th November reached me just as I was leaving home on a visit, so I laid it aside to answer when I could give leisure to it. I enclose one or two of my own photos. of my birds. They do not object to my camera in the very slightest, even at close quarters. I believe my pets are unique in being so thoroughly tamed, yet left in their free state. When we came to this country (17 years ago), while clearing land for cultivation my husband got two young birds from a fallen tree. One was a Blue-bellied Lorikeet (*T. novæ-hollandiæ*) and the other a Scaly-breasted Lorikeet (*T. chlorolepidotus*). He brought them home to me. I reared them and petted them so that we became very fond of them and they of us. They were devoted to me. If I did not appear at the breakfast table they very

soon came round to my bedroom. They kissed me and petted me. They nestled at my neck and used to go to sleep there. Daintier and more affectionate little pets one could not have. If I mourned, they mourned with me; if I were inclined for fun they were as eager for a game as a kitten. They never missed our meal hours, although free to go where they wished. We often used to try and dodge them, taking afternoon tea in different rooms; but they always found out. It was very quaint to see the two looking for us. 'Where are you?' 'Where are you?' they would call, till at last we were discovered. After three years one of them met with an accident and died; the other lived just two weeks longer—it literally died of a broken heart. It used to go about calling 'Where are you?' 'Where are you, my sweet?' but no answering call came. It scarcely left my shoulder during the day, and at night it was so lonely in its cage that I was really glad when it also died one morning in my hand. After that I vowed I would never make such pets of any animal.

"However, one day a little bundle of fluff, and eyes, and beak was brought to me, and I, of course, took it and reared it also. It was a jolly little fellow, and used to have great fun with the cats and dogs. One big cat especially loved a game. He would lie down on his back, and the bird would take a header into the soft fur, and the fun used to be very great as they rolled over and over. The cat would play for a long time with it. How often have I wished I had had a camera in those days of fun and frolic! After I had this one a year, mates came round, and my little fellow could not make up his mind which he would have. He treated all alike, but at last he decided, and then he hunted all the other little flirts most unmercifully. To this favoured one he kept true year after year They were always together, and brought many families to my care. Now I have so many that I cannot say if he is still true to his first love. We had some very wet weather after he chose his mate, and every evening they had a few words, rather heated at times, over the camp for the night. Jenny wanted to go to the trees, but Joey preferred the comfort of his snug cage. Very often his word was law, and Jenny very shyly dropped into the cage, which was never closed all day, but only during night, us a precaution against wild cats and snakes.

"My family has increased very rapidly. Uncles and aunts, and every possible relative, soon flocked to my table. Seeing no fear in my own birds, they soon got as tame: the pictures show how tame they are. None now sleep in the cage; all sleep in the hollow trees around, but by daylight they clamour for breakfast. They are fond of taking out my hair-pins, as you will see by the photos.

"When I went to town last week there was a girl on the coach behind me. I noticed that she had a tin biscuit-box on her knee, with holes cut in it. I asked her what she had, and, on hearing that it was a bird, I said I hoped it was not one of my Parrots. I gave my usual call, and immediately the answer came from the

tin, and a little eye looked out at a hole. I put my finger in, and the little spongy tongue licked it all over. The girl said she had got it feeding on a lantana bush with others, and it had allowed her to catch it. She would not give it up, and I had no legal right to it. She lives a mile and a half from my home. We live about 20 miles from Mackay, and all the way, every time I spoke to the driver or to the girl, the little voice answered me from the tin. I have asked someone in town to try and buy it back for me from the person to whom the girl gave it. I hope I may get it; I cannot stand my little free pets being caged.

"This is all a ramble, and may be of no interest to you: but Mr. Cornwall seemed to think that, from all he knew of you, it was a letter such as this that would interest. The photos., of course, are rare. In one you will see the spongy tongue sucking up the sweet liquid from the plate, and you will also notice the tails sticking out of the cans, showing that the little gourmands are greedily licking the bottom of the cans. They are noisy little pets, but very beautiful. Their free life keeps their plumage in good order. They are great believers in the daily tub, and there are great scenes of revelry in the spouting round the roof.

"I hope I may revisit England some day before long, and I am sure that I shall want to get inside the Parroquets' cage at the Zoo—that is to say, if I see any of my friends there. I have been away sometimes for four or five months at a time, and during that time my pets are not so well looked after, so they almost stop coming; but I am not home more than two days before the circular has been sent round the tree-tops, and my little friends wing their way from all sides and swarm on me, sometimes 20 or 30 hanging on me and squabbling for the post of honour on my shoulder.

"During the fine weather they do not trouble us beyond coming for food, but in weather such as we are having now (rain daily) they scarcely leave the verandah. As I write I counted over 70 on the wire round the verandah. I had to stop writing to give them food, as they gave me no peace—over my shoulders, drinking the ink, tearing the paper, &c."

Reviews.

["Nests and Eggs of Birds Found Breeding in Australia and Tasmania," by Alfred J. North, C.M.Z.S., &c., Ornithologist to the Australian Museum.]

PART II. of vol. iii. of this important work has been published. It contains the remaining portion of the family *Cacatuidæ*, comprising part of the sub-family *Cacatuinæ* and the sub-family *Calopsittacinæ*; the family *Psittacidæ*, containing the sub-families *Palæornithinæ* and *Platycercinæ*, and forming the concluding Australian portion of the order *Psittaci*. As in the previous parts, the illustrations of birds are reproduced from drawings made by

the late Mr. Neville Cayley, who was also responsible for hand-colouring the plates of eggs in the coloured copies. The eggs of the different species of the order *Psittaci* all being white, no plate of birds' eggs is issued with the part. As was mentioned by the reviewers when criticising previous parts, no fault can be found with Mr. North's work except for its "omissions." These omissions are serious stumbling-blocks to students. For instance, no work on the family *Psittacidæ* could be complete with the omission of such important Parrots as *Porphyrocephalus spurius* (Red-capped Parrakeet), *Psephotus chrysopterygius* (Golden-shouldered Parrakeet), and *Geopsittacus occidentalis* (Night-Parrakeet). Eggs were described of the first-named by Gould long ago, and more recently (1909) that Parrot was known to breed in captivity in England, and the owner, Mr. Hubert D. Astley, F.Z.S., received the Avicultural Society's medal for same.* Mr. Astley has contributed an article on the Red-capped Parrakeet to the *Avicultural Magazine* (August, 1911), which has a fine coloured plate of a handsome pair of birds. There are also field notes in *The Emu* (vol. x., pp. 313, 314), by Mr. F. L. Whitlock, of nests taken in the open in Western Australia. And yet Mr. North has remained silent on this splendid species.

["The Birds of Australia" by A. H. S. Lucas, M.A. (Oxon. and Melb.), B.Sc. (Lond.), &c., and W. H. Dudley Le Souëf, C.M.Z.S., M.B.O.U., &c., joint authors of "The Animals of Australia." Little Collins-street, Melbourne; Christchurch, Wellington, and Dunedin, N.Z.; Addle Hill, Carter-lane, London: Whitcombe and Tombs Limited. 1911.]

An ancient wrote, "Of making many books there is no end," and in these latter days the cry is, "Still they come."

Australia has been fortunate in early colonial days in possessing the great pictorial folios of "The Birds of Australia," by John Gould, with "Handbooks" thereto, and the Commonwealth, in recent years, has been particularly blessed with bird books. A conspicuous trio has just been published—one in course of publication—(1) "An Australian Bird Book," by Mr. J. A. Leach, which was noticed in *The Emu*, p. 348; (2) "The Birds of Australia" (the volume at present under review), by Messrs. A. H. S. Lucas and Dudley Le Souëf; and (3) Mr. Gregory Mathews' classical undertaking, "The Coloured Figures of the Birds of Australia," of which three parts of vol. i. have been delivered to subscribers. These three works in no way clash, but form a distinct and natural sequence of inestimable value to a nation of bird-lovers, such as Australians—the rising generation, at all events—are becoming.

Regarding "The Birds of Australia," the joint authors, Messrs. Lucas and Le Souëf, have put a coping-stone on their work and

* *Avic. Mag.*, ser. 2, vol. vii., p. 291.

Nest of Rufous Bristle-Bird (*Sphenura broadbenti*).

FROM A PHOTO BY A. J. CAMPBELL.

Honey-eaters Feeding, Flight Aviary, Zoological Gardens, Melbourne.

FROM A PHOTO. BY D. LE SOUEF ("BIRDS OF AUSTRALIA," LUCAS AND LE SOUEF).

Pheasant Coucal (*Centropus phasianus*), Zoological Gardens, Sydney.

FROM A PHOTO. ("BIRDS OF AUSTRALIA," LUCAS AND LE SOUEF.)

life as field naturalists, and have made a high-water mark, for years, at least, to come, in a most useful and concise ornithological reference. There is enough of the purely technical side to give the book a sound standing, while there is a sufficiency of popular matter to please. The classification followed is that of the late Dr. Bowdler Sharpe, as contained in his "Hand-list of Birds," and the joint authors state :—"We gladly acknowledge our deep indebtedness to the various authors of the magnificent series of descriptive catalogues published by the authorities of the British Museum."

The work is liberally illustrated with half-tone photo-blocks of birds, nests, and bird scenes, mostly excellent, whether considered technically, ornithologically, or artistically. Three selected blocks are given with this review by courtesy of the publishers (Plates XI. and XII.) Several of the subjects first appeared in this journal, and have been fully acknowledged. A few of the illustrations, notably those of some of the sea-bird scenes, are so nearly alike as to be practically duplicates. This loss of space might have been devoted with advantage to other subjects requiring figures. The volume is further illuminated by four artistic coloured plates of bird groups, reproduced from paintings by Mrs. Ellis Rowan, a cousin of one of the authors.

Of course, the authors do not claim perfection, and advanced students may consider that here and there are slight errors of omission and commission, which, however, do not exceed the law of average for a work of its class.

The printer's share of the work is also admirable, and well sustains the reputation of the enterprising publishers, Messrs. Whitcombe and Tombs Limited. The cost of the volume, one guinea, is reasonable.

["My Tropic Isle," by E. J. Banfield. T. Fisher Unwin, London, W.C.]

SEQUELS are proverbially unsatisfactory, but no reader of "The Confessions of a Beachcomber" will be disappointed with Mr. Banfield's new volume, which contains a further instalment of romance and delightful nature notes. Dunk Island, since its Crusoe revealed its charms to the world, has become as familiar, by name, at least, as Stevenson's "Treasure Island." And some who read of it come seeking treasure on Mr. Banfield's tropic isle, deeming that no sane man would dwell upon it save for the purpose of winning wealth from hidden minerals. But Mr. Banfield's confessions reveal the secret. A lover of nature, quietness, and reflection, he finds Dunk Island admirably suited for the life he joys in living. He settled there with his wife in September, 1897, and after 14 years' residence is still charmed with his island domain. The first portion of "My Tropic Isle" is a kind of "Journal Intimé"—a mingled web of poetry, philosophy, and fancy. Mr. Banfield's prose is clean-cut and pliant. He reminds

one a little of Stevenson, and again of Hudson and Thoreau. His chapter on "Silences" is delicately wrought and as "soothing as the perfume of violets."

The volume contains a great deal about fruits and flowers, and several chapters are devoted to marine life. Bird-life is dealt with in Chapters xix., xx., and xxi., under the captions "Intelligent Birds," "Swifts and Eagles," and "Socialistic Birds" respectively. The Koel (*Eudynamis cyanocephala*) forms the subject of a discursive essay; which should be read for its picture of the Cuckoo as a scout. "Do birds play?" asks Mr. Banfield, and proceeds to describe the actions of two young Cassowaries (*Casuarius australis*) which playfully performed martial exercises. The birds were wont to stride about a stout post, lurch against it, and, feigning fury, lash out at the piece of wood with unrestrained violence. Anecdotes of a clever Red-collared Lorikeet, which played the game of stalking with a yellow cat, and of a Scrub-Fowl that laid her eggs in a space between two horizontal slabs of granite—a natural incubator—are given, and there are many interesting notes regarding the Nutmeg-Pigeon and the nesting habits of the Shining Calornis.

A small colony of the Grey-rumped Swiftlet (*Collocalia francica*) exists on Dunk Island, and Mr. Banfield has studied the birds closely. The nests are situated in a cave on one of the highest points of the island, being fastened to the roof by "a semi-transparent white substance resembling isinglass," with which also the materials composing them—fine grass, moss, and fibre—are consolidated. The Swiftlet lays a single white egg, and the breeding season extends over 4 months, the earliest date on which a newly-laid egg was discovered being 14th October. As far as Mr. Banfield has observed, the birds never rest save in the cave, clinging to the nests or to the roof. They do not utter a note "except the reassuring prattle upon alighting on the edge of the nest."

"My Tropic Isle" is a delightful chronicle of island life—a book to possess, not to borrow. It should be added the volume is well printed and bound, and contains a number of half-tone illustrations reproduced from photographs.

Correspondence.

NOMENCLATURE OF AUSTRALIAN AVIFAUNA.

To the Editors of "The Emu."

SIRS,—I have read with considerable interest Mr. Gregory M. Mathews' letter in the last issue of *The Emu* (pp. 52–58), relative to the nomenclature of the Australian avifauna.

Before commenting upon the letter, I desire, as one deeply

interested in Australian ornithology, to express appreciation of the invaluable services rendered by Mr. Mathews in the above connection, and although many Australian ornithologists, including myself, are not altogether *ad idem* with Mr. Mathews in his recent renunciation and abandonment of well-settled laws, we can still (notwithstanding his upbraiding) admire the work he has done and is doing, and can justly appraise its value.

For the purposes of comment, Mr. Mathews' letter may, I think, be divided into two sections, namely: The advocacy of (*a*) the government of scientific names by the International Code, and (*b*) the trinominal system in preference to the binominal one.

In dealing with both sections collectively, it will, perhaps, be as well to bear in mind that the only representation Australia had at the International Congress which formulated the Code was that of Great Britain; consequently, until the British ornithological authorities give some indication or declare their intention of abandoning the 13th edition of the *Systema Naturæ* (the recognition and adoption of which Mr. Mathews alleges is the "gist" of the whole trouble), Australia, obviously, cannot decorously move. To my mind, the difficulty may be readily overcome by Mr. Mathews convincing the British Museum authorities that their adherence to the 13th edition is a "conservatism antagonistic to progress." If that be done (and it should not be difficult of achievement if Mr. Mathews' allegations as to the result of conservatism be true), and the authorities named espouse the new laws, Australia will perforce fall into line.

Upon the "law of priority," it must be frankly admitted that Mr. Mathews has very ably and succinctly preferred, on behalf of deceased ornithologists, well-founded claims for recognition of their work, and Mr. Mathews' efforts in this direction indicate a very high sense of justice. At the same time, it is most difficult to reconcile that gentleman's advocacy of those claims with his recent action in seeking to deprive the deceased naturalist Brisson of the fruits of his labours by deleting his name from the authorship of so many genera. I expect, of course, to be told that his (Brisson's) generic names were "nude" names, and that he did not apply the principles of binary nomenclature according to the Articles; but, although the advancement of such an argument (if it be advanced) may be an excellent ground for the rescission of such an arbitrary and inequitable rule, it cannot for one moment be regarded (if it be so pleaded) as a justification for a positive injustice.

Dealing with the second section of Mr. Mathews' letter—namely, the preferential adoption of the trinominal system—I confess that I have a very strong leaning towards trinomials, as by their use the different shades of distinction between closely-related forms may be readily indicated. On the other hand, there is the radical objection to the system by reason of its cumbersomeness; and, again, to attach three very long Latin or Greek names to a very small bird will undoubtedly militate against the popularization

of the study of ornithology. I venture to think that the advantages of the system could be achieved by the use of the prefix "sub" or "pseudo" to the specific name of the dominant species, and, if this usage were found practicable, obviously it would secure the advantage of ready differentiation and avoid the disadvantage of name triplication.

Mr. Mathews quotes certain written statements of Mr. A. J. North as supporting the adoption of trinomials. The reference is an unhappy one if the quotation be critically examined. Mr. North's statement, as quoted, is that "trinomial nomenclature has not yet been adopted by Australian ornithologists, although that does not protect Australian ornithological nomenclature from the *hair-splitting* of the most ardent sub-species maker resident elsewhere." The innuendo is manifestly clear; but, whatever the merits or demerits of either system may be, I, as a member of the Check-list Committee, intend (quite regardless of my personal leanings) to give loyal adherence to the system presently adopted by the national authority on ornithology within the British dominions—namely, the British Museum. In doing so I may be charged (and perhaps with sufficient warrant) as being conservative or unprogressive, but that I must accept. It is more essential, in my opinion, to have a uniformity of procedure, even if we have not absolute unanimity of thought, as by the former confusion will be avoided and consistency and certainty maintained. It cannot be but mischievous to any study to have divers systems of nomenclature simultaneously co-existent in the one dominion.

In another realm of science there exists a well-known maxim, *omnis innovatio plus novitate perturbat quam utilitate prodest*—that "every innovation disturbs more by its novelty than benefits by its utility"—and it is worth considering if it is not equally applicable to ornithological nomenclature.

The non-acceptance of trinomials by Australian ornithologists need not, I think, trouble Mr. Mathews in his new work, for it is still open to him to set out out both, in the manner, I understand, he has done in the first parts of his new work.—I am, &c.,

ALEX. WM. MILLIGAN.

103 William-street, Melbourne, 6/9/11.

DESCRIPTIONS AND DIMENSIONS OF EGGS.

To the Editors of "The Emu."

DEAR SIRS,—Ornithology, like all other biological sciences, is advancing rapidly, and to keep abreast of the times its methods require re-adjustment, more especially with regard to that branch known as oology.

To gain a comprehensive knowledge of oology in all its details

a method is needed that will reveal it without unnecessary mental exertion. A most important item is the systematic description and measurement of sets of eggs, whereby an accurate configuration of their various peculiarities is conveyed to students. This attained, ornithologists will be furnished with material which will help in the elucidation of the laws which govern the multitudinous variations, which at present are very imperfectly understood. The terminology needs to be more definite to meet the requirements of expanding research. With the present system, I venture the opinion that very few cast more than a casual glance at measurements given. In displacing old methods of science, the new must justify itself by obvious advantages. The method I suggest is a division of the egg into definite areas, so that description and examination may be facilitated. It is analogous to that employed by astronomers in dividing the surface of the moon into definite areas, each of which may be surveyed without reference to the contiguous ones. The system may also be likened to the principle of geographers of animal life, who divide regions into sub-regions to simplify their tabulation. It is therefore necessary to have some kind of table to produce statistical evidence wherewith to arrive at the mean shape, size, and colour of eggs of any given species. Every oologist has experienced difficulty in identifying, or discriminating between, eggs of allied species, and any attempt to formulate a rule to enable students to distinguish the eggs of one species from those of another is futile. So far as I know, no attempt has been made to establish a *mean* description of any species—that is, a description based on statistics.

While we may observe sets of A and B alike, C will be different; hence, descriptions based on statistical methods would help one to arrive at a normal type—that is to say, a type which occurs most frequently in our observations. One hundred sets described and measured may prove to have 35 approaching A, 55 of the B type, and 10 of the C type. A and B being similar, the *mean* or *normal* type would be derived from them.

It is manifest that a more expeditious method of describing in detail is needed, especially for the use of future generations, who will have, perhaps, nothing but descriptions handed down to them to work upon, as rare types will not be available for students. Great advantages would accrue by the detailed description of rare species, such as *Atrichia rufescens*, *Ptilorhis paradisea*, &c. This system would be distinctly advantageous in describing type sets, as the salient features of each egg could be treated minutely. Much verbiage will scarcely succeed in conveying a definite idea unless accompanied by a concrete guide. The oologist describing an egg thinks his description perfect; but the student who has to educe a mental picture from the describer's words is apt to strain his imagination, and is at a great disadvantage compared with the describer, who has the actual specimen in view.

The following diagrams roughly illustrate my suggestions :—

A Set of Two Eggs.

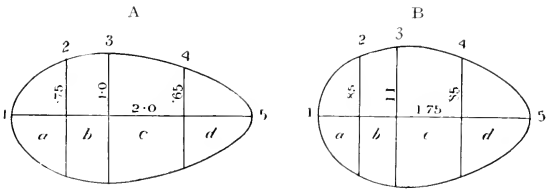


Fig. 1.

Formulæ of the two Eggs (A and B), Fig. 1.

Fig. 2.

Terminology.

Points of an Egg.	*Areas of an Egg.*
1. Base.	(*a*) Basal.
2. Zonal point.	(*b*) Zonal.
3. Diametral point.	(*c*) Sub-apical.
4. Sub-apical point.	(*d*) Apical.
5. Apex.	

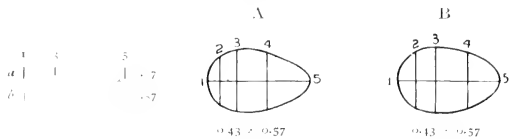
The Method of Measuring and Dividing for Description.

Fig. 1.—Ascertain the distance of the greatest diameter from the larger end (base) of the egg, from which point all measurements are to be made, and make this point (3) the axis of division for the intermediate points 2 and 4. The point 2 is exactly half-way between 1 and 3, and the point 4 is half-way between 3 and 5. Thus, we have the egg with five points (1, 2, 3, 4, and 5) and four spaces (*a*, *b*, *c*, *d*), which we can designate as areas, and which are to be used for the purposes of description.

Fig. 2.—These are lines to represent the exact lengths of the eggs (Fig. 1, A and B), and intersected to indicate where the measurements of diameters are made (A and B, Figs. 1, 2, 3, 4). These lines, or formulæ, can be printed with the descriptions, and thus convey a definite idea of the lengths and various diameters of the eggs from which they were made. The areas *a*, *b*, *c*, *d* (Fig. 1, A and B), are represented in the formulæ by the same letters. The numbers 2, 3, and 4 indicate the respective diametral measurements, and are placed above the line, with their actual measurements under the line, and opposite to them. The object of measuring from the larger end is to meet specimens like *Orthonyx spaldingi*, so that where the diametral point is made, the intermediate point 4, or sub-apical point, is in a position to show the degree of tapering towards the apex.

In *The Emu*, vol. ix., part 3, page 136, S. W. Jackson gives a

description of the eggs of *Acanthiza tenuirostris*. A and B are alike—0.57 x 0.43: but this does not show the actual position or point of the diametral measurement, which would be ascertained by means of a formula, and probably depicted as here shown:—



Although the dimensions are given as the same, in all probability the eggs are dissimilar. The object of the three diametral measurements is to illustrate this graphically. The formulæ are relative to the particular set of eggs under examination; consequently, every set examined will have its own series of formulæ. We could proceed to describe eggs as follows:—

FORMULÆ OF FIG. 1.

No. in Set.—Two. *Shape.*—(*a*) elongate-oval: (*b*) oval.

Surface.—Dull, &c. *Texture.*—Smooth, &c.

Ground Colour (refer to formula).—A.—Basal area (*a*) blue, shading to light blue in sub-apical (*c*), and then to white in apical area (*d*).

Underlying Markings.—Almost invisible, greyish, &c.

Surface Markings.—Lineal, streaky, &c.

Colour of Markings.—Green, &c. (or No. of colour chart).

Disposition of Markings.—A.—Forming a distinct zone in the zonal area (*b*). B.—Zone mostly in zonal, and overlapping slightly into basal area (*a*).

From descriptions here given, it is possible to draw, and fill in, the characteristics of eggs. The terms I have provisionally proposed would, I venture to think, be of inestimable value, as defined areas would get rid of a lot of confusion in relation to descriptions, being preferable to such terms as "larger" and "smaller" end. Basal, zonal, sub-apical, apical, would always stand for a particular position in all eggs, and their use would always develop a mental picture of that part of the egg they denote.

Shape.—Consistency is requisite in the adoption of terminology relative to shape. Ovate, oval, elongate-oval, elliptical, rotundate, &c., could be fixed in relation to the greatest diameter and length.

Surface and Texture require set terms.

Colour of Markings and Ground Colour.—The colour chart will obviate all difficulties, and make possible a uniform description.

Underlying and Surface Markings.—It is important to establish

finality in regard to markings. Freckles, spots, blotches, dots, streaks, &c., should each have a definite delineation.

Disposition of Markings also requires treatment. Continuous or broken zone, compact or loose cap, would express the state of concentrated or scattered colouration.

The egg constitutes a part of the bird as much as the beak, feathers, &c., and requires scientific treatment on the same lines.

The investigation of the phenomena underlying the causes of variation in nature is one of the most sublime and fascinating problems of biology. By concentrating attention on the problem of egg variations, the student may ultimately be led to the discovery of laws controlling variations among individuals of the species. Whether these laws are influenced by climatology, physiology, physico-chemistry, or the action and reaction due to the subtle inter-relation of organisms, remains to be unriddled.

A conference of leading ornithologists should bring to finality the suggestions herein roughly adumbrated.—Yours, &c.,

P. A. GILBERT.

Redfern, Sydney, 26/1/11.

South Australian Ornithological Association.

THE monthly meeting of this Ornithological Association was held in the Royal Society's rooms, North-terrace, on Friday evening, 5th May. Captain S. A. White presided. The secretary (Mr. J. W. Mellor) reported that a deputation had waited upon the Commissioner for Crown Lands with a request that the Pelican be placed upon the partially-protected list. The deputation appreciated the manner in which it was received, especially on hearing that part of the Coorong was likely to be declared a bird sanctuary. Mr. E. Ashby brought forward a notice of the deputation on the Kangaroo Island reserve on 13th June, when the Government would be asked to fulfil the promises of former Ministries. Captain White read a paper on "The Birds of the Riverina District," which he visited last year. He showed numerous specimens of the birds, among which were the beautiful "Green-leek" (*Polytelis barrabandi*), Yellow Parrakeet (*Platycercus flaveolus*), Rose-breasted Cockatoo (*Cacatua roseicapilla*), Grey Jumper (*Struthidea cinerea*), Chough (*Corcorax melanorhamphus*), and Yellow-throated Friar-Bird (*Philemon citreogularis*). A long discussion occurred on the genus *Sericornis*. Mr Ashby showed birds from Dandenong Ranges, Gippsland, and Ballarat (Victoria), and from South and Western Australia. Mr. Mellor exhibited specimens from Eyre Peninsula. Mr. Robert Zietz (Ornithologist of the Adelaide Museum) read an extensive list, and brought numerous specimens for comparison; and Dr. A. M. Morgan showed the eggs of three rare species.

The July meeting of this Association was held in the Royal Society's rooms on Friday evening, the 28th. Captain S. A. White presided. The secretary, Mr. J. W. Mellor, reported having received letters from the Commissioner of Crown Lands in regard to the reservation

of certain swamps in the south-east as breeding-places for native water-fowl. Mr. Mellor gave a good description of his journey into the heart of Eyre Peninsula in quest of Mallee-Fowl for the reservation on Kangaroo Island, and reported having secured several pairs, which he had liberated at Cape Borda (see page 110). Dr. A. M. Morgan reported having seen the first nest on the Adelaide plains this season with a full clutch of eggs of the White-fronted Chat (*Ephthianura albifrons*). The president exhibited an unusually large and deep nest of the Bell-Bird (*Oreoica cristata*). Mr. Robert Zietz brought some interesting bird-skins from the Museum collection for comparison, and a long discussion occurred on the probability of the Double-banded Dottrel nesting on the Australian coast. He showed a pair of these interesting birds in their nuptial plumage, which were procured at Balaclava, and presented to the Museum by Mr. S. S. Ralli. Mr. Mellor showed a small collection of bird-skins from the Eyre Peninsula, some being of great interest, one or two having been recorded from that locality for the first time. Among others were the skins of the Yellow-throated Miner (*Myzantha flavigula*), White-eared Honey-eater (*Ptilotis leucotis*), Butcher-Bird (*Cracticus destructor*), White-fronted Honey-eater (*Glycyphila albifrons*), Wattle-checked Honey-eater (*Ptilotis cratitia*), Grey-breasted Robin (*Eopsaltria gularis*), Chestnut-rumped Ground-Wren (*Hylacola pyrrhopygia*), Spotted Scrub-Wren (*Sericornis maculata*), and Broad-tailed Tit (*Acanthiza apicalis*).

The September meeting was held in the Institute, Adelaide, on Friday evening, the 8th, Dr. A. M. Morgan presiding. Mr. J. W. Mellor, secretary, reported having been exceptionally vigilant with reference to the better protection of birds on the islands in the Coorong, which had been sadly depleted by "pot-hunters" and half-caste aborigines. The Government had agreed to lease the islands between Wood's Well and Salt Creek to the Association, with the object of protecting the bird-life there. A number of reliable people about the lakes and the Coorong had been enlisted as honorary custodians to look after the bird-life on the islands and to assist the Association in bringing offenders to book. A hearty vote of thanks was accorded to Mr. Mellor for his successful efforts. A number of letters from well-known residents of the lakes and Coorong were received, and much satisfaction was expressed that the Association was taking active steps to preserve the birds. The Association, in conjunction with the Native Fauna and Flora Protection Society, has been moving towards amending the *Bird Protection Act*, and Mr. M. Symonds Clark read a number of alterations agreed upon by the joint committee. These have been sent to the Commissioner of Crown Lands as recommendations for embodying in the new bill. Mr. E. Ashby forwarded some interesting notes on the breeding of the Blue Wren, Yellow-rumped Tit, and Hooded Robin near his house, Wittunga, Blackwood. Mr. J. W. Mellor gave an account of his journey to the Flinders Ranges, near Port Germein, for the purpose of bird-observing. He walked 60 miles during the three days he was there, and identified 68 species of native birds—a goodly list. He showed two species of Wrens—the Turquoise (*Malurus callainus* and the Purple-backed (*M. assimilis*) the Orange-fronted Chat (*Ephthianura aurifrons*), and the Plumed Honey-eater (*Ptilotis plumula*), which were collected for Mr. G. M. Mathews, England, to assist him in writing his elaborate history of Australian birds.

Notes and Notices.

Assisting Bird Protection.—The South Australian Railway Department has issued instructions in printed form to all station-masters throughout that State that they are "hereby instructed to refuse to accept for carriage on the railways any consignment of protected birds." Then follows a list of the fully protected birds of South Australia. This has been done to assist the Government in carrying out the provisions of the *Birds Protection Act* of 1900. At a meeting of the South Australian Ornithological Association held on 28th July, 1911, at Adelaide, the action of the Railway Department was favourably commented upon, and a desire expressed that other States should follow the example.

Coloured Figure Fund.—The hon. treasurer, R.A.O.U., has pleasure in acknowledging the following contributions to the Coloured Figure Fund of *The Emu* made during the year ended 30th June last, namely:—W. J. T. Armstrong (Vic.), 2s.; C. A. Barnard (Q.), 5s.; H. G. Barnard (Q.), 5s.; Miss Brumby (Tas.), 5s.; Dr. H. W. Bryant (Vic.), 7s. 6d.; A. J. Campbell (Vic.), 4s.; Tom Carter (W.A.), 2s. 6d.; E. M. Cornwall (Q.), 2s. 6d.; G. Graham (Vic.), 5s.; C. Gubanzi (Vic.), 5s.; Robt. Hall (Tas.), 1s. 6d.; G. F. Hill (Vic.), 2s. 6d.; Dr. W. W. Hope (Vic.), 7s. 6d.; Wm. Lawford (Vic.), 2s. 6d.; Col. Legge (Tas.), 5s.; Dr. Macgillivray (N.S.W.), 1s. 6d.; H. Quiney (Vic.), 5s.; A. W. Swindells (Tas.), 5s.; Thos. Tindale (Vic.), 5s.; Toowoomba Field Naturalists' Club (Q.), £2 2s.; W. Young (Q.), 5s.

It is also announced that Mr. H. L. White, Belltrees, paid the cost of the illustrations in part 5 of vol. x., excepting the photographs of the Royal patrons.

Close Season in South Australia.—Some time ago the Victorian Gun Club Association wrote to the South Australian Government, pointing out the very wide margin between the dates for the ending of the close season for game and birds generally in the two States, and urging the necessity of coming more into line with Victoria, which opens the close season on 1st February. The Commissioner of Crown Lands forwarded the communication to the South Australian Ornithological Association. The association found that the extending of the close season to 1st February would be opposed; but a recommendation was made, with the result that the Commissioner, Mr. Crawford Vaughan, has issued a proclamation extending the close season from 20th December to 10th January. As the season starts on 1st August for Ducks, and 1st July for the greater portion of all other birds, they will now enjoy a large amount of protection. The alteration will at least stay the hands of those thoughtless persons who go out and blaze away at every living creature during the Christmas holidays.

Prohibition of Importation.—A proclamation by the Governor-General (the Earl of Dudley) in *The Commonwealth of Australia*

Gazette, No. 20, dated 25th March, 1911, provides that the importation into the Commonwealth of the plumage and skins of the birds mentioned in the schedule hereunder shall be prohibited, unless it is proved to the satisfaction of the Comptroller-General of Customs that the plumage or skins were imported for educational or scientific purposes :—

The Birds-of-Paradise	Family *Paradiseidæ*
The Humming-Birds	,, *Trochilidæ*
The Monal	,, *Phasianidæ*
Any one of the several species of Asiatic Pheasants of the genus *Lophophorus*, as the Impeyan Pheasant.	
The Argus	,, ,,
Any one of the several species of Asiatic Pheasants of the genus *Argusianus*, as the Argus Pheasant.	
The Crowned Pigeon	,, *Columbidæ*
Any of the several species of large crested Pigeons of the genus *Goura*, inhabiting New Guinea and the adjacent islands.	
The Rheas	,, *Rheidæ*
The Owls	,, *Strigidæ*
The Kingfishers..	,, *Alcedinidæ*
The Macaws	Order *Psittaci*
Any Parrot of the genus *Sittace* or *Macrocercus*.	
The Stork tribe	Family *Ciconiidæ*
The Heron Tribe	,, *Ardeidæ*
The Ibises and Spoonbills	,, *Plataleidæ*
The Todies	,, *Todidæ*
The Cock-of-the-Rock	*Rupicola aurantia*
The Quezal, or Resplendent Trogon ..	*Pharomacrus mocinno*

Prohibition of Exportation. — Another proclamation by the Governor-General (the Earl of Dudley) in *The Commonwealth of Australia Gazette*, No. 20, dated 25th March, 1911, prohibits the exportation of the birds mentioned in the schedule hereunder, and the plumage, skins, and eggs (or egg-shells) of such birds, unless it is proved to the satisfaction of the Comptroller-General of Customs that the birds, or the plumage, skins, or eggs (or egg-shells) thereof are being exported for educational or scientific purposes :—

Emus	*Dromæidæ*
Terns and Gulls	*Laridæ*
Egrets, Herons, and Bitterns ..	*Ardeidæ*
Lorikeets	*Loriidæ*
Cockatoos	*Cacatuidæ*
Parrots	*Psittacidæ*
Dollar-Birds, or Rollers ..	*Coraciidæ*
Kingfishers	*Alcedinidæ*
Bee-eaters	*Meropidæ*
Cuckoos	*Cuculidæ*
Lyre-Birds	*Menuridæ*

Pittas	*Pittidæ*
Robins	*Muscicapidæ*, genus *Petræca*
Ground-Thrushes and Chats ..	*Turdidæ*
Wrens	*Sylviidæ*, genus *Malurus*
Shrike-Tits, Thickheads, and Shrike-Robins	*Laniidæ*, genera *Falcunculus*, *Pachycephala*, *Eopsaltria*
Sun-Birds	*Nectariniidæ*
Bower-Birds	*Ptilonorhynchidæ*
Rifle-Birds	*Paradiseidæ*
Grebes	*Podicipedidæ*
Albatrosses	*Diomedeidæ*
Finches	*Ploceidæ*
Orioles	*Oriolidæ*
Shining Starlings	*Eulabetidæ*, genus *Calornis*

[The proclamation regarding exportation has been temporarily suspended except as regards skins and plumage of non-edible birds.—EDS.]

Mr. Mathews' Work on "The Birds of Australia."

IN procuring material for his great self-imposed task of a coloured figure for every known Australian bird, Mr. Gregory M. Mathews is amassing a collection of Australian bird-skins that promises to be second to none in the world. However, he is still in want of many of the rarer species. Any persons desiring to aid in the reduction of Mr. Mathews' *desiderata*, either by exchange or purchase, are invited to communicate with him direct. Address—Langley Mount, Watford, Herts., England.

Important Notice.

ANNUAL SESSION OF THE ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION.

THE eleventh session of the R.A.O.U. will commence at Sydney 28th October (this month).

On the afternoon of that day (Saturday) there will be a local outing. On Sunday the National Park will be visited, members being under the guidance of Mr. Basset Hull. The general meeting will be held on Monday evening, at the British Medical Hall; and the public lecture, "Tropic Islands and Coral Strands," will be given on Tuesday evening, at the King's Hall.

On Wednesday, 1st November, arrangements will be made for an extended working excursion to the neighbourhood of Gosford and the celebrated Hawkesbury district, under the leadership of Mr. A. S. Le Souëf, of the Sydney Zoological Gardens. Every member will receive the usual circular notice. Further particulars may be obtained from Mr. A. H. E. Mattingley, Acting Hon. Secretary, R.A.O.U., Customs House, Melbourne.

PLATE XIII.

Mr. A. J. Campbell.
(Fifth President and Honorary Associate Member Royal Australasian Ornithologists' Union, Colonial Member British Ornithologists' Union, Corresponding Fellow American Ornithologists' Union).

FROM A PHOTO. BY T. GRICE CAMPBELL.

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

VOL. XI.] 1ST JANUARY, 1912. [PART 3.

Royal Australasian Ornithologists' Union.

ELEVENTH (SYDNEY) SESSION.

MINUTES OF THE ELEVENTH ANNUAL SESSION OF THE ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION, HELD AT SYDNEY, FROM THE 28TH OCTOBER TO 31ST OCTOBER, 1911.

THE session was attended by the largest number of delegates that as yet have joined in the annual proceedings, the southern States, in particular, being well represented.*

Most of the visiting delegates reached Sydney on Saturday, the 28th October, and were met by the local secretary and other members of the Union residing in New South Wales.

In the afternoon an excursion to Ashton Park to view the proposed new site for the Sydney Zoological Gardens was undertaken. Mr. Griffiths, the Minister for Public Works, very considerately placed a fine launch at the disposal of members. The afternoon was most genial and the weather perfect, and a run around the harbour as far as the Heads was made. The areas of land on the harbour frontages recently resumed by the Government to convert into parks were viewed, and members were greatly impressed by this laudable action of the Government to preserve the beauty spots of the harbour. After viewing these points of interest a return was made to Ashton Park, contiguous to the city, and close to Mosman Bay. A pleasant walk through sylvan glades and amid wild birds and flowers occupied the balance

* Members and friends who attended the session :—*Victoria.*—Mr. and Mrs. E. B. Nicholls, Mr. and Mrs. C. Cole, Mr. A. J. and Miss Campbell, Mr. and Mrs. Mattingley, Mr. and Mrs. J. A. Leach, Miss M. Hayman, Mrs. Israel, Mrs. Wickham, Dr. W. J. Long, Messrs. O. Rosenhain, Mowling (2), J. Barr, D. Le Souef. *New South Wales.*—Mr. and Mrs. H. Burrell, Dr. A. E. D'Ombrain, Messrs. C. Coles, A. Hamilton, G. J. Broinowski, Basset Hull, A. S. Le Souef, H. Sharpe, J. Dun. *Queensland.*—Mr. C. Barnard. *South Australia.*—Messrs. J. W. Mellor and S. S. Stokes. *Western Australia.*—Mr. A. W. Milligan. *Tasmania.*—Col. W. V. Legge.

of the afternoon. The suitability of Ashton Park as a site for an up-to-date Zoo was apparent, since it would be situate in the heart of virgin country typical of the original conditions of the harbour frontage as it appeared to the early settlers. Afternoon tea, provided by Messrs. C. Coles and A. S. Le Souëf and presided over by Mrs. Le Souëf, was served *en route* to Circular Quay, and the city reached at 5.30 p.m.

In the evening the first general business of the session was commenced at the British Medical Association Rooms at 8 p.m., the president, Mr. A. J. Campbell, Col. Mem. B.O.U., in the chair. Letters of apology for their absence were read from several members.

The minutes of the tenth annual session were read and confirmed, on the motion of D. Le Souëf, C.M.Z.S., and Col. W. V. Legge, Col. Mem. B.O.U.

The annual report was read by the acting hon. secretary, Mr. A. H. Mattingley, C.M.Z.S., and, after considerable discussion, was adopted, on the motion of Mr. Chas. Barnard, seconded by Col. W. V. Legge. (For report see p. 166.)

Col. W. V. Legge, in seconding the report, stated that he was of opinion that permits should be given to collect specimens of birds in New Guinea for scientific purposes only.

Mr. C. Coles stated that he was heart and soul a bird protector, and considered that protection should be accorded birds generally. He spoke as a trader in plumes, and took exception to the protection of the Birds-of-Paradise, which do not mature and obtain their gorgeous liveries until four years old. He further stated that when the male bird gets his good plumes he leaves the female, and is then useless as a progenitor; therefore, it does not do any harm to collect fully-plumed Birds-of-Paradise, since Nature has already protected them, because the birds, in their sombre plumage during their mating period, are not sought for by collectors and plumage-hunters. He believed in protecting Egrets, but considered the trade in Birds-of-Paradise skins and plumes legitimate.

Mr. Leach asked for authority for these remarkable statements by Mr. Coles, as also did Col. W. V. Legge.

Mr. Coles, in reply, stated that he made these assertions through a deputy—a Mr. Richards (a collector of his), recently massacred by savages. His deputy was a keen observer of New Guinea avifauna. His (Mr. Coles's) own observations, and those of his father (a veteran taxidermist), showed that it took six years for Bower-Birds to come to mature plumage. This, to some extent, he contended, proved his statement.

Mr. D. Le Souëf, C.M.Z.S., said no proof whatever existed for Mr. Coles's statements. Bower-Birds at seven years of age were active breeders.

Mr. J. W. Mellor supported the report with reference to allowing permits, as suggested by the Union.

Mr. D. Le Souëf, C.M.Z.S., said that natives should not be allowed to collect specimens.

Mr. A. S. Le Souëf, C.M.Z.S., asked for what term the suspension of the proclamation now in force in Papua was sought by traders.

Mr. Leach asked why Australia should be made the "happy hunting ground" of foreign collectors.

Mrs. Burrell said that domestic cats gone wild were great destroyers of bird-life.

A general discussion *re* the alleged wholesale poisoning of birds mentioned in the report then took place, in which Messrs. Chas. Cole, J. Leach, and E. B. Nicholls took part.

Mr. C. Coles said that it was a wise act of the Commonwealth Government to prohibit the importation of ferrets. The mongoose, released in Fiji, had already mated with the rats there, and the hybrid destroyed birds.

The president then read an appalling list of birds destroyed for their plumes, as catalogued in the lists of recent London auction sales of birds' plumage.

The hon. treasurer's report and financial statement were then read by Mr. Barr, in the absence of the hon. treasurer. A slight deficit occurring was then explained by Mr. A. H. Mattingley and the chairman as due to the production of an extra part of *The Emu*, issued as a record of the Queensland session. The financial statement was adopted, on the motion of Dr. Long, seconded by Mr. Chas. Cole.

The librarian mentioned that no report had been prepared by him, and verbally stated what had been done with regard to the library during the past year.

The meeting adjourned at 11.15 p.m.

Next morning (29th October) a large party entrained for the National Park, under the leadership of Mr. Basset Hull. The weather was most pleasant, and the park presented a fascinating sight, bedecked as it was with wild flowers and blossoming shrubs. Mr. Frank Farnell, chairman of the trustees of the park, very kindly had motor and other boats awaiting the visitors. The party divided into two sections—one going down the salt water of the Port Hacking River in the launch, and the other in rowing boats up the fresh water. Both parties returned at mid-day for refreshments, and exchanged boats and trips for the afternoon. The beauties of the park were greatly admired. Many birds were seen nesting, and, owing to immunity from harm, all appeared very tame, letting persons approach close to them without exhibiting alarm. In the evening the party returned to Sydney, after a most enjoyable outing.

General Meeting.

On Monday, the 30th October, the adjourned general business meeting was resumed at 8 p.m. at the British Medical Association rooms.

RECEIPTS AND

For Year ended

£	s.	d.	£	s.	d.	RECEIPTS.
16	3	1				Balance—General Fund
18	6	2				Col. Figure Fund
172	15	9				Subscriptions
12	17	6				,, In Advance
14	15	6				Sales—*The Emu*
20	2	2				Part 3, vol. x.
1	0	0				Part 3, vol. vii.
			6	6	0	Col. Figure Fund—Donations
			8	14	0	Brisbane Lecture
			1	0	0	Advertisements
16	0	0				
			0	12	2	Postage
			1	4	1	Exchange
			0	3	0	Covers
1	19	3				
20	19	3				General Fund Dr. Balance
294	18	8				

(Signed) J. A. Ross, *Hon. Treasurer.*

30th June, 1911.

ASSETS AND

At 30th

£	s.	d.	£	s.	d.	Assets.
217	6	0				*The Emu* in Stock, say
25	0	0				Library
15	0	0				Illustration Blocks
			24	0	0	Subscriptions—In Arrears, say
			12	17	6	Less Prepaid
11	2	6				
30	11	2				Coloured Figure Fund Credit Balance
298	19	8				

EXPENDITURE

30th June, 1911.

EXPENDITURE.	£	s.	d.	£	s.	d.
The Emu—Printing, &c.				178	8	6
Illustration Blocks				21	18	4
Coloured Plate, No. 13				3	15	0
Binding *The Emu* for Patrons, &c.				1	0	0
Presentation to Captain *Endeavor*				0	17	6
Congress	6	5	11			
Camp Material	1	7	6			
				7	13	5
Stationery	12	9	0			
Typing	1	8	6			
				13	17	6
Library—Card Index	6	0	8			
Insurance	0	5	5			
				6	6	1
Postage, &c.				28	0	6
Exchange	1	18	2			
Cheques	0	2	6			
Bank Charge	0	10	0			
				2	10	8
Balance—Coloured Figure Fund				30	11	2
				£294	18	8

Audited and found correct.

Z. GRAY, F.C.A., *Hon. Auditor.*

14*th September*, 1911.

LIABILITIES

June, 1911.

LIABILITIES.	£	s.	d.
General Fund—Debit	20	19	3
Balance	278	0	5
	£298	19	8

The chairman read the following royal and vice-royal letters :—

Buckingham Palace,

22nd July, 1911.

DEAR MR. CAMPBELL,—I have duly received the tenth volume of *The Emu* which you have been good enough to send through Colonel C. S. Ryan for the acceptance of the King and Queen.

I have submitted the volume to Their Majesties, and pointed out to them their likenesses on page 355, and have received Their Majesties' commands to request you to be good enough to convey their thanks to the Council for their kindness in sending the book.

I am, yours faithfully,

E. W. WALLINGTON.

A. J. Campbell, Esq.,
President Royal Australasian Ornithologists' Union,
Zoological Gardens, Melbourne.

COMMONWEALTH OF AUSTRALIA.

(GOVERNOR-GENERAL.)

MR. CAMPBELL AND GENTLEMEN,—It has gratified me not a little to receive the assurance of your loyal devotion to our most gracious Sovereign, King George. The Union which you represent has been specially honoured with the patronage of Their Majesties the King and Queen, who have thereby shown their interest in the object which you have set before yourselves

I thank you for your congratulations upon my appointment as Governor-General of the Commonwealth, and it is a pleasure to me to realize that, inasmuch as you include within the sphere of your operations the sister Dominion of New Zealand, I am the recipient on this occasion of a courteous compliment from fellow-subjects of His Majesty both within and without the Commonwealth.

The study of bird-life, and the protection of rare and beautiful species from destruction, are objects which have my warmest sympathy, and which I should be glad to see furthered in every part of our world-wide Empire.

I ask you to convey to the members of the Royal Australasian Ornithologists' Union an expression of my interest in their work and of my good wishes for their continued and increasing prosperity.

DENMAN.

25th August, 1911.

The retiring president, Mr. A. J. Campbell, Col. Mem. B.O.U., then read his address, dealing with

A History of Australian Ornithological Research.

Such a work, were it published, would form one of the most fascinating, interesting, not to say valuable, chapters ever printed; but where is one to get the lifetime and opportunities needed to delve into the literature of the world and weave, chronologically, a sure skein of information pertaining to Australian ornithology?

It is not generally known that an extensive historical collection of fourteen thousand books, pamphlets, maps, &c., concerning Australasia and Polynesia from the sixteenth century—is in the Commonwealth Parliamentary Library, the invaluable gift to the nation of one of our members, Mr. Edward Augustus Petherick, F.L.S., &c. In connection with and founded upon that collection Mr. Petherick has compiled a manuscript bibliography, in 66 vols., containing not less than 100,000 titles, classed and chronicled according to subjects—Voyages, Geography and Exploration, Natural and Physical Sciences, &c.

1508.—In glancing through the ornithological section you will find that the first mention of birds by explorers in the Australian region (*i.e.*, taking the region zoogeographically from Wallace's line on the west to the Hawaiian Islands on the east) is as early as 1508, when they found the "Divine Bird," or the "Bird of God," as the Bird-of-Paradise was first called. But, keeping more strictly to the Australian sub-region, we find the early dawn of Australian ornithology was as poetic as it was prophetic. After its discovery by the Portuguese, our continent bore the name of *Psittacorum Regio*—"The Land of Parrots."*

1697.—Then there occurs a long blank in time till the discovery in 1697 of Black Swans on a river named "Swanen Rivier" by Vlamingh, the Dutch explorer. The English translation states:—"January 7th.—The crew returned on board, bringing two young Black Swans" (p. 123). "11th.—At break of day we again ascended the river, and saw many Swans (our boat knocked over nine or ten), some 'Rotganzen,' Geese, some Divers, &c." "On the 12th (January) I again went on shore, with our chief pilot, some sailors, and two blacks. . . . The men, the birds, the Swans, the Rotganzen, Koopganzen, the Geese, the Cockatoos, the Parroquets, &c., all fled at the sight of us." "15th (lat. 30 deg. 17 min.) we proceeded a league and a half inland; but we saw no men, or fresh water, but several footprints of men and prints like those of the dog and of the Cassowary."

1699.—In his "Voyage to New Holland," Dampier mentions

*A quarter of a century ago, Mr. Petherick pointed out the fact that when European navigators first discovered this Australasian Region, they named it the "Bird Country" from the great number of birds observed, the Western Coast being described on the earlier maps as the *Psittacorum Regio*, or "Land of Parrots," and the northern part (New Guinea) as the *Terra Piccinacoli* or "Land of the Bird-of-Paradise."

"Sea-fowls like Gannets, and a sort of Sea-Mews; few land-fowls —Eagles, five or six sorts of small birds, all singing; water-fowls —Ducks, Curlews, Galdens, Crab-catchers, Cormorants, Gulls, Pelicans, and other water-fowl (plate with four figures, pp. 122, 123), similar birds and white Parrots (p. 139), Boobies, Noddies (plates 142, 143), Crows, Hawks, Kites, Turtle-Doves, smaller birds, and sea-fowl (p. 153)."

1726.—Six species of Birds-of-Paradise are described by Valentyn in his great work on the East Indies.

1766.—Some sea-birds are described by Linnæus.

1772-75.—Birds seen during Cook's second voyage, and hitherto unknown, are described in a manuscript by Wm. Anderson, and Dr. Reinold Forster remarks that the number of new birds was "astonishing"—104. "It is," he observes, "a received notion that birds of many colours do not sing well; we have here numerous instances to the contrary. The wild forests of New Zealand and the cultivated groves of O-Taheitee resound alike with the harmony of the shining songsters"—a very early correction of a popular error.

1779.—Webber made 46 drawings of birds during Cook's last voyage, species useful to Latham in his "General Synopsis," 1781-85.

Running down the years, we can only afford time and space at present to note a striking title here and there up to the period when John Gould commenced to consolidate his memorial scientific work.

1789-90.—Phillip's Voyage—Birds of New South Wales, with 20 plates and descriptions from Latham's "Synopsis."

1790.—Journal of a Voyage to New South Wales, with 26 plates birds, &c. By John White, Surgeon-General to the Settlement.

1791-92.—The bibliographer notes there are in the Sydney Public Library 101 beautiful coloured drawings of birds, chiefly from Norfolk Island, of this date.

1793.—Settlement at Port Jackson, Tench; the Cassowary or Emu described: its eggs, &c. (pp. 173, 175).

1794.—Zoology of New Holland. By Geo. Shaw, M.D. Figures by James Sowerby of five birds—(1) Nonpareil Parrot (Rosella), (2) Ground-Parrot, (3) the Embroidered Merops, (4) Antarctic Pigeon, (5) Spotted-shouldered Thrush.

Birds of Australia. By Dr. Shaw, in Pinkerton's "Geography," 1807 and 1817.

1798.—New Species *Muscicapa* from New South Wales. By Thomas Davies (Major-General).—*Trans. Linn. Soc.*, vol. iv., pp. 240-242.

1798.—Extraordinary Flight of Sooty Petrels at Hunter's Island, Bass Strait (estimated at over 150 millions).—Flinders, i., p. clxx.

1800.—Lacépede mentions *Prion vittatus* and *Pelecanoides urinatrix*.

1802.—Description of *Menura superba*. By Thomas Davies.—*Trans. Linn. Soc.*, vi., p. 207.

1802.—Lyre-Bird, "Mountain" Eagle, and Emu, with plates.—Collins's "New South Wales."

1806.—The announcement of the first Australian bird book is of peculiar interest. It reads—

"Proposals for publishing by subscription 'The Birds of New

South Wales, with their Natural History,' by John William Lewin, A.L.S., &c., &c. N.B.—This work will be sent to England by His Majesty's ship *Buffalo*, under care of a gentleman, for immediate publication. The terms of subscription are: Half the subscription money to be paid at the time of subscribing, and the other half on the delivery of the work." (The subscription for the bird volume was £2 2s.)

1808.—By advertisement, "Mr. J. Lewin begs to acquaint the officers, civil and military, and their ladies, who honoured with their names the list of subscribers to his intended work entitled 'The Birds of New South Wales, with their Natural History,' that he has received advice . . . . regarding the transmittal of the first volume subscribed for here."

There were 18 plates in this issue, and a copy in Sydney Public Library is dated 1813 [?]. There were re-issues in 1822 and 1838, with 8 additional plates, namely:—Scarlet Creeper, White-eared Honey-sucker, Crested Flycatcher, White-breasted Honey-sucker, Yellow-breasted Thrush, Black-crowned Honey-sucker, Common Creeper, and Crested Shrike.

1807.—Cassowaries, Péron, Atlas, part v., pl. 36, 41; 1824, pl. 66, 67.

1824.—Anatomical Structure of the Cassowary of New Holland (*Casuarius nova-hollandiæ*), by Robert Knox.—*Edin. Phil. Journ.*, x., pp. 132-140.

1825.—Description of *Psittacus fieldi*, a New Species of Parrot from Australia. By Wm. Swainson.—*Quart. Journ. Sci.*, xix., pp. 198-200. Also, by same author, "Characters and Affinities of Several New Birds from Australia."—*Zool. Journ.*, v., pp. 463-484.

1826.—Description of the Australian Birds in the Collection of the Linnean Society. By N. A. Vigors and Thomas Horsfield.—*Trans. Linn. Soc.*, xv., pp. 170-331.

1826.—Zoologie du Voyage *L'Uranie* et *La Physicienne* includes 31 plates of birds. Quoy et Gaimard.

1825-6.—Geographical Distribution of Certain Petrels. By R. P. Lesson.

1827.—Aves: a Collection presented to the Linnean Society. By Phillip Parker King, R.N.—"Survey of Coasts of Australia," ii., pp. 416-423.

1833-4.—Ten Coloured Plates Parrots, &c. Two Expeditions by Sturt.

1831.—Habits of the Musk-Duck (*Hydrobates lobatus*, Temm.) By Lieut. Breton.—*Proc. Zool. Soc.*, ii., pp. 19-23.

1832-4.—Wanderings in New South Wales—Lyre-Bird, &c. By Dr. George Bennett.

1836.—We now arrive at Gould's first contributions to the Zoological Society's *Proceedings*—"On Australian Birds, with Characters of the New Species."

1837.—And his "Synopsis of the Birds of Australia and the Adjacent Islands," part i. (44 species).

In going through this great mosaic of references to Australian ornithology, what forcibly strikes one is the vast amount of research performed by private enterprise, or for adventure, if you like, compared with what has and should have been done nationally. Of course, such expeditions as those of Dampier, Cook, Flinders, Stokes, and others were national, because subsidized by

the Navy—though not strictly scientific—but the great bulk of detailed ornithological research has been performed and published privately, Gould's great pictorial volumes eclipsing all. Ever since Gouldian days, excepting the works of Ramsay and A. J. North, of the Australian Museum, all publications on Australian ornithology have been done privately — Diggles, Campbell, Broinowski, Robert Hall, Leach, Littler, Lucas and Le Souëf, and now we have Gregory Mathews in the throes of a stupendous work—a coloured figure for every Australian bird—undoubtedly a national undertaking, which should not have been left to private enterprise. Were it not for such patriots as Gould, Mathews, and others, to think of what would become of Australian Natural History is to contemplate the possibility of an everlasting disgrace overtaking our nation for its neglectfulness. The same applies to field collectors. How little has been done by State museums compared with private individuals or collectors privately subsidized!

Now, however, the Commonwealth Government is setting an excellent example since it has acquired the great Northern Territory. One important expedition at present in the field has attached to it a collecting ornithologist (by the way, a member of the R.A.O.U.) It is hoped that State museums will send out zoological collectors to little-known corners of the Commonwealth for material before it becomes scarce, or altogether disappears (better even than sending an expensive expedition to Antarctica, costing thousands of pounds), and not leave the national collections to be acquired piecemeal from private persons; and, as to material which has already been acquired or donated, let Governments be liberal enough to subsidize their museums, so that specimens may be properly displayed, and not procured to be stowed away in vaults, labelled in obsolete nomenclature.

Not alone have private persons outstripped Governments at collecting, but collectors from foreign institutions, attracted by the wealth and novelty of the Australian region, have touched our shores at various places, and have carried off rare ornithological booty—to wit, the Swedish expedition to the North-West, under the capable leadership of Dr. Eric Mjoberg, which has just departed with over 800 specimens in ornithology alone, besides numerous birds' nests and eggs. No blame to such eminent visitors or institutions: all nations are equal in the race for science. Yet the Commonwealth Government should control these collections, if even for scientific reasons, such as regarding types. Unless we possess types it is difficult, or sometimes impossible, to determine whether a specimen is new or belongs to a species already described. Last year Professor Alfred J. Ewart, of the Melbourne University, in an article on "Scientific Explorations," in the public press mentioned this point regarding botany. It equally applies to ornithology, and zoology in general.

In conclusion, returning to Mr. Petherick's Australian bibliography, and to the fact that the greater amount of Natural History work has been performed privately for the nation as against what the nation officially has undertaken for itself, would it not be opportune for the Royal Australasian Ornithologists' Union, now met in session, to bring under the notice of the Commonwealth Government the need of proceeding with the publication of this valuable bibliography, and to respectfully urge that at least the part (possibly containing 1,400 or 1,500 titles) pertaining to the avifauna of Australia be commenced. This in itself would form a reference complete and invaluable, not only to scientists and students, but to the people and politicians. No country in the world has so complete a bibliography from its very earliest beginnings as that compiled for Australasia by Mr. Petherick—the results of the "labours of love" during the well-spent leisure hours of a busy life.

On behalf of Capt. S. A. White, of South Australia, Mr. E B. Nicholls read a letter eulogizing the work of the retiring president, Mr. A. J. Campbell, and also that of a former (now acting) hon. secretary, Mr. A. H. Mattingley.

Mr. G. J. Broinowski spoke in favour of Mr. Campbell's work for ornithology.

Col. W. V. Legge spoke at length in terms of the highest praise of the retiring president's work for the Union, and moved a vote of thanks to him, coupled with the name of the acting hon. secretary. Seconded by Mr. D. Le Souëf, and carried with acclamation.

New Office-Bearers.

Election of office-bearers resulted in the return of the following:—President, Mr. J. W. Mellor; vice-presidents, Messrs. Robt. Hall, C.M.B.O.U., and A. H. E. Mattingley, C.M.Z.S.; hon. secretary, Mr. F. E. Wilson; hon. treasurer, Mr. Z. Gray; hon. librarian, Mr. Dudley Le Souëf, C.M.Z.S.; hon. editors of *The Emu*, Messrs. A. J. Campbell, C.M.B.O.U., and C. L. Barrett; hon. press correspondent, Mr. E. Brooke Nicholls. Hon. State secretaries—Victoria, Mr. F. E. Wilson; South Australia, Captain S. A. White; New South Wales, Mr. A. S. Le Souëf; Western Australia, Mr. T. Carter M.B.O.U.; Tasmania, Mr. A. Butler; Queensland, Dr. Hamlyn Harris, F.Z.S.; New Zealand, Mr. H. Hamilton. Additional members of the Executive—Messrs. A. F. Basset Hull (New South Wales), Dr. C. S. Ryan (Victoria), Dr. A. M. Morgan, (South Australia), Mr. J. A. Leach, M.Sc., and Dr. Geo. Horne (Victoria), Dr. Wm. M'Gillivray (New South Wales), Mr. C. A. Barnard (Queensland), and Mr. A. W. Milligan (Western Australia).

The newly-elected president, Mr. John W. Mellor, then took the chair, and thanked members for the honour conferred upon him. He would do his best to forward the Union's great work and high aims.

Mr. J. A. Leach, M.Sc., moved, and Mr. D. Le Souëf seconded—"That, while opposed to the use of trinomials, this meeting considers that each sub-species should be so designated by the Check-list Committee as to indicate—(1) that it is a sub-species, and (2) the species of which it is a sub-species." Mr. Broinowski supported the motion, and suggested that sub-species be only indicated by a number, and not by a name.

Col. W. V. Legge said that he was against the trinomial system of nomenclature, and was an adherent of the binomial. If considered a sub-species, a bird should be placed under the ordinary specific name.

Mr. Basset Hull supported the motion, and mentioned that it would be sufficient for all purposes were the specific name only indicated by a number and the sub-specific by a letter.

A paper entitled "Fallacies of the Feather Trade" was then read by Mr. A. H. E. Mattingley, C.M.Z.S., wherein a succinct review of the rise and growth of the trade in the plumage of birds was recounted. Statistics from consular reports, as well as those from feather-trade journals themselves, were quoted in support of the insatiable demand for the plumage of birds. Statistics showed that incredible numbers of birds were annually slain to supply the trade. A revulsion of feeling against the destruction of thousands of useful birds for the sake of their plumes as articles of adornment has set in. It was to be hoped that all would do their utmost to prevent the totally unnecessary trade in the plumage of wild birds.

Col. W. V. Legge, as an old Indian resident, supported all statements made in the paper.

Mr. A. Le Souëf said that the Huia of New Zealand required protection.

Mr. Broinowski mentioned that one dealer in Sydney had sold 498 Lyre-Birds' tails last year, while another dealer, in face of a prohibitory law, sent 800 Lyre-Birds' tails out of Sydney. He considered the exportation of 800 tails meant the destruction of 1,000 Lyre-Birds.

Mr. C. Coles questioned the accuracy of the statement regarding the Lyre-Birds' tails exported.

Mr. Basset Hull stated that of his own knowledge 2,000 Lyre-Birds' tails had been exported in three years.

Mr. D. Le Souëf supported the statements of Messrs. Broinowski and Hull.

Col. W. V. Legge moved—"That this Union renews the request made at the last Hobart session that the Field Naturalists' Association of Tasmania and other persons interested in bird-life should approach the State Government with a view to the acclimatization of the Lyre-Bird (*Menura*) in the highlands of Tasmania, owing to the danger that this beautiful bird is being practically exterminated by introduced foxes and illicit shooting

in Victoria and New South Wales." Mr. J. A. Leach seconded, and suggested greater vigilance by the Customs Department, if possible. The motion was carried unanimously.

Mr. J. A. Leach moved—"That the Commonwealth Government be apprised of the great destruction of Lyre-Birds and the taking of their eggs." Mr. A. Hamilton supported the motion, which was carried.

General Business.—Mr. A. J. Campbell moved—"That the Union approach the Commonwealth Government with a view to getting Mr. Petherick's bibliography concerning Australian ornithology published, it being a purely national work." Seconded by Mr. D. Le Souëf, and carried.

Mr. D. Le Souëf moved a vote of thanks to the Government of New South Wales for their praiseworthy act in the resumption of lands for parks around Sydney. Col. W. V. Legge supported the motion, which was unanimously carried.

Mr. O. Rosenhain moved—"That, out of respect to the memory of a devoted follower of ornithology in Australia—John Gilbert, the coadjutor of John Gould—a wreath be placed on the tablet erected to his memory in St. James' Church, King-street, Sydney." Mr. A. J. Campbell supported the motion, which was carried unanimously. A sub-committee, consisting of Mr. and Mrs. H. Burrell and Mr. O. Rosenhain, was appointed to approach the rev. the rector of the church for permission, and to carry into effect the resolution. (See p. 160, and Plate XV.)

Mr. J. W. Mellor stated how the Government of South Australia had placed Mallee-Fowl on Kangaroo Island, and had reserved a large area for acclimatization purposes, and had erected a fence enclosing it. This was due to the energy displayed by the Ornithological Association of South Australia, and to the original suggestion of the R.A.O.U. when camped on Kangaroo Island six years ago.

Col. Legge moved, and Mr. Rosenhain seconded, that a vote of thanks be conveyed to the Government of South Australia, and, "That in the opinion of this Union the remainder of the unalienated land on Kangaroo Island should, if possible, be devoted to the purpose of an extended sanctuary for Mallee-Fowl (*Lipoa*) and other birds likely to be destroyed by introduced vermin on the mainland; and that this Session exhorts and encourages the South Australian Ornithological Association and other interested bodies to persevere in their praiseworthy efforts for the reservation of land on Kangaroo Island for the purpose mentioned." This was carried unanimously.

In accordance with his previous notice of motion, Mr. J. A. Leach moved—"That the retiring president, Mr. A. J. Campbell, C.M.B.O.U., who has done notable service in the cause of ornithology, be elected an honorary associate of the R.A.O.U." Seconded by Mr. A. Mattingley, and carried.

Mr. J. Barr moved—"That the Education Department of New South Wales be congratulated for their successful inauguration

of Bird Day into the State schools, and for the formation of the Gould League of Bird-Lovers." This was supported by Mr. A. J. Campbell, and carried.

Mr. A. Mattingley proposed—"That the Commonwealth Government be urged to proclaim that all scientific material and specimens collected be *vised* by the Commonwealth Government before being taken out of the territories of the Commonwealth, and that the type-specimens be deposited at the museum of the State in which they were collected, and the scientific results be published in an Australian scientific journal before duplicate specimens be allowed to be taken out of the Commonwealth." Seconded by Mr. J. A. Leach, and carried unanimously.

Mr. E. B. Nicholls moved—"That the Railway Departments of the different States be asked to prohibit the transport of protected birds as freight (as shown in the South Australian Railway Guide)." Seconded by Mr. J. A. Leach, and carried.

Mr. A. Mattingley moved—"That the Commonwealth be mapped out into ornithological districts, and that hon. secretaries be appointed to each to record the migrations, &c., of birds." Mr. J. Leach seconded the motion, and suggested that the Education Departments of the different States be invited to assist. Carried unanimously.

Mr. C. Coles pointed out that the apparent indifference of New South Wales members of the Union as a body was due to the fact that no ornithological society was in existence in Sydney. He sincerely hoped that some action would be taken to bring them together and unite them.

The president said the Council would do their utmost to consummate the idea, and hoped a local ornithological society would be formed. The South Australian Ornithological Society started with only three members, and now it was a large and influential body.

Mr. Chas. Cole said that the Bird Observers' Club of Victoria, which started with only a few enthusiasts, was now a powerful society.

It was decided to hold the next annual session in Tasmania.

Proposed by Mr. O. Rosenhain, and seconded by Mr. Chas. Barnard—"That a catalogue of the books belonging to the R.A.O.U. library be published." Carried.

Votes of Thanks.—The following were unanimously carried:—

(1) To the Minister of Public Works for the use of the launch.
(2) To the Trustees of the Australian Museum for placing the type-specimens and other material at the disposal of the Check-list Committee.
(3) To the Trustees, National Park, for the use of their motor launch.
(4) To the British Medical Association for use of their rooms for purposes of meeting.

The meeting then terminated, at 11.20 p.m.

New Members Elected.

Victoria.—A. Rutter Clarke, Melbourne; Henry Anjou, Murrumbeena; Dr. J. W. Barrett, Melbourne; C. F. Belcher, M.A., LL.B., Geelong; Thos. Bell, Antwerp; Henry Brew, Ballarat; Chief Inspector Fisheries and Game, Melbourne; Rolf Crawley, Warrnambool; St. Eloy D'Alton, Dimboola; John Hookes, Melbourne; Francis Keep, Melbourne; Dr. W. J. Long, Bendigo; A. W. Milligan, Melbourne; R. O. Rosenhain, Balaclava; Leslie Stuart, Melbourne; E. N. Symonds, Balwyn; J. Tatterson, Morwell.

New South Wales.—Dr. G. Bowen Thomas, Ashfield; J. H. Ferguson, 167 Phillip-street, Sydney; A. E. Hamilton Lecturer Training College, Sydney; Mr. John Dun, 15 Muston-street, Mosman; Harry Sharpe, c/o *Evening News* staff, Sydney.

Queensland.—Noel V. I. Agnew, Moreton Bay; Mrs. S. A. W. Barnard, Rockhampton; A. H. Chippendall, Bundaberg; C. Cook, jun., Bundaberg; Richard Cruise, Toowoomba; C. C. Dornbusch, Warwick; D. R. Eden, Brisbane; Dr. Hamlyn Harris, Brisbane; Wm. Harris, Toowoomba; Mrs. Annie C. Hogarth, Toowoomba; Dr. Hurworth, Brisbane; Miss Alba Jodrell, Toowoomba; Major Jas. Johnston, Bundaberg; Dr. T. Harvey Johnston, Brisbane; C. A. Lambert, Warwick; Lewis H. Maynard, Bundaberg; G. E. M'Donald, Cooroy; J. A. M'Lean, Mackay; W. R. Parker, Brisbane; P. W. Pears, Warwick; H. E. Price, Toowoomba; Dr. Thos. A. Price, Toowoomba; Queensland Museum, Brisbane; J. N. White, Bundaberg; G. A. Young, Bundaberg; Mrs. Horace Young, Bundaberg.

South Australia.—E. Elkan, Semaphore; Stanley S. Stokes, Walkerville.

Western Australia.—Lachlan M'K. Burns, Subiaco; John T. Tunney, Kojonup; Dr. R. Soderberg, Royal Swedish Consulate, Fremantle.

Tasmania.—Clive E. Lord, Hobart.

New Zealand.—W. R. B. Oliver, Christchurch.

England.—R. Owen Mathews, Watford.

Holland.—G. L. Van den Berg, Leiden, Holland.

Public Lecture.

On Tuesday, 31st October, at 8 p.m., a public lecture, entitled "Australian Tropic Islands and Coral Strands," was given at King's Hall, Phillip-street, the lecture being under the auspices of the Wild Life Preservation Society of New South Wales. Mr. W. W. Froggatt, F.L.S., Government Entomologist, presided. The entertainment, which was exceedingly well illustrated with lime-light views, dealt mainly with the narrative and results of the Union's expedition to the Capricorn Islands, 1910, augmented with other Barrier Reef natural history. The speakers were Mr. Brooke Nicholls, Mr. D. Le Souëf, C.M.Z.S., Mr. J. A. Leach, M.Sc., and Mr. A. H. E. Mattingley, C.M.Z.S. The lecture, although a success, resulted in a financial loss (£3 9s. 10d.)

Working Excursion and Camp-Out.

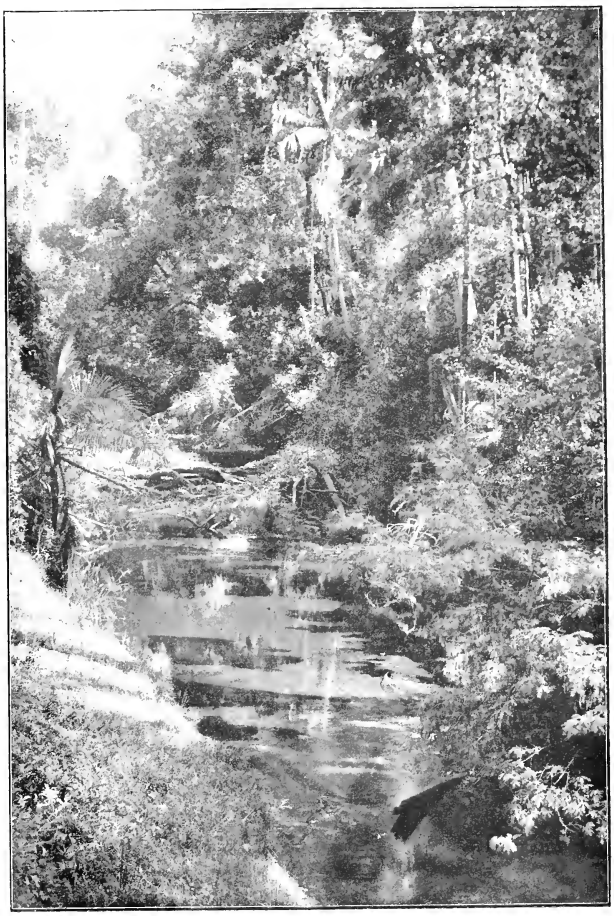
On Wednesday, 1st November, some members, under the leadership of Mr. A. S. Le Souëf, C.M.Z.S., proceeded at 8 a.m. to Ourimbah, about 56 miles from Sydney, for an extended working excursion to the sub-tropical scrubs, whilst others journeyed to Gosford, a picturesque spot near Ourimbah, by the afternoon's train for a similar purpose, the balance of the camping party reaching Ourimbah the following morning.

The members who left on Wednesday camped about 3 miles from the Ourimbah station, some going about 4 miles further, to the farm of Mr. G. H. Jaques. Twenty-one members attended.* Although a great many birds were observed, practically few were noticed nesting. Interesting pictures of birds building or feeding their young were obtained by Mr. Rosenhain and Mr. H. Burrell, while Messrs. Barnard, Burrell, and C. Coles took a long excursion into the back country on Sunday, and were rewarded by glimpses of very fine rough scenery and numerous birds, though nests were not seen. For this particular district it was just a little too late, for most of the birds seen had young. The camp was broken up on Monday (4th November), to enable members to visit other parts of New South Wales, notably the Hawkesbury River and the Blue Mountains. Mr. A. J. Campbell arrived the day after the break-up, and, together with the president (Mr. J. W. Mellor), remained the allotted time—to the end of the week. It should be explained that No. 1 camp was on Mr. Lowe's farm, about three miles from Ourimbah station. With plenty of green sward about, the tents were comfortably situated, while the cook's quarters were an unused outhouse well stocked with choice provisions (thanks to the thoughtfulness of Messrs. A. S. Le Souëf and Charles Barnard). In front, not far away, the stream —"Ourimbah" of the aborigines—at summer level, meandered through a fringe of trees, which afforded safe retreat for many birds, including a Lyre-Bird, observed by two members of the party for some time. Behind were timbered gullies, and ranges around, full of interest for naturalists. A visitor from Sydney, who, with others, spent a night at this camp, has recorded in the Sydney *Evening News* (16/11/11) that—

"No pen may describe the awakening of the bush with the first streaks of dawn. It was then that one became impressed with the absolute fallacy that Australian birds are songless. Bred and born in the heart of rural England, with all the instinctive love of my woodlands, I must admit that I had no idea that anything equalling in richness the song of the Thrush and the Blackbird—they are my favourite song-birds—was to be found in Australia. But after that first experience of listening to an

* Mr. and Mrs. Nicholls, Mr. and Mrs. Burrell, Mr. and Mrs. Leach, Mrs. Israel, Messrs. Mowling (2), Cole, Barr, Stokes, Rosenhain, Milligan, Mellor, A. S. Le Souef, Barnard, C. Coles, Drs. Long and D'Ombrain. At Gosford were Mr. and Mrs. Mattingley, Mrs. Cole, Mrs. Wickham, and Miss Hayman.

PLATE XIV.



Scene on Ourimbah Creek, New South Wales.

Home of Azure Kingfisher (*Alcyone azurea*), Spectacled Flycatcher (*Piezorhynchus gouldi*), Brown Fly-eater (*Pseudogerygone fusca*), Yellow-eared Honey-eater (*Ptilotis lewini*), &c.

FROM A PHOTO. BY A. J. CAMPBELL.

Australian bird chorus greeting the early dawn I fearlessly confess that there is nothing in an English wood which can beat it for richness of note or variety of song.

"First of all there began a gentle twittering of the smaller birds. Almost immediately a pretty little Blue Wren appeared on the bough of a tree near my tent, and trilled a bright song as gaily as a Robin Redbreast. Soon the whole neighbourhood was flooded with song as of one magnificent, harmonious chorus, throughout which individual songsters poured forth full-throated, melodious solos. There were three birds which pleased me the most—the Brush-Cuckoo the Yellow-breasted Whistler, or Thickhead, and the Bell-Bird.

"The Brush Cuckoo sang a perfect three-bar song, almost exactly resembling a portion of the chorus sung in the first act of 'Faust.' The Whistler had no distinct tune: it gave us a series of merry whistling, in crescendos, and terminating with a joyous exclamation. This bird is a gem, and has such a repertoire that at different times of the day it completely changes its whistle, but always it is delightfully full and clear.

"The Bell-Birds gave the effect of the 'Anvil Chorus' by their constant 'Ting, ting, ting,' from which bell-like note the bird derives its name. How is it possible to describe such a chorus? The noise was not deafening; it was a constant warbling, carolling, and whistling, with distinct flute-like solos, which could be heard from every side of this great natural aviary."

Yet, notwithstanding this enthusiastic description, the camp was broken up somewhat precipitately. Possibly the restless craving for sight-seeing of some of the members overcame their original intention of bird-observing, for no fault could be found with the executive for the locality chosen. The cook, who remained till the end of his term, which he improved by catching water-lizards, with more or less success, for the Sydney Zoo, facetiously named the place "Skedaddle Camp."

Messrs. Campbell and Mellor elected to accept the hospitality of "Palm Grove," the selection of Mr. G. H. Jaques, 4 miles further up the Ourimbah, and the last dwelling on the creek. Here the ranges converge, and, except for a clearing here and there near the stream, and tracks of timber-getters, the scrub is in its virgin state. Along the creek, by shaded pools, are many trees strange to southern visitors, and ornamental wattles, notably *Acacia elata*, *A. prominens*, and *A. pruinosa*, the two former being better known in cultivation. The mimosa-like foliage of the last-mentioned is seen in the plate, "Scene on Ourimbah Creek" (right-hand bottom corner). Palms of two species grace the scene, and fine ferns in variety flourish, clumps of stag-horn and bird-nest ferns on trees lending tropical significance. In some of the open patches are brakes of wild raspberries, displaying at the same time crops of white flowers and ripe, red fruit; upon the latter, *Zosterops*, red-coated "Blood" Honey-eaters, Cat-Birds, Regent-Birds, &c., feed. The numerous gullies that run into the ranges

are interesting, being the home of Lyre-Birds, Ground-Thrushes (*Geocichla*), &c. As at the camp below, so at "Palm Grove" the calm, crisp mornings are ushered in with a perfect babel of sweet bird-voices, the singing being incessant for about two hours after dawn. There are warblings of *Zosterops* and Fantails (three kinds); trills of Blue Wrens; the sweet songs of Thickheads —the Rufous and the Yellow-breasted; the louder but dulcet music of Butcher-Birds and the "harmonic" notes of Shrike-Thrushes, punctuated with cracks of the Coachwhip-Bird. Notes of Honey-eaters can be detected—the merry Yellow-eared (Lewin) and the equally merry Yellow-faced (*chrysops*), besides many other bird-calls, while a Wonga-Wonga Pigeon keeps up its high-pitched, continuous "Coo, coo, coo" from a distance.

The Ourimbah Ranges are famous for their tall timber. Turpentine-trees and eucalypts vie with each other in straightness and height, often for 200 feet, frequently more. Should there be a lofty hollow limb or spout, there is where the Roller or Dollar-Bird deposits its pearly set of eggs. These birds are noisy about twilight, preying on flying insects. The ranges have supplied piles for many places in the Commonwealth, and prime poles for telegraph lines may be had for the cutting. To see these ranges, and the difficulties to contend with, one cannot help admiring the endurance and resourcefulness of the plucky timber-getters. Every log won from these mountain fastnesses is at the risk of human life and limb.

Among the many interesting excursions hereabouts is one to what is locally known as the "Waterfalls," where faces of sandstone have been used as grindstones by defunct aborigines, who have left numerous grooves and furrows on the rocks in sharpening their primitive tools. A thin sheet of water flowing over the rocks facilitated the process.

You make southward out of the Ourimbah valley near Jaques', up a long spur of gradual ascent, where the forest is more open, and pretty sylvan glimpses are obtained: now and again is a more extensive view of "far folded hills," modelled in smoky haze, each receding form more thickly veiled till the distant blends with the cloud-line.

A family of Rock-Warblers (*Origma*) is observed, and white flannel-flowers are seen in acres throughout the forest avenues. When the summit of the ridge is gained different vegetation (and consequently birds) is noted—shorter timber and scrub: banksias, hakeas, and acacias—of the last notably *linearis*, *myrtifolia*, and *suaveolens*, all in ripe seed. A soak on the summit is rank with reeds and rushes, giant mountain moss (*Lycopodium*), &c., and is the home of several pairs of Emu-Wrens. A creek runs through the soak and over the aboriginal-scored rocks before mentioned, and descends into a snug and picturesque valley below. On top is an ideal place to boil the billy for a mid-day meal and revel in the surrounding scenery: or the party may descend into another gully-head near, where the gathered waters of a stream leap down

a hundred feet or more, and with their spray water four or five acres of ferns, chiefly handsome todeas. This desirable picnic spot is also easily approached by a detour from the Ourimbah Creek road instead of laboriously climbing over the hills.

Still at the edge of the soak, and looking southward across the saddles of forested hills, in fancy could be descried those hills about the Mooni valley where the pastoral poet, Henry Kendall, was reared and wrote the verses "From Mooni," one of which reads :—

"Yea, for him by Mooni's marge
Sings the yellow-haired September,
With the face the gods remember
When the ridge is burnt to ember
And the dumb sea chains the barge!
When the mount like molten brass is,
Down beneath fern-feathered passes
Noonday dew in cool green grasses
Gleams on him by Mooni's marge."

This verse is applicable to Ourimbah also, even to the ridge being "burnt to ember." From our quarters at night could be seen the illuminations of forest fires high up on the ridge.

The Mooni valley also inspired Kendall's verses. "Bell-Birds."

"The silver-voiced Bell-Birds, the darlings of day-time."

were likewise heard on the Ourimbah near the lower (No. 1) camp.

During the ten days' stay in the Ourimbah valley between 60 and 70 species of birds were recorded, of which may be mentioned :—Sanguineous Honey-eater (*Myzomela sanguineolenta*), Friar-Bird (*Philemon corniculatus*), Caterpillar-eater (*Edoliisoma tenuirostre*), Rufous Fantail (*Rhipidura rufifrons*), Brown Fly-eater (*Pseudogerygone fusca*), Cat-Bird (*Ælurœdus viridis*), Regent-Bird (*Sericulus melinus*), Spectacled Flycatcher (*Piezorhynchus gouldi*), Lyre-Bird (*Menura superba*), Wonga Pigeon (*Leucosarcia picata*), Little Green-Pigeon (*Chalcophaps chrysochlora*), Dollar-Bird (*Eurystomus australis*), Emu-Wren (*Stipiturus malachurus*), Variegated Wren (*Malurus lamberti*), Rock-Warbler (*Origma rubricata*), Yellow-throated Scrub-Wren (*Sericornis citreogularis*).

It was expected that more Pigeons would be seen. Wongas were reported plentiful up to 6 or 7 years ago, when they sometimes frequented the selections and fed with the poultry. Their disappearance is, of course, attributed to the gun. Another fine bird, the Topknot-Pigeon (*Lopholäemus antarcticus*) has gone down before the pot-hunter. What a pity the New South Wales game authorities did not enforce their laws before it was too late! Now they have gone to opposite extremes, refusing an application from the president of the R.A.O.U. to procure a few bird-skins for a State museum!

Regarding the Topknot-Pigeon, at one time abundant on the Ourimbah Ranges, Mr. G. H. Jaques, a pioneer selector, states :—

"When I came to the Ourimbah, in 1882, and up to about 10 years ago, Topknot-Pigeons (or Flock-Pigeons, as we call them

locally) flew by hundreds (anything from 500 to 1,000) in a flock, flock following flock about every few minutes for two hours (8 to 10, about) in the morning, the birds always making down the valley—*i.e.*, easterly.

"I never noticed them going up, for the reason, probably, that they took another valley or made back across the hills. During their passage down the valley they frequently crowded on one of the taller trees. Another flock following would alight too on the same tree, often causing boughs to break off with the unwonted weight of birds.

"Every four hours the Pigeons left the tall timber to feed in the lower trees or scrub on the berries or fruit (usually ripe during winter months) of the black pine, teak, lilly-pilly, bangalow and cabbage palms, &c., taking their food mostly on the wing when fluttering about the fruit. When these fruits are cropped the Pigeons depart for fresh fields. In late seasons they would remain to nest among the tall trees on the ridges.

"These Pigeons have a curious method of 'roosting' on the mountains or hills, not perching like most Pigeons, but reclining on outstretched wings upon the thickly-foliaged or matted tree-tops, such as *Banksia*, scrub-apple, &c.

"Few birds are seen now. Some of the settlers used to shoot great numbers and pickle them in casks. Sometimes seven to eleven birds came down at a single shot. The flesh is very dark in colour, nevertheless sweet and nutritious."

Eleventh Annual Report of the Royal Australasian Ornithologists' Union.

Ladies and Gentlemen,—Your Council have much pleasure in presenting to you the eleventh annual report of the proceedings of the Royal Australasian Ornithologists' Union for the past year. It is a matter for congratulation that the business of the Union is expanding. This expansion has necessitated monthly meetings of the Council, to enable them to cope with the extra volume of work. The members composing the Council have taken great interest in the Union's affairs, and have regularly attended the monthly meetings. The membership roll of the Union has increased considerably, whilst the list of resignations of members, when compared with the increase, is small. The addition to the number of members of the Council and the election of local State secretaries has had a beneficial influence, and has resulted in an increased interest being evinced in the aims and objects for which the Union was founded. The issue of a Royal charter to the Society is regarded as an important event.

Since last annual meeting the Council have been concerned particularly with the issue of *The Emu* journal, and have changed the style of some of the type, with satisfactory results. It was also resolved to increase the issue of each part of *The Emu* to 500 copies.

The setting aside of reservations and sanctuaries for birds has

also engaged their attention, with the result that numerous additions have been made to the list of areas set aside in the different States for the protection of our bird-life. It is satisfactory to know that one of the main breeding habitats of Pelicans, as well as the haunts of several species of sea-birds, have been now reserved.

Encouraged by the Council and others, certain members of the R.A.O.U. have added further successes to the efforts of the Union by research work and in the investigation of Australasian avifauna.

During the year our knowledge has been increased by several additions to the list of birds new to science, whilst members of the Union have enriched us by the publication of several works dealing with the classification and the nidification of birds frequenting the Commonwealth. These works have been exceedingly useful to students, and have supplied a long-felt want.

The Council have been especially active with regard to the traffic in birds, their eggs and plumes, and bird-lovers owe a deep debt of gratitude to the Hon. F. Tudor, Minister of Trade and Customs, and Mr. N. Lockyer, Comptroller-General of Trade and Customs, for the whole-hearted manner in which they have responded to the wishes of members of the Union by prohibiting by proclamation the importation and exportation of many species of birds and their plumage, as advocated in a deputation by the Council. The Minister of Trade and Customs of the Commonwealth was fortified in his commendable action in issuing the proclamations by the action of the Council of the Chamber of Commerce, which body, convinced by the report of one of the members of the Union, decided that the trade in birds' plumage was a pernicious one, since the value of a live bird was infinitely greater to the community than would be the profit accruing from the sale of their feathers. This broad-minded interpretation by the Chamber of Commerce, and their conception of the value of our birds to the Commonwealth, is profoundly gratifying.

Our unqualified thanks are again due to the Hon. F. Tudor for prohibiting the importation of ferrets and weasels, which some persons desired to liberate in large numbers to check the rabbit pest. Members of the Union in New Zealand reported that these creatures when liberated there first destroyed birds and their eggs before they attempted to attack rabbits

The Check-list Committee have been busily engaged in preparing a report, and it is confidently hoped that a progress report regarding this much-needed work of reference will be submitted to you during this session.

In the interests of working ornithologists, Bulletins to *The Emu* have been issued to safeguard the results of their researches and guarantee to them the right of priority.

The Council would be grateful to any of the members who would give them definite and detailed proof regarding the alleged wholesale poisoning of our native birds, either designedly or by

accident, so that steps can be taken to remedy this condition of affairs.

During the year the Council sustained three regrettable losses from their ranks—firstly, by the resignation of the hon. secretary through ill-health; secondly, by the resignation of the acting hon secretary, due to pressure of business; and thirdly, the hon. treasurer on account of a similar cause. The Council were, however, fortunate in being able on each occasion to fill the vacancy.

The Emu still maintains, and even surpasses, its high standard of literary, scientific, and artistic excellence. One coloured plate of a new and unfigured bird has been given to members, as well as a special part of *The Emu*. Further donations to the Coloured Figure Fund would be welcome

The Department of External Affairs, which exercises control over British Papua, has displayed considerable vigilance in the prevention of the destruction of Birds-of-Paradise, and has informed the Council from time to time of its actions regarding the preservation of the wild birds of British New Guinea. Under the existing law of the territory special permits may be issued to the duly accredited agents of any scientific society or institution to collect or destroy Birds-of-Paradise for scientific purposes. Representations were made to the Department that all the species of Birds-of-Paradise known to inhabit Papua have already been studied, so no specimens were now necessary for scientific purposes, and the reason for the special permits disappears. The Council of the Union was of opinion that permits might still be issued under stringent conditions, and for *personal* use only of *bona-fide* collectors for scientific institutions, and not for the use of agents, black or white, far and near, of such collectors.

The thanks of the Union are again due to Dr. Charles Ryan for the gratuitous use of his rooms for the meetings of the Council, and to the Zoological and Acclimatization Society of Victoria for shelving the library of the Union.

A. H. E. Mattingley,
Acting Hon. Secretary.

Progress Report of the Check-list Committee of the R.A.O.U. regarding an Australian List of Birds.

At the Hobart session (1903) a committee was appointed to deal with a Check-list of Australian birds, Mr. Robert Hall, convener. At the Adelaide session (1908) the committee, which had practically done nothing (for the reason that the time for issuing such a list was not ripe) was remodelled, with Mr. A. J. Campbell as convener. It now stands:—Colonel W. V. Legge (Tasmania), Mr. Basset Hull (New South Wales), Mr. A. J. Campbell (Victoria), Mr. J. W. Mellor (South Australia), Mr. A. W. Milligan (Western Australia), Mr. Robt. Hall (Queensland), and Mr. Gregory M. Mathews (England).

The convener made a commencement by taking as a working basis the list of Australian birds compiled by Mr. Mathews and

PLATE XV.

Gilbert Memorial Tablet, St. James' Church, Sydney.

FROM A PHOTO. BY O. ROSENHAIN.

published as a supplement to *The Emu*, vol. vii. (January, 1908), this list being founded on the British Museum "Catalogue of Birds" and the "List of Vernacular Names for Australian Birds" adopted by the Australasian Science Association, 1898. These lists were forwarded to members of committee with a covering circular letter.

Messrs. Hall, Legge, and Mellor returned their lists, each making certain suggestions, while Mr. Mathews was good enough to indicate, for the information of the committee, the whole of the alterations he proposed to make, which he considered necessary in accordance with the *strict law of priority*, as laid down in the "International Rules of Zoological Nomenclature."

During the winter months the convener and Mr. Milligan had many meetings in Melbourne, and reduced the lists to doubtful species or species (for the want of references or specimens) not examined.

On the eve of the Sydney Session two more meetings were held, at which Col. Legge and Mr. Mellor conferred, and the number of doubtful species was further reduced.

Finally, the four gentlemen named, with the addition of Mr. Basset Hull, met in committee three days at the Australian Museum, through the courtesy of the Curator, Mr. Robt. Etheridge.

It was resolved that the validity of species only could be attempted with the time allotted for this Session, leaving the nomenclature (including vernaculars) for some future occasion, and so far over 500 species (or kinds) have been agreed upon.

The special thanks of your committee are due to Mr. Etheridge and his staff, who kindly placed a room and the whole of the valuable bird collections of the Australian Museum at the disposal of your Committee for examination.

Thanks are also due to the following persons and institutions for the loan of important material, viz.:—Mr. Robt. Hall (Museum, Hobart), Mr. Bernard Woodward (Museum, Perth), Dr. Hamlyn Harris (Museum, Brisbane), Mr. H. L. White (Belltrees, New South Wales), and Mr. A. G. Campbell (Pomonal, Victoria).

A. J. Campbell (Convener).
Alex. Wm. Milligan.
A. F. Basset Hull.
W. V. Legge.
J. W. Mellor.

Sydney, 31/10/11.

Memorial Service to John Gilbert.

On Tuesday, the 31st October, 1911, the members of the Royal Australasian Ornithologists' Union attended a memorial service at St. James' Church, King-street, and placed a wreath of native flowers on the tablet erected to the memory of Gilbert. This church, one of the oldest in Sydney, bears an inscription to the effect that in the year 1820 it was "opened for public worship by

J. Macquarie, Esq., Governor." The walls inside are covered with inscriptions and mural tablets dedicated to the memory of the early explorers and pioneers of Australia—Bass, Flinders, Wentworth, Blaxland, and many others being amongst the number. The memorial tablet to John Gilbert is surmounted by a small marble relief depicting a figure resting under a palm with a tent in the background. (For inscription see Plate XV.) The wreath was hung by Mr. J. W. Mellor (President), assisted by Mr. A. J. Campbell (ex-President). It was composed of the following Australian flowers :—Waratah, flannel-flower, bottle-brush (red), Christmas bells, hakea, grevillea, callistemon, melaleuca, bridal-bush, leptospermum, orchids, and ferns.

During the service the rector of St. James' (Rev. W. F. Wentworth Sheilds, M.A.) referred to a letter written by Gilbert to Dr. George Bennett stating with what great pleasure he (Gilbert) was looking forward to the expedition. The rector also, in a few eloquent sentences, referred to Gilbert's devotion to ornithological science, and said he was not at all surprised that ornithologists in Session in the city should prompt such a befitting memorial service. At the close of the service the Lord's Prayer was repeated, the rector pronounced the benediction, and all remained standing for a while in silent tribute to the memory of John Gilbert.

Little is known about Gilbert. He was apparently a taxidermist in the employment of Gould, who sent him as collector to Western Australia in 1840. He returned to England with his collection the following year, and shortly again visited Western Australia, and afterwards Northern Australia, where he met his tragic death by the hands of treacherous natives, 28th June, 1845.

An account of this tragic occurrence is furnished in Mr. A. J. Campbell's "Nests and Eggs of Australian Birds," p. 330, under the heading of the "Black-backed Tree Creeper (*Climacteris melanota*)," which bird poor Gilbert procured on the day of his lamented death. Interesting side-lights on Gilbert's personality are also given in Mr. Campbell's book—Introduction, p. x., while the "Records of the Australian Museum, vol. vi., p. 125, have other interesting references to good Gilbert.

[There is a descrepancy about the exact date of Gilbert's death —the tablet shows 29th June, whereas Gould states the 28th June. Reference to Leichhardt's *Journal* (1847), p. 309, shows the latter date to be correct.]

Visit to the Mitchell Library.

The importance of this library for early Australian ornithological works demanded a special visit during the Sydney Session of the R.A.O.U. But it was not till after its close that a few inter-State members, including the President (Mr. J. W. Mellor), and led by Mr. G. J. Broinowski, the veteran author and bird-painter, were kindly received by the librarian in charge (Mr. Wright).

The original drawings, bound in volumes, of the late Sylvester Diggles (Queensland) were greatly admired, some probably being

amongst the best bird pictures ever executed. The more the sorrow that the talented artist was not spared to complete his work. There were also seven other volumes, royal quarto size, fitted into a special case, that interested members much. They were each indexed (name of species in manuscript), and contained manuscript references and field notes, sketches, pencilled and coloured, of birds. These have been, by the authorities of the library, attributed to the great Gould. But they were more likely to be Diggles's proposed work in embryo, especially as under the heading of the Coachwhip-Bird (*Psophodes crepitans*) was a hitherto unfigured, coloured nest and eggs of that bird above the inscription "S. D., Oct. 27, 1863." It is important that the identification of these books be thoroughly established.

Bush-Birds of New Zealand.

By J. C. M'Lean, M.B.O.U., Gisborne, N.Z.

Part III.

Rhipidura flabellifera—Pied Fantail.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 69.

The Pied Fantail, though not often met with away in the main bush, was fairly plentiful on its edges, and in the valleys of the older country was common where an odd tree or patch of scrub gave shelter. Usually a pair appeared and took up its abode in the small clearing around each camp, and remained in the vicinity until the end. In the heavy bush its chief resorts were in the creek bottoms and other open, sunny parts, and there they were very tame, but not inquisitive, generally flying to meet the passer-by and settling close at hand. Following its insect food, which consists of the smaller moths and midges—taken on the wing—the Fantail performs its aerial evolutions, on sunny days, high above the tree-tops, pausing in its erratic flight to settle and sing its squeaky, twittered song from some outstanding twig; but on damp and duller days it finds its food much lower down, and—almost a silent bird—hunts within a few feet of the ground, often amid the ferns themselves.

Fantails pair for life, and with this species quarrels, so common in the spring among some other birds, are practically unknown. Each pair keeps more or less about its own particular locality; they are much attached to each other, and, individually, to their home. Though not sociably inclined towards others of their species, the two do not resent the intrusion of others of their kind, and it is not unusual to see more than one pair busy about the same tree. They have been observed, however, with persistent sallies, to frighten the Pied Tit from their home. The song is much more noticeable in the spring, and at nesting-time the birds become quite noisy in their little way. Long after dusk the plaintive

"Tweet" of this bird has been heard in the bush, as if it had lost its mate in the darkness.

With regard to their tameness, they are by no means shy. It is interesting to note a Fantail fly towards the passer-by; but one suspects some cupboard love on many occasions, for often a tiny moth is started into flight by one's brushing against the ferns or branches in travelling through the bush, and the bird is quick to see and take advantage. It has been seen elsewhere to sail out and accompany a horseman for some distance along the muddy road. There the bird would skim from side to side, snapping up the disturbed midges from almost under the horse's nose. These insects, safe in the puddled hoof-marks, could only have been obtained by the help of some such agency. The bird knew it well, for this performance was noted on many different days.

In the lower country the Fantail is one of the first to build, and eggs may be found in the middle of September; but here, at this higher altitude, it did not appear to nest so early. Several nests, which the birds were building, were noted towards the end of September in each year, and it was noticeable that in the heavy bush the nests were always much higher up than in the open country. One in particular, which was being finished off on 29th September, was about 40 feet up on the branch of a tall tawhera; another was being built on the same date 20 feet from the ground amid the branches of a tawa. On 27th September in the following year, while passing across one of the small flats on the Urukokomoko stream, far in the heavy bush, "a Fantail was noticed at work on something other than food, low about the base of a large tree—something out of the common on a sunny day like this. Away it went direct to a sapling tawhera, which, with others of its species, grew in an open glade over a wet spot covered with ferns and moss, and disappeared in its leafy top. At the same moment another flew out of the tree, and examination showed the nest 12 or 15 feet up, on one of the small branches, amid the mass of dark green leaves. Both birds were busy constructing with web and moss the nest, shuffling inside, and using beak and wings to smooth the outside of the wall. The material was collected within two chains of the site, from near the ground. While one bird built the other gathered stuff, plucking particles here and there from the butts of the trees, and, when its beak was full, going off in direct flight low down and mounting up the branches of the sapling to the nest. Immediately on the arrival of one bird its mate quitted the nest and went in search of more material. Only once did one pause in its gathering to catch an insect or two and sing its song—a squeaky 'Te-wa,' repeated eight or ten times in quick succession."

That the Pied Fantail is quick to adapt itself to circumstances, and by so doing is likely to survive, is shown by its nesting amid the altered conditions presented in the country swept by fire the preceding summer. The bush had vanished, and not a green leaf or twig remained. The sward of grass was thin, and now fed

PLATE XVI.

Nest and Eggs of Pied Fantail (*Rhipidura flabellifera*) in dead tawa branchlet.

FROM A PHOTO BY J. C. M'LEAN

sheep among the blackened stumps and logs. Far from the forest or any living tree, where large charred trunks formed slippery bridges across the gully, a tawa lay amid the wreckage, with a small part of its top, where it overhung the water, still unconsumed. Under the slight shelter afforded by the few dead, though persistent, leaves, a pair of Fantails built a splendid nest (Plate XVI.) Of course, there was a reason for this site being chosen. Small insects—moths and midges—abound in the gullies of the new burns, and the logs and stumps are netted with small spiders' webs. Innumerable small grasshoppers, too, cause much damage to the young grass. It is wonderful how all this insect life appears in such a brief period. But it is scant compensation for most of the bush-birds: and the Tit, the Warbler, and the Fantail are the only ones to take advantage of it. The birds were observed building this nest on 28th September, 1907: there were two eggs at 9 a.m. on 1st October: and on the 8th, when it was photographed, the bird was sitting on the three eggs. It was placed about 4 feet from the water, and was in itself quite typical.

Our Fantail is a charming little bird, and endears itself to all by its gentle nature. In the autumn it sometimes frequents the verandahs in quest of small flies and moths, and even ventures through the open windows in its search, to sail about the rooms. In the open, scrubby country, especially in the damper parts, it is very common—much more so than in the bush. Pairs may frequently be seen in the gardens and shrubberies, even in the suburbs of the towns, where they are often resident, and, if unmolested, rear their young.

Clitonyx albicapilla—WHITEHEAD

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 53.

On the north-eastern side the Whitehead was apparently the commonest species to be seen: but, owing, no doubt, to the absence of any extent of the lighter tawhera and manuka bush, I found it in the following year to be less numerous on the southern part. The late Sir Walter Buller's account (see above reference) led me to suppose that there would be, at this later day, little chance of meeting with this fast-disappearing species on the mainland. In another part of this district I had known it well, where, in the Wharekopae River valley, it was not uncommon about 1888, among the lighter timber and tall manuka: but, notwithstanding that the timber had been little interfered with, the Whitehead had in 1900 almost disappeared. Thus I was agreeably surprised when, in 1906, I renewed my acquaintance with this, the most obtrusive of our bush-birds. In March they may be found working through all classes of bush, in flocks varying from 8 or 10 individuals up to as many as 70 or more. They remain gregarious throughout the winter, the flocks increasing in size as the season advances. In spring they break up, the pairs drawing off and showing preference then for the lighter-timbered bush. Hardly a day passed without seeing something of them in one part or another, and it

was not unusual to meet with three or four flocks during the day. Their food consists of the smaller insects and their larvæ, but occasionally the seeds of certain trees are eaten. With chattering call, the members of the flock move slowly through the tops of the smaller trees in a loose, straggling body, and in a more or less definite direction, assuming all possible positions while examining every nook and crevice in the bark and leaves, sometimes poised in the air, examining the tips of the leaves; at other times clinging, with tail pressed tightly against the supporting trunk, and tearing off chunks of moss and lichen with their strong beaks, in search of the hidden insects. The tail feathers, which become in time much worn, are inbent, and the stiff shafts project slightly beyond the vanes. These, together with the muscular legs, are well adapted to the bird's mode of climbing about the trunks and branches in its systematic hunting. When feeding on the seeds of the tawari (*Ixerba brexioides*), which was plentiful on the ridges, it was interesting to see the birds hanging below the bunches of pods, which are borne at the tips of the branches Elsewhere I have seen them mingled with a flock of Blight-Birds (*Zosterops cærulescens*), feeding in the same manner from the pods of the tawhiwhi (*Pittosporum tenuifolium*) and karo (*P. crassifolium*). Over these trees ran many vines (*Muehlenbeckia adpressa*), whose clusters of fleshy seed-envelopes were the attraction for the Blight-Birds, but not for the Whiteheads.

As I have stated, Parrakeets are fond of attaching themselves to the winter flocks; but they do not actually mix with them, keeping rather higher in the trees. Blight-Birds and Warblers, however, occasionally do so, and the Fantail often plays among the busy Whiteheads. One can understand the Fantail's presence, for it is sure to meet with many disturbed moths and other winged insects; but the Parrakeet probably gains no more than social pleasure. The Warbler is not often seen, and I fancy its interest in the flock is aroused rather by the calling of the birds, for it is an excitable little bird; while the Blight-Birds, who as a rule bring up the rear, can hardly expect to find much remaining after the careful investigation made by the Whiteheads. When camped on the birch ridge there was noticeable, on fine mornings, about an hour after sunrise, a general movement, right past our camp, of all the species mentioned above. It was always from west to east along the ridge, and in bad weather might take place later. Towards evening the birds were sometimes noticed returning, but now more scattered down the sides of the ridge, evidently making back to a sheltered basin about half a mile along the ridge to the west of our camp, where, no doubt, many of the birds spent the night. In the morning the Whiteheads always led, sometimes with Parrakeets above them, while the other birds came along in straggling order. No doubt the Warblers and Fantails did not go far, but simply joined in for a short distance near their usual haunts, while the Blight-Birds sometimes remained to fossick round the camp for a while.

The Whitehead is very inquisitive, also very noisy; and the male especially seems ever on the look-out for an opportunity to draw a crowd and create a disturbance. The whine of a Tui or passing of a Pigeon is quite sufficient to upset them, and even when feeding they continually call to each other with sharp notes, as if expecting to meet with something strange at every step. The Shining Cuckoo (*Chalcococcyx lucidus*) is, of course, disliked by all the smaller birds, and instantly takes flight when met by the Whiteheads; but the unfortunate Owl, or Morepork, their special enemy, was forced to remain and endure much from the noisy flock and those small birds, such as Warblers and Fantails, who were within hearing of the summons, until he managed to reach some darker part. It was rarely that the Tit took a hand, while the Tui and the Bell-Bird never ventured close, but flashed through the neighbouring trees and added their alarm notes to the din.

In the presence of man the Whiteheads exhibit much curiosity, and the discovery is at once announced by a sharp "Chirrt" from the nearest bird. This note is immediately taken up by all the members of the flock, who quickly assemble in the tree-tops overhead, and with many harsh, spluttered notes hop lower and nearer through the branches. There, with lowered wings and widespread tails, they closely scrutinize and scold until one or two of the more inquisitive have, by a close approach, satisfied themselves Then the noise gradually subsides, and the flock moves on, their notes at last being lost in the bush; but an imitation of the harsh alarm note when a flock is thus at hand sets every bird in a rage, when all their actions are much intensified, and then the smaller birds assemble. The turning over of a leaf of a pocket-book is sufficient to increase the volume of sound, and any movement makes it louder. This may be kept up until the experimenter tires, and, keeping quiet, allows the noisy mob to retire.

Had it not been for the timber-felling, which, by disturbing the Owls, helped indirectly towards all this, less, no doubt, would have been heard of the Whitehead.

The Whitehead is just as likely to come across a wide-awake Bush-Hawk resting amid the trees as he is to discover a blinking Morepork driven from its dark retreat by the falling trees, and I cannot say whether he distinguishes between the two; but, judging by the way he incites the flock to mob the Owl, it may be assumed that he would hardly pass without showering some abuse upon the Falcon. Although it was never my luck to witness such a meeting, I have seen a Bush-Hawk plucking a Whitehead on the ground where, ten minutes previously, the flock had given me a rally, and proof was not wanting in the little patches of feathers occasionally noticed in the bush, that they sometimes get in the Falcon's way.

The call is a short "Cheet," sometimes "Ter-cheet," of inquiring tone, and is heard continually from the flock The alarm

is a harsh and louder "Chirrt," somewhat varied; and when the birds are much excited a very rapidly repeated "Che-che-che-che" is used. At such a time the male also sounds a whistled, hissing "Swerre." The female has a harsh, chattering call peculiar to the nesting season, best expressed as "'Tche-'tche ch-ch-ch-ch"; but the "trill" (p. 77, No. 2), only heard from the male in the pairing and nesting season, is a pleasant one of six rapid notes, not unlike the tinkling of several small bells. It is clearly but not loudly sounded, and often the last high note is not heard. It is repeated at intervals of about a minute from the top of some small tree or shrub; but many soft piping notes are used between, and they, with the trill, constitute the song. In 1906 I first heard this trill on 26th July, but it did not become general till some weeks later. I find the following note under 10th July, 1907:—"Saw many Whiteheads on the ridge, and heard one attempt the trill several times, but it was far from perfect. This is earlier than last year." Again, on 15th July, 1907:—"On the highest part of this ridge (3,000 feet), when other birds sought shelter lower down, a scattered party of 40 or 50 Whiteheads, with little or no concern for the falling snow, pursued their eager search for food in the exposed birch trees. With numerous different chattering calls, and some attempts at song, they fed in all positions they could assume, and evinced some slight interest in my presence by now and then peering through the leaves of the smaller vegetation. I failed to detect, among their many calls, the one which moved the flock, but I imitated, by whistling, one note, "Swerre," causing great excitement. (A Tui whined away down the face, and odd Bell-Birds came skulking near in the under-scrub.) All the flock seemed to answer, and many came nearer, hopping about close at hand and uttering angry cries. I repeated the note several times in quick succession, and at once the noise increased, the combined notes becoming quite a wailing chorus. Then it died away, as the birds resumed their quest, and above, in the birch-tops, there rang out a trill—clear and in its perfect form."

Towards the end of July I had noticed some commotion among odd Whiteheads, who were behaving much as the House-Sparrow does in spring, and often three or four, chattering loudly, would dash suddenly past me through the scrub, and be lost before I could see the cause. But one day I saw it all. I was in the tawhera country (26th July, 1906), and was verifying the trill of a single bird, when two others came chasing one another through the tops. The single bird joined in, forcing a halt, and for some minutes much fluttering and display were made by the two before an apparently distracted female, who, at length, took advantage of a short quarrel between the two importunate suitors to escape into the low vegetation on the ground at my feet; and, although they called loudly and hunted all about the neighbourhood, she never re-appeared.

Away down in the valley of tawhera and manuka, I chanced

one day (6th September, 1906) on a part where a flock of some 20 Whiteheads was busy, more or less, in love-making. The scrub was not so dense just here, and in places the sun reached in to lower limbs and to the leaf-strewn ground. I spent a little while enjoying the picture presented by the birds, and in this sheltered spot they were so intent upon their courting as to be quite indifferent to my presence. What an opportunity for a camera! Brilliant sun shining on the little groups of three—two males displaying before a female—gambolling on a single branch, low down and close to hand, their plumage perfect, and their snowy heads in contrast with the jet-black bills. At one time three such little groups were in full view, and no doubt others were in the vicinity, while overhead odd males, with clear tinkled trill, displayed their vocal powers in the tops of the adjacent trees. Lower down no singing was indulged in, but the remaining suitors used many twittering notes while paying their addresses to willing females, and all was peaceful as compared with the noisy exhibitions of some weeks ago. On a sunlit branch some 5 or 6 feet from the ground sits an attentive female; on each side, a few inches off, is an admiring male. With drooped and quivering wings and widespread, fan-like tail, each male slowly advances towards the interested female in the centre, and, with many bows and courtesies and elevation of the tail, does his best to charm and win the day. Now one receives some slight encouragement, and hops back along the branch in the hope that she may side with him. But no; his rival, now left closer to the female, demands a share, and he returns with twist and turn and many twittering notes to try again. The puzzled female cannot choose between them; first to one and then to the other she turns, only to be called round again. At length she moves forward as if to accompany one, and off he goes once more; but his rival, by gentle touch of wing behind, stays the female's departure, and with many bows reminds her that he, too, is in the field. This is too much for our friend, who sees his rival, now the admired, moving off, and the female inclined to follow. Not to be outdone, he watches his opportunity, and, with a short flight, drops down between the two and bars her way. Now there are two on the same side of the female; but there is no vice shown, and to overcome the difficulty the rival—the outside male—skips lightly over the two to the other side. All are now in their original positions, to repeat the performance; and so it goes on. There is never any crowding or jostling, and the approach of the displaying bird is seldom within 4 or 5 inches of the female. On neighbouring branches the same scene could be observed with other sets of three, and never was a party interfered with by a fourth bird. And so the gambol goes on, with many displays of wing and tail, until the more fortunate flies away with his bride, leaving the disappointed one to seek another among the flock. Thus was the courtship of the Whitehead, as viewed that day. Others similar had been noticed previously, but this was the last

I saw. The little flocks were breaking up and pairing off to select their summer homes and rear their young.

In October the birds became scattered in pairs about the lighter bush; but, as this country was now almost all felled, they retired with other species to nest in the standing timber. This I had little time to explore, and it was difficult to reach across the felling. However, in one of the last-felled patches of scrub a pair managed to complete their nest, but the tree went down before any eggs were laid. The nest, when first found, was almost completed, and my attention was drawn to it by the male, who was much agitated and scolded me from the branches near in great style; but the female was not quite so demonstrative. On looking about, I discovered the nest about 7 feet up, held in position against the trunk by a couple of those upright branchlets so characteristic of the small honeysuckle-tree (*Knightia excelsa*), in which it was placed. The birds were too concerned in my presence to do any work; but next day (28th September), when I examined the nest, I found it ready for the eggs. It was never measured, but was slightly smaller than that of the Robin, and much more neatly made, being composed of fine rootlets and moss closely packed together, with the top and sides well smoothed off, especially about the top and rim, while the deep cavity was beautifully lined with small feathers of different birds. The male sang near while the nest was being constructed, for I had noticed him on different days before I found it, trilling near by in the taller honeysuckles, which just topped the surrounding dense scrub of nei-nei and tawhera. It was my impression that the whole summer song of this bird was contained in the half-dozen notes of the trill, until on one occasion I listened to this male within a few feet of him, and was much surprised to find that quite a number of other notes helped, with the trill, to make the Whitehead's song. He was somewhat restless, and fidgeted about and flew close past me once or twice as though suspicious of my intentions. Then, on top of a dead twig, he sang the trill several times very clearly; but between each he whistled and piped so low and soft that he was only just audible, even at the short distance. Thus, at times, he seemed to almost lose his voice; but these husky notes—"Kee kee kee, tweet tweet tweet, te-te-te-te twee"—always ended with the clear musical trill. Odd pairs were sometimes seen on the burnt country in spring, and it is just possible they may nest in the second-growth when near the main bush

Since the above was written, I have come across the Whitehead in several other widely-separated parts of the district, but never have I seen so much of it as I did in the Maunga-Haumia country.

Anthornis melanura—BELL-BIRD.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 85.

The Bell-Bird was not uncommon each year. Possibly in the heavy bush of the northern side it was a little more numerous

than in that to the south, where, however, a fair number was to be seen about the scrub and second-growth outside. Usually in pairs, it showed in winter some preference for the tawa country, but was also to be met with in the lighter tawhera at that season. Though rarely seen upon the birch ridges, one of a pair which had its quarters there treated our camp at daybreak for many weeks to its merry morning chimes. But it was not until the spring that they became more generally dispersed, when they sought the flowering trees in many parts. Some of the patches of tawa were in midwinter a favourite resort, and the broken peals from the half-dozen pairs which generally affected these places could be heard at intervals throughout the day. There they found, besides a supply of insect food, two species of slender rata vine (*Metrosideros*)—one white, the other reddish-flowered—which climbed aloft against the tawa trunks, and, flowering amid the higher branches, provided a supply of nectar at that season. In such spots they lingered long: and it was with feelings of regret that one listened to the axes ringing in those stately groves, while overhead the Bell-Birds, quite oblivious of their fate, continued with many peals, until perhaps only a tree or two remained unfelled. On the southern side, besides affecting the tawa patches and scrubby parts, a fair number of pairs wintered in the second-growth, where, like the Tui, they sang amid the vines, picking their clustering fruit, and showing an especial liking for the many-seeded berries of the poroporo—a plant which only flourished to perfection there. In spring they were to be seen about the lighter tawhera country, where many birds, their metallic plumage flashing purple in some lights, darted about the trees, and fed upon the nei-nei, then in flower. But wherever the fuchsia flowered, in the damper tawa gullies and in the second-growth, the bird was to be heard and seen throughout the season.

To the writer it appeared a somewhat timid bird, and had a skulking style when feeding in the scrub. Although one was never seen to be captured, it lives in constant dread of the Bush-Hawk, and was often seen, after the manner of the introduced Blackbird (*Turdus merula*), dashing round the trees in its haste to reach some more leafy shelter-tree. But its manners improved when, in the spring, it visited the many flowering trees, being then in better song, and knowingly allowed a closer view. As pairs they keep much nearer to each other than the Tuis do, and are also more active when foraging in the trees. When searching for insects it moves more quickly, and when after nectar has not the easy grace of the latter bird. Nor does it dwell so long at each blossom, but sips from each in rapid style, climbing about the branches and clinging in many pretty poises among the flowers, while its wings sound sharply as it flies from branch to branch in eager activeness.

In the spring some vice is shown, and it has been seen to fly at an inoffensive Pigeon resting in the tree in which the Bell-Bird fed; and in the nei-nei scrub one day a Shining Cuckoo could

find no quiet spot in which to stay, for no sooner had it shifted to avoid an angry Bell-Bird than it was compelled to quit the next bare limb on which it alighted by another vigorous onset by a different bird. They also fought among themselves, and one would now and then be seen beating a hasty retreat from the domain of a pursuing bird. On one occasion (5th October, 1906) two birds almost flew into me, actually touching my hand in their blind fury. They fell and fought on the ground at my feet, the one who shortly gained the advantage pulling and tearing at his victim in the most savage manner. There was much squeaking, and in the tussle, which lasted some seconds, they fell behind a small log. Then the victor left his much-battered foe to crawl away, while he, with strong direct flight, returned to his patch of tawhera some 40 yards distant The wounded bird was so damaged that it could not fly, but it escaped me by crawling away into the felled timber.

The alarm note is a rapidly repeated scolding "Tink-tink-tink," heard in the scrub on several occasions When the bird is much alarmed it is difficult to approach, as I found before finally being able to verify the author of this peculiar note.

Like its relation, the Tui, the Bell-Bird possesses a variety of notes, chiefly broken peals of five to eight notes Some resemble those of the former bird, and are attributed by many people to the Tui Few persons distinguish between the music of the two species, and it was found somewhat hard to convince even the bushmen here of the Bell-Bird's presence. In greenish garb, it is not conspicuous, neither is it obtrusive; so that it is not unlikely that the general observer may overlook *Anthornis* in the New Zealand bush.

In the writer's opinion, its notes can hardly compare with the richer and more varied rollicking tones of a Tui. While those of the latter are mostly in a major key, the Bell-Bird's are usually in a minor one; and the single, oft-reiterated "Poeing" (see No. 6, page 77) soon becomes monotonous. Perhaps when great numbers are singing independently at one time, and joined with the notes of other species, there may be heard that captivating music of which observers write: but it has never been the writer's good fortune to listen to such a chorus. Far sweeter music has been heard, at daybreak, in other bush, from the combined notes of Tui, Robin, and Blight-Bird than was ever audible from the Bell-Birds here. Its most characteristic set of notes is the short chime shown on page 77 (No. 3)—notes quite distinguishable from any of those of the Tui, and possibly more frequently uttered, at all seasons, than any other. To one acquainted with this chime there should be little difficulty, from its frequent repetition, in determining the presence of the Bell-Bird in the vicinity. It was to be heard all day at varying intervals in many parts, but more particularly in the winter months. In the spring, however, another chime which sounds like No. 4, became quite as general, but is so often varied and broken by other notes as to hardly make it

definite. Frequently the highest note of the three takes the place of the slurred notes, and it sounds like No. 5. But there are many settings of all these notes, often in a slightly higher or lower key, and it is impossible to give them: but whatever set of notes is sounded, they generally conclude with either the two last—sometimes the three last—notes of the chime (No. 3). No. 7 was a set heard on 5th April, 1906. The single note, "Poeing," already remarked, is represented in No. 6. It is quite a common one on dull days, and is called for some considerable time, at intervals of a few seconds, from some higher tree, and has little to recommend it. However, on finer days in spring, many charming notes are to be heard at intervals from these birds, somewhat startling, perhaps, when heard at close quarters—for they are all more or less *staccato*—but varied in volume as the bird directs its head in different directions. Like the Tui, also, they indulge in many sucking or sobbing, wheezing and coughing notes, but, unlike that bird, sound them only in a low, subdued voice, so that they are only audible at close quarters.

On 5th April "a female Bell-Bird flew into the branches overhead, and, after hopping suspiciously about in front of me, settled down within 14 feet. Suddenly it launched out into song. With body bent and head advanced it puffed its feathers, and then, with swelling throat, produced the peal mentioned above (No. 7). Now turning and bowing to the right and then to the left, it uttered these clear notes, and finished with a perfect rendering of the sucking, guttural notes of a Tui, but very low, and no doubt inaudible at a greater distance. Then again the peal was sounded, but this time interspersed with the Tui's notes in low variations. At 2 p.m. a Bell-Bird called its double 'Poeing'—a squeaking, metallic whistle—three times inside ten seconds; then, after a minute's pause, it continued, at short, irregular intervals, seven times. Then again, at about five seconds between each call, for twenty-two times."

In the nei-nei scrub a nest was observed on 27th September. I saw a bird carrying material, and so discovered the nest, but I never actually saw the birds at work. On visiting the spot a day or two later it was found that the men had felled the scrub. The nest was placed in the small twigs of a low tawhera growing in a more open part of the scrub, and was only about 6 feet 6 inches from the ground. It resembled a Tui's nest, but was somewhat smaller, and was lined with the fronds of a trailing ground plant called by the bushmen "Creeping Jenny." These were of an orange hue, and gave the nest quite a peculiar appearance.

Though common not so many years ago in certain parts of somewhat lower country in this district, the Bell-Bird has, with the bush of those localities, almost disappeared. Outside the main bush it may still be noted in a few of the scattered areas of scrubby bush which yet remain. But even there it clings to the higher hills of lighter bush and does not, as in the South Island, resort to neighbouring shrubberies and gardens, nor does it visit

the pine-bushes of the valleys in the vicinity. These lighter patches are fast melting into the surrounding grass country, and in a very short time the Bell-Bird, too, will have gone from those parts. However, it has been noted in the main forest of this district in various places, and no doubt will last as long as that remains; but it is a pity that our North Island birds do not (as their South Island friends are stated to have done) learn to move about a little more, and so, like the Tui, adapt themselves to the changing conditions which seem to threaten their existence.

Prosthemadera novæ-zealandiæ—TUI, or PARSON-BIRD.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 94.

It was fully expected that the Tui would be found quite plentiful in this virgin bush of which I write; but it was soon discovered that here, in autumn, winter, and spring, at any rate, it was by no means the common bird that one associates with the New Zealand forest. Not that it was rare, but elsewhere it has often been seen in greater numbers. Neither on the north in 1906, nor on the south in the following year, did it frequent the main bush in any numbers, but was always more plentiful about its outskirts and in the second-growth. In the spring they have been seen in some numbers among the scattered bushes of lower open country, wherever the fuchsia or the kowhai flowers, and there some remain to nest, finding much fruit upon the fuchsia and other trees in summer, and later on a harvest in the autumn for all in the berries of the white pine (*Podocarpus dacrydioides*) and matai (*P. spicata*)—two pines which are rare in the Maunga-Haumia bush. In this bush itself the Tuis fed in winter upon such berries as those of coprosma, supplejack, and five-finger, besides obtaining some insect food; but in spring it was noticed that, though some remained among the birch and in the damper gullies where the fuchsia flowered, many moved out more or less to the edges, to the second-growth, and to the more open country as noted above. It was thought that this was the usual procedure, and that the heavier bush was resorted to chiefly in winter, but not by all. Perhaps there was a scarcity of flowering trees suited to its taste; but the Bell-Bird evidently found sufficient, for it was, in the writer's estimate, quite as strong numerically as the Tui, and even more so in the spring. However, this habit of moving is apparently all to the advantage of the latter bird, for it quite holds its own in the district.

In the lower end of the slip valley, which was almost daily traversed in 1907, the Tui was fairly plentiful. There on the older country much second-growth existed, while odd patches of a few acres of the original bush had been thoughtfully reserved in several parts. Many wintered in the second-growth, where, besides insect food, they fed upon the orange berries of the poro-poro (*Solanum aviculare*) and the fleshy seed-envelopes of the black vine (*Muehlenbeckia adpressa*), besides making periodical visits during the day to the neighbouring bush in search of the

flowers of the climbing ratas (*Metrosideros*) and other fare. The poroporo is hardly ever seen in the main bush, but directly after the fire single plants come up in fair numbers all over the burns, and, growing rapidly, ultimately attain a height of 5 or 6 feet, and, when sheltered by other growth, survive for seven or eight years. The black vine, too, flourishes in such situations, and, no doubt because it there receives more light, bears its clustering flowers and seeds in far greater profusion than it does in the shady forest. In such places the Tui is very tame, and allows a near approach when feeding in the trees and creepers. The same bird often frequented the same little patch for many days—and even weeks—and its set of notes was often quite distinguishable, so that one was able to recognize the different birds by their song alone. On sunny days their notes were heard continuously from these natural shrubberies, and much improved as spring came in. Then the fuchsia—perhaps the commonest tree amid the growth—came into flower, and the birds, now in greater numbers, were busy sipping the nectar, and became much more vivacious. So in September they were more common in these patches of second-growth, and in the lighter scrub, than they were in the bush itself. On 29th September "the Tuis are busy sucking the honey from the flowers of the kotukutuku (fuchsia), which are now in full bloom, and it was interesting to watch the birds, which are always so intent when among their native blossoms. With scarcely any regard for me, and often within a few feet, they moved gracefully about the low branches, sipping here and there from the pendent flowers. Now and then some musical mixed notes were heard, but there was no dominant one. Occasionally one would fly to the highest part of some dead giant near, there to enjoy himself in the sun for a minute or two, and then drop head first—his glossy plumage flashing in the sun—and disappear in the leafy vegetation below. Some five or six birds were in this small one-acre patch, and they and others were passing backwards and forwards all morning between it and the bush-face across the valley."

The majority spent the night in the heavier bush, and it was in passing between the two localities that they were, at times, called upon to exert themselves to escape the Bush-Hawk, which, in early morn and late afternoon, was generally on the look-out for the then high-flying birds. On reaching the vicinity of its roosting-place the Tui does not at once settle down, but spends some time moving from tree to tree about the locality, and singing at intervals its evening song. It has then been observed, on the edge of the bush, flying out and taking insects in mid-air. Thus it seems, in a way, to dawdle somewhat before finally retiring; but, as may be seen from my notes below, although it is one of the last birds to retire, its notes are among those of the first to be heard at the break of day. When the days are fine they perform some evolutions in the air, and are fond of chasing each other through the trees in playful style. Before an approaching

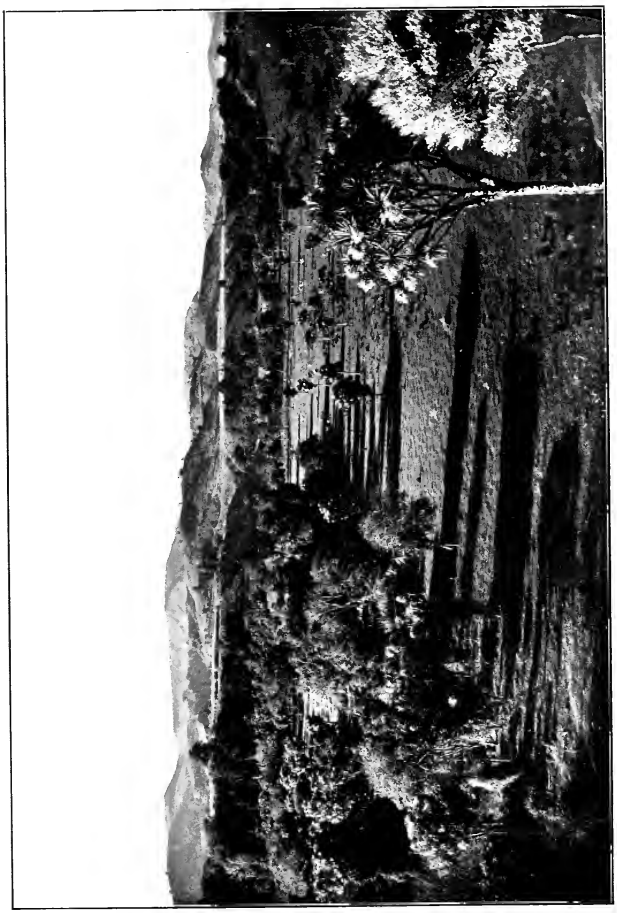
storm they may be seen, in small parties of four or five, preparing to leave the more exposed ridges. Mounting independently of one another, they rise almost vertically against the wind high above the tree-tops, where, in their fluttering, twisting flight, they seem like huge butterflies in the air; then suddenly an impulse seizes them, and off they go, in strong, undulating flight, to the more sheltered parts of the neighbouring valleys.

The petulant whine of this species is very characteristic, and is always heard when the birds are alarmed by the appearance of the Bush-Hawk, or any unusual happening about their haunts.

The Tui is a great songster, and its notes are varied, rich, and pleasing. In spring and summer they are especially melodious; but in autumn, when the birds moult, and in winter they have, naturally, not quite the life of other seasons. Still, on a frosty morning the notes sound sweet and clear and carry far. But there is so much variety in the notes of each individual that the song of the Tui differs in character from that of most birds. Often one remarks the fact that each bird in the vicinity sets the notes (the single notes of music) in varied sequence, in different time, or even in a higher or lower key: so that frequently no two birds about the locality are using a precisely similar strain. But an exception is generally made in the case of one set of notes: and this set, which may be termed the dominant set, is often to be heard in the locality, surpassing in volume and frequency all others. It is not certain whether all the Tuis singing near make use of this dominant set among the many other sounds, but it is believed, from its frequent occurrence, that they do. Then, again, this dominant set varies in different localities; but of this later on. It is to be hoped that all this is clear—although the Tuis in the neighbourhood may each be using somewhat different sets of notes, there is one set which will be found common to them all, and is probably more frequently heard than any other, and hence becomes predominant. It is, of course, impossible to express in adequate form the notes of birds on paper, but some of the Tui's notes lend themselves to musical setting. Among the many chuckled and whistled sounds is one which may be heard pre-eminently in this district, if not throughout the land.* It is a dominant one—a measured, clear "Tol tol tol" (page 77, No. 8), which may be heard at all seasons, but particularly in the spring, and, although used at any time of the day, is generally more in evidence in the morning hours. This note—sometimes introduced by two or three slightly higher ones (as No. 9)—is sounded from three up to eight times in measured succession, and the piece repeated at intervals of a minute or so. Of course, when many birds are using it in the vicinity at the same time this music is almost continuous. Another common set (No. 9) is heard

* From among the many notes used, during the Spring of 1911, by the Tuis of Stewart Island, the writer was unable to pick out any particular setting which could be called dominant; and the music of No. 8 was never heard. In that southerly isle the song is much more varied than it is in the East Coast district, and the notes are, if anything, richer in tone.—J. C. M'L.

PLATE XVII.



Wheau Valley (northward view), where the Tui (*Prosthemadera novæ-zealandiæ*) comes in spring and the Shining Cuckoo (*Chalcococcyx lucidus*) spends its summer.
Manuka-tree and lily-palm in full flower (right bottom corner).

FROM A PHOTO BY J. G. M'LEAN.

chiefly towards evening in spring from the retiring birds, and is very characteristic. It is a liquid, ringing set of notes, of peculiar softness, and is uttered in much the same way as No. 8, but a trifle faster, and the double notes may continue for long stretches. No. 10 is a dominant set heard from daylight till dark in its particular locality. Nos. 11 and 12 have been selected from among the various portions of song used by different birds, and they are often interspersed with many coughs and sucking sounds. No. 12 was used by one bird alone, although surrounded by many of his species who were, with other notes, in good song; and he seldom varied it in the weeks I heard him sing.

Bushmen will tell you that the Tui changes its notes every three months; but this statement is rather too definite. However, many observers have noticed the difference of the song in separate localities, and an instance of this was particularly noticeable in 1906. A characteristic set of notes (see No. 10) was first heard near my last camp, in the tawa country, on 28th September, and within a week or so was in use by practically every one of the few Tuis in the bush, and was undoubtedly quite the dominant song of that part. It was the liveliest bit of music I have listened to from this species, and was new to me. Only in the following autumn (1907) was it heard again, in a small patch of light bush in a settled district some 15 miles from Maunga-Haumia. There one of the many pairs, some of which had no doubt nested in that locality, was heard singing the bush song—"Tu-la tu-la"—in the first three months of that year, and was there to greet us with the same tune on each of the several occasions that we passed its home. Now, on the day I left the bush (14th October) this music (No. 10) was much in evidence, but on the following day, 10 miles away, I heard and saw in the Wheau valley (see Plate XVII.) many Tuis in the best of song, but the dominant note was "Tol tol tol" (No. 8) and the bush note, which was still ringing in my ears, was conspicuous by its total absence. In travelling over the greater part of this East Coast district many Tuis have since been listened to, but, with the exception noted above, I never again had the pleasure of hearing that rollicking song—a memory of the distant hill.

6th October, 1906.—At the last camp in the tawa country, and not far from the nei-nei scrub:—"Another dull day. Awake at 4.40 a.m., and heard a Tui calling his galloping 'Tu-la, tu-la' [No. 10], sometimes preceded by a few other whistled notes. At 5.5 the Kaka whistled three or four notes, loud and shrill, from the bush close by, and five minutes after called again, and then probably left to get his morning meal, for I heard him no more. [This bird roosted regularly in a large birch within two chains of the camp, and his notes were heard in the vicinity for some weeks.] It is not yet daylight, and at 10 minutes past 5 an Owl sounded his one 'Morepork.' Again, in a few minutes, he calls three times and then no more. All this time the Tui has been moving about in the trees, keeping up his song.

6.10.—He is now in great fettle, and all the birds are having a turn, but not to the same extent as on other finer mornings lately. A Robin, away down the creek, started his fine song at a few minutes to 6, and the Crows' chorus came from the manuka face opposite. As day advances all the birds are singing more or less; and I hear, besides those mentioned, the song of the Whitehead and the Blight-Bird, mixed with a few notes from the Bell-Birds near. Warblers and a Fantail are twittering too, but I miss the Tit the past two mornings. As the mist comes on the birds are very quiet, and at 10 a.m. all I hear is the montonous 'Poeing' of a Bell-Bird, three times at two-second intervals. The Tuis are not now singing. About 10.30 the Kaka is back in the tree in front digesting his morning meal and whistling now and then to himself a soft 'Tu tu.' A Cuckoo, too (*C. lucidus*), sounds his long, clear, whistled note five times, and without the final flourished notes, from among those trees. The Tui was singing in the afternoon and evening, but not so much as usual. The Kaka was heard once about 5.30, as he came into his tree near the camp for the evening. Heard the Tui last at 6.30, after a Morepork had started." 8th October.—"Of the five or six Tuis I hear daily about here, one frequents the bush around the camp, and opens early in the morning with his double-noted music, and keeps it up for about two hours. He is quieter during the day, but as evening comes on he starts again, and I hear him now as he shifts in stages to his roost—now in front of the camp, then at one side, now behind, and finally away in the distance. He usually starts his vesper in front about 5.30, and ends behind in the tawa about 6.40. The music reads [see No. 10]. The final bar of four quickly-sounded notes may be repeated for five, six, to ten times. I hear him now chuckling to himself 'Quor quor,' and then the two last notes once; at 6.30 a continuous chuckle to himself, and now and again the 'Tu-la.' Then away to the front he goes, with a 'whurrup' of wing, and sings there for three or four minutes; then back again and up into the bush behind, the pretty ringing song gradually fading as he retires. Another starts while the first is very far away, and I hear the last Tui at 6.45 [practically night]." 9th October.—"The Tui opened this morning at 4.55 from far away, and came towards the camp. At about five minutes past 5 the Owl called his final 'Morepork' several times in quick succession, and somewhat derisively, as he cleared away."

From the little tuft of curled white feathers hanging from its throat, and set off by the rich dark plumage, this species was aptly named the "Parson-Bird"—a name that nowadays is hardly ever used. To most country people it is well known simply as the Tui; and odd birds visit, in winter, the plantations of Australian gums and wattles, often coming many miles from their native bush to suck the honey from the flowers. There the birds, as if soliloquizing, may in fine weather be heard throughout the day. These are generally single birds (or not in pairs), and, of course, are not in the best of song at that season.

The Wheau valley is, in spring, a great resort of the Tuis ; and here in numbers each year it makes some stir when feeding in the yellow blossoms of the kowhais which fringe the creek. Then the valley echoes with their song, and an additional charm is given to this picturesque strip on the road that leads into the Maunga-Haumia country. All around is practically grassed country, but many little patches of bush remain in the scrubby gullies of the neighbouring hills. There some remain the summer through, and rear their young. Not many miles away some build their nests in willows planted along a river-bank, in somewhat rougher country, and feed upon the flax and native trees in the vicinity. There the nesting season is late, eggs being found in October and November. In the main bush only one nest was discovered. This was deserted on 27th September, when complete, through the timber-fellers approaching the site.

The nest of this bird, though well enough built in itself, is very loosely placed in position amid the twigs, and is occasionally blown out by heavy winds. Below the willows mentioned above nests were picked up on several occasions after heavy north-west gales. The young birds, too, soon destroy its shape, and it is rarely that one comes across the nest of a previous season.

The Tui is the only one of our original *Meliphagidæ* which, from present indications, seems certain to survive. The Blight-Bird,* though common in our shrubberies, is believed to be an Australian colonist ; the Stitch-Bird (*Pogonornis cincta*) is now doubtless only to be seen on one or two of our smaller islands ; and the Bell-Bird, though reported to have re-appeared in odd parts of this island, is, I am afraid, unlikely to survive for any long time. Were it not for our Tui, our bushes would, to the general observer, indeed be lifeless, for none of those birds now left to us so soon give pleasant notice of its presence in the vicinity. He is, whether heard or seen, our most vivacious bird, and shows to best advantage amid the honey-producing flowers of his native trees. From earliest morn to later eve, his varied notes sound in joyous outburst, and glimpses of his glistening plumage are caught amid the leaves. He is in a position now to take advantage of the wave of feeling for our birds which is slowly but surely spreading over the land. That, with protection, together with his apparent adaptability, will no doubt save to us this charming bird.

Snakes in Bird-nests.—Tiger snakes are inveterate enemies to young birds. Mr. S. A. Hanscombe informs me that only a short time ago one of the scholars in the State school at Belltrees, N.S.W., dug out a Bee-eater's (*Merops*) nest, and found therein a tiger snake, four feet long. Moral : never put your hand into the nesting hollow of any bird without first seeing the end. D. LE SOUÉF. Melbourne.

* Opinions differ as to the position of *Zosterops*.

Relative Dimensions of the Red Blood Cells of Vertebrates, especially of Birds.

BY J. BURTON CLELAND, M.D., CH.M., AND T. HARVEY JOHNSTON, M.A., D.SC.

DURING the course of an examination of smears of blood from Australian birds for parasites, we noticed with much interest that the red cells of one of the *Ardeiformes*, *Notophoyx novæ-hollandiæ*, were distinctly larger than those of other birds we had hitherto examined belonging to the *Passeriformes*. As the first-named is a presumably older group phylogenetically, it occurred to us that it might be of value to systematically measure the red cells of the various vertebrates that we had an opportunity of examining. This work was already in progress when we noticed a statement in *The Sleeping Sickness Bulletin* (vol. ii., No. 19, 1910, p. 245) * as to the sizes of the red cells in blood ingested by tse-tse flies (*Glossina palpalis*), and the inference therefrom as to the source of the blood. The following standards were taken :—

"Standard amphibian (crocodile) [*sic*], 15.4 microns.
Standard avian (Hornbill), 13.1 microns."

The average measurements of the red cells in 20 flies are given Of these 2 were over 15, 11 between 14 and 15, 6 between 13 and 14, and 1 was 10.6 mic. Those under 14 were attributed to birds. This agrees perfectly with our findings, as it is only occasionally in odd cells that we have found a reading under 14 mic. in the blood cells of reptiles. We have, however, especially in water-birds, such as Grebes, Herons, and *Charadriiformes*, found red cells reaching to 15 mic., and as these birds would, we presume, frequent the lake-shore, where the flies were caught, it is possible that the number of cases in which birds' blood was present was under-estimated—in fact, it is not beyond the bounds of possibility that they all owned this origin. This is perhaps accentuated by the fact that the average reptilian corpuscle, in our hands, is usually well above 15 mic.

It must be clearly understood that our measurements were taken from dried blood-films stained by Giemsa's solution, and not from films treated by the better-fixed wet methods. Several cells were measured in each case, but time would not permit of a long series of measurements, with more accurate average results. In the case of well-prepared slides of mammals and birds this is of little consequence, as all the cells are practically of an identical size. In the cases of reptiles and batrachians considerable variations, however, occur. The object of this paper is to indicate what we believe are useful additional means for showing the relationships of groups of vertebrates to each other. Our actual figures, however, must not be accepted as fully accurate until confirmed by many more observations.

* Bruce, Hammerton, and Mackie, "Proceedings Roy. Soc.," 1910, B. 558, pp. 490, 497.

Before discussing their significance it may be well, first of all, to briefly indicate the results of our examinations. It may be stated here that all the measurements are in micromillimetres. The largest red cells we have met with are those of *Ceratodus forsteri* (39 x 23 to 25). These, in size, link in on the one hand to the Elasmobranch fishes, amongst which *Chiloscyllium* has red cells of 23 x 13.5, whilst in *Dasybates kuhli* and the hammerhead shark (*Sphyrna tudes*) the red cells only reach 18 x 12.5 to 14.5. The Teleostean fishes have red cells very much smaller, varying from 6 to 7 (almost round) to 9 x 7 and 10 or 12.5 x 9. On the other hand, *Ceratodus* links on with the Batrachians, where the size is generally from 18 to 19.5 x 12.5 to 14, and with the reptiles, amongst which Chelonians have cells of 17 to 21 x 12.5 to 14.5, snakes 17 to 20.5 x 9.5 to 12.5, and lizards usually 15 to 17.5 x 7 to 11. Amongst birds, we find the largest red cells in the *Ardeiformes* (13 to 16 x 8 to 9); then come the *Charadriiformes*, usually 13 to 14.5, occasionally 15, x 7 to 8; the *Galliformes*, up to 14 x 7 to 8, &c.; whilst the smallest are the *Passerines* (9 to 12.5 x 6 to 7).

FISHES.

Amongst the fishes, the *Dipnoi*, or lung-fishes, have cells of monstrous size, being, next to those of some amphibians, we believe, the largest known. In *Ceratodus* they measure 39 x 23 to 25, whilst in *Proteus* they are given * as 58 x 35, and in *Amphiuma* as 77 x 46. Of the three Elasmobranchs examined, we find an interesting and important difference. *Chiloscyllium* has cells 23 x 13.5, whilst *Sphyrna tudes* and *Dasybates kuhlii* have cells of only 18 x 12.5 to 14. The cells of Teleostean fishes are much smaller and usually rounder, sometimes almost spherical. There seems to be a good deal of variation, from 6 to 7 (about the usual size of mammalian red cells) to 12 or 13. Future research may show whether any groupings, indicating degrees of remoteness from Elasmobranchs, may be found in the various orders or families.

These results are of great interest. They show that under the one general term "fishes" are grouped vertebrates with red corpuscles varying as greatly as do those of amphibians or reptiles from those of birds.

Another interesting point is that in one of the oldest vertebrate groups known, the Elasmobranch fishes, the red cells are of large size, and that we have found that amongst these again in one (*Chiloscyllium*) they are much larger than in the other two examined, and this genus seems hence intermediate between these two and *Ceratodus*. *Ceratodus*, from its red cells, links on to certain of the Amphibians. These results suggest, perhaps, two separate lines of evolution from the smaller-celled Elasmobranchs—one with *Chiloscyllium* and then *Ceratodus* as offshoots from a stem with red cells of increasing size, which eventually

* Schäfer, "Essentials of Histology" (6th ed.), p. 37.

gave rise to the Batrachians and reptiles, and these latter to the Aves; the other with cells of decreasing size, giving rise to the Teleostean fishes. In both cases we see that, with higher specialization, the red cells decrease in size. The interesting question arises—Is this decrease in size merely a coincidence attendant on favourable variation, or was it a necessity for such evolution? Did the ancient vertebrates of enormous size and reptilian character possess extremely large red cells? Did the extinction of these forms in part depend on their inability to form smaller red cells which could, with greater ease, supply oxygen uniformly to all the tissues? And why, in the oldest forms of vertebrates that we have examined, do we find such large cells? It would be of great interest, in this connection, to examine the lampreys as examples of another old group, and see whether there is evidence that the original red cells were much smaller. Again, what are the mechanical and physiological advantages or disadvantages of increase of size in the red cells? Large cells require large capillaries, and these would, we presume, be fewer in number, and hence oxygenation in distant cells would be less complete than in those nearer the capillaries. Would increased efficiency follow, therefore, decrease in size?

BATRACHIANS.

The red cells of Batrachians vary a good deal amongst themselves, the average size being about 18 to 20, the extremes we have met with being 14 and 23.5. No generic significance seems attachable to the sizes.

REPTILES.

Amongst the reptiles we again find considerable variation. Snakes usually average about 17 to 20, with extremes of 15 and 21.5; lizards average apparently a little lower, from about 16 to 18, with extremes of 11.5 and 20.5; whilst Chelonians average about 18 to 20. The figures are very variable, but perhaps the red cells of snakes and Chelonians are a little larger than those of lizards.

BIRDS.

Most of our bird slides have naturally been made from Passerines. In many of the other orders the number of specimens examined is few, and this fact must be borne in mind when weighing the conclusions we form. Amongst the largest cells we have met with have been those of three members of the *Ardeiformes* (included in the *Ciconiiformes* by Evans.)* These cells varied from 13 to 16 x 8 to 9. A single specimen of *Sphenisciformes* gave 14.5 x 9 to 10; one of the *Podicipediformes*, 13.5 to 14.5 x 7 to 9; one *Pelicaniformes*, 14 x 7 to 8; five *Charadriiformes* varied from 11.5 to 15, being usually 13 to 14.5; one *Lariformes* gave 12.5, probably a low figure. A Megapode, belonging to the *Galliformes*, ran from 11 to 14, averaging nearer the latter figure. Amongst the *Coraciiformes*, *Dacelo* and *Halcyon* ranged from 12

* Evans, "Cambridge Natural History—Birds."

to 14.5, usually being about 14, whilst *Merops* averaged decidedly less, being 11 to 12.5, and thus approximating to the *Coccyges*, which varied from 11.5 to 13. Nine species of the *Psittaciformes* varied more amongst themselves, the average being about 12.5, but measurements of 11 to 13.5 were not uncommon, and occasionally 14.5 was noted. The cells of *Cacatua leadbeateri*, given as 16 to 17, were almost certainly artificially enlarged. Seven species of *Columbiformes* gave on the whole very uniform results, being in most cases 12.5; occasional ranges to 14.5 were noted, and in two specimens of *Ocyphaps lophotes* the readings were 14 to 15, but we must consider this as due to some artefact increasing the size. Amongst the *Passeriformes* we find some remarkably constant results and some interesting grouping. The *Campophagidæ* and *Corvidæ* were the largest, usually being 12.5 to 13, but varying from 11 to 14. The families *Timeliidæ*, *Artamidæ*, *Prionopidæ*, *Laniidæ*, *Sittidæ*, *Certhiidæ*, and *Ploceidæ*, rarely varied outside 11 to 12.5. *Sylviidæ*, *Oriolidæ*, *Dicruridæ*, and *Ptilonorhynchidæ* seemed to exhibit a slightly smaller size, 10.5 being a frequent minimum. One *Hirundinidæ* gave 11, and it may perhaps be associated with the *Muscicapidæ*, which varied from 9 to 11.5, and occasionally 12·5. Nine species of the *Meliphagidæ* gave on the whole very uniform results, usually being from 10.5 to 11.5, occasionally more.

As birds own a reptilian ancestry, in the most archaic forms we would expect to find the largest red cells. This seems to be the case. In the sequence of orders given by Evans, we find the first one we have to deal with is that of the *Colymbiformes*, in which he places *Podiceps*. Evans says this order is very archaic and holds a somewhat isolated position. It stands high on our list (only one bird was examined) as regards size. Evans's next order is the *Sphenisciformes* (Penguins), one of whose nearest allies is the order *Colymbiformes*; *Sphenisciformes* stands second on our list. In Evans's *Ciconiiformes* are included the *Ardeiformes* and *Pelicaniformes*, standing first and fourth on our list—though there is really little difference between these upper groups. Next comes the *Falconiformes* of Evans, which our figures would place further on. His next order, *Galliformes*, fits in with our findings, though perhaps the *Charadriiformes* (in our sense) should precede them in point of size. Evans places in the *Charadriiformes*, *Lari* and *Columbæ*, as well as *Limicolæ*. As regards *Columbæ*, our findings distinctly remove them from this group. The *Coraciiformes*, as regards the genera *Dacelo* and *Halcyon*, come before the *Cuculiformes*, to which latter *Merops* is perhaps more closely related. The *Psittaci*, which Evans groups with the *Cuculiformes*, agree with their position. After these we would place the Pigeons. Finally, we come in both cases to the Passerines. Amongst these some interesting results are seen. The largest cells appear to be in the families *Campophagidæ* and *Corvidæ*. These two families are third and twenty-fifth respectively in Mathews' list; Evans places them as 12 and 23, but, in speaking

of the former, he says :—"The 'Cuckoo-Shrikes' are commonly placed near the *Laniidæ*, but are possibly connected with the *Muscicapidæ* or the *Corvidæ*." Our findings would place them near the *Corvidæ* and not far from the *Laniidæ*, but remote from the *Muscicapidæ*. Amongst the families with red cells of smaller size are the *Turdidæ* (in which are included the *Sylviidæ*), *Dicruridæ*, *Oriolidæ*, and *Paradiseidæ* (including the *Ptilonorhynchidæ*). Evans says the last-named is undoubtedly related to the *Corvidæ*, which our figures (from one species) do not seem to support. The smallest cells appear to be those of the *Meliphagidæ* and the *Muscicapidæ*.

MAMMALIA.

Our figures for mammals, consisting only of bats and marsupials, are few. The former seem to vary a little, usually being from 4.5 to 7. Amongst the marsupials the red cells of *Phascolarctus* were large for mammals, those of *Æpyprymnus* (9) a little smaller, and those of *Macropus*, *Dasyurus*, and *Trichosurus* 5 to 7. Nucleated red cells were not uncommon in the marsupials—perhaps an archaic trait.

MEASUREMENTS OF RED CORPUSCLES.

(NOTE.—The first column, *x* x *y*, refers to the length (*x*) and breadth (*y*) of the red cell, the second column referring similarly to the dimensions of the nucleus.)

FISH.

DIPNOI.		
Ceratodus forsteri	39 x 23 to 25	14 x 9 to 10.5
ELASMOBRANCHII.		
Chiloscyllium sp. (dog shark)	23 x 13.5	9 x 7
Sphyrna tudes (hammer-head shark)	18 x 12.5	7 x 5.5
Dasybates kuhlii (ray)	18 x 14	7 x 5.5
TELEOSTEI.		
Konosirus crebi (bony bream)	12.5 x 7	4.5 x 2.5
	10.5 to 13 x 9	4.5 to 5.5 x 2
Krefftina adspersus	10 to 11 x 9 to 9.5	4 to 5.5 (rounded)
Trachystoma petardi (fresh-water mullet)	10.5 x 7	3.5 x 2.5 to 3
	9.5 to 10.5 x 7	3.5 to 4 x 2.5
Galaxias findlayi	10.5 to 11.5 x 9	5.5 x 3.5
Seriola lelandi (king-fish)	10.5 x 7	4.5 x 2.5
Scolopsis vosmaeri (big-eyed bream)	10.5 x 7	6 x 3.5
Echeneis naucrates (sucking-fish)	9 x 7	4.5 x 2.5
Plectorhynchus punctatus (sweetlip)	9 x 7	4.5 x 2.5
Lethrinus chrysostomus (emperor-fish)	9 x 8	5.5 x 3.5
Terapion unicolor	6 to 7 x 6 to 7	3.5 x 3.5
SNAKES.		
Acanthophis antarctica (death adder)	18 to 21.5 x 10 to 11.5	5.5 x 5.5
Notechis scutatus	20 to 20.5 x 10 to 12.5	7 x 3.5
	18 to 20.5 x 11 to 13.5	7 to 8 x 4 to 5.5

Pseudechis porphyriacus	18 x 10.5	5.5 to 7 x 3 to 3.5
Denisonia nigrescens	15 to 17 x 8 to 8.5	
Furina occipitalis (ring-snake)	18 to 20.5 x 9.5 to 10.5	8 x 2.5 to 3.5
Python variegatus / *Python spilotes*	17 x 9 to 9.5	4.5 to 5.5 x 3.5

LIZARDS.

Varanus gouldii	13.5 to 16 x 7 to 9.5	5.5 to 7 x 2.5 to 3.5
	15.5 to 17.5 x 7 to 10.5	
Varanus varius	15 to 16 x 9	5.5 x 3.5
	16.5 to 18.5 x 9 to 10	4.5 to 6 x 3.5
Amphibolurus barbatus	18 x 9	6 x 2.5
	16 to 18 x 10.5	6 x 2 to 3.5
	16 to 17 x 10 to 10.5	6 to 7 x 3.5
	11.5 to 16 x 8 to 10	3.5 to 5 x 3
Amphibolurus muricatus	14 to 18 x 9	5.5 to 7 x 2 to 3.5
	19 to 20 x 9 to 11	6 to 8 x 2.5 to 3.5
Egernia whitei (3 specimens)	14 to 16.5 x 8	
Egernia striolata (3 ,,)	16 to 16.5 x 10	
Tiliqua scincoides	18 x 9 to 11.5	6.5 x 3.5
Lygosoma tæniolatum	15.5 to 16 x 8 to 9	5.5 to 7 x 2.5 to 3.5
	12.5 to 14.5 x 6.5 to 7	
	13 to 14 x 7 to 8	6.5 x 2
Lygosoma trilineatum	15.5 to 16 x 8 to 9	5.5 to 7 x 2.5 to 3.5
Lygosoma fasciolatum	14.5 to 17.5 x 8 to 10	6 x 3
Lygosoma lesueurii (3 specimens)	13.5 to 15 x 8 to 10	
Lygosoma (*Liolepisma*) *lichenigerum*	15 to 20 x 9 to 11	
Lygosoma (*Hinulia*), sp. nov.	16.2 to 18 x 9	6.5 to 9 x 3.5
Lygosoma verreauxi	14 to 16.5 x 7 to 8.5	5 x 2.5
Phyllodactylus guntheri (gecko)	20 to 20.5 x 11 to 12.5	
Gehyra variegata (gecko)	16 to 19 x 10	6.5 x 4
Gehyra australis	15 to 18 x 9.5 to 10	6.5 x 3

TORTOISES.

Chelodina longicollis	18.5 to 19.5 x 12.5	5.5 x 3.5 to 4.5
Emydura krefftii	17 to 21.5 x 12.5 to 14.5	4 to 5.5 x 3.5 to 5.5

BATRACHIANS.

Hyla cærulea	19.5 x 14	7 x 3.5 to 4.5
	18 to 19.5 x 12.5	7 to 7.5 x 3.5 to 5.5
Hyla citropus	20 to 23.5 x 13.5 to 16	5.5 to 8 x 4.5 to 5.5
Hyla rubella	14 to 20 x 10 to 11.5	6 x 3
Lymnodynastes fletcheri (9 specimens)	14.5 to 18 x 10.5 to 11	5.5 to 6.5 x 2.5 to 3.5
Lymnodynastes dorsalis	18 to 19.5 x 12.5	7 to 8 x 4.5 to 5.5
Pseudophryne bibroni	20 to 22 x 13 to 15	10 x 5
Uperoleia marmorata	18 to 20 x 11.5 to 15.5	8 x 5
Crinia signifera	19 to 21.5 x 12.5 to 14.5	5 to 6.5 x 3.5 to 5.5
Phrætops australis	18 x 12.5 to 13.5	6 to 6.5 x 4.5 to 5.5

BIRDS.

(The figures in parentheses before the name of the species refer to the number in Mathews' Hand-list of the Birds of Australia—*vide The Emu*, vol. vii., Jan., 1908, Supplement.)

ORDER II.—GALLIFORMES.

(7) *Catheturus lathami*	12.5 to 14 x 7	5.5 x 2 to 2.5
	11 to 14 x 6.5 to 8	7 x 2.5

ORDER IV.—COLUMBIFORMES.

(24) *Ptilopus swainsoni* ..	12.5 x 7 to 7.5	..	5.5 x 2.5
(33) *Geopelia humeralis* ..	12.5 x 6 to 6.5		
(34) *Geopelia placida* ..	12.5 to 14.5 x 7 to 7.5	..	6 to 7 x 2.5
	12.5 to 14.5 x 7 to 8		
	12.5 x 7	..	5.5 x 2
(37) *Phaps chalcoptera* ..	12.5 x 7 to 8	..	5.5 to 6 x 2
	12.5 to 13 x 7.5	..	5.5 x 2.5 to 3.5
	12.5 to 13 x 7	..	5.5 x 2
(42) *Geophaps scripta* ..	12.5 x 7	..	6 x 2
	12.5 to 7.5	..	5.5 x 2
	12.5 to 14.5 x 7 to 9	..	6.5 x 2
	12.5 x 7	..	5.5 x 2
	10.5 to 12.5 x 7.5	..	5.5 x 2
(46) *Ocyphaps lophotes* ..	15 x 7 to 7.5	..	7 x 2
	14 to 15 x 8	..	7 to 7.5 x 2

ORDER V.—RALLIFORMES.

Ocydromus sylvestris ..	14.5 x 7	..	5 x 3.5

ORDER VI.—PODICIPEDIFORMES.

(65) *Podiceps novæ-holl...*	13.5 to 14.5 x 7 to 9	..	5.5 to 6.5 x 2 to 3.5

ORDER VII.—SPHENISCIFORMES.

(71) *Eudyptula minor* ..	14.5 x 9 to 10	..	4 to 6 x 2.5

ORDER IX.—LARIFORMES.

(135) *Micranous leucocapillus*	12.5 x 5.5		

ORDER X.—CHARADRIIFORMES.

(145) *Hæmatopus fuliginosus*	12.5 to 13 x 7 to 8		
(151) *Charadrius dominicus*	14.5 to 15 x 7	..	7 x 2.5
(158) *Ægialitis melanops*	11.5 to 12.5 x 6 to 7	..	5.5 x 2.5
(164) *Numenius cyanops*	13 to 14.5 x 7 to 7.5		
(190) *Burhinus grallarius*	13.5 to 14 x 7 to 9	..	6 x 2 to 2.5

ORDER XII.—ARDEIFORMES.

Herodias timoriensis ..	13 to 15 x 8	..	6.5 x 2.5
(204) *Notophoyx novæ-hollandiæ* ..	14 to 16 x 9	..	7 x 2.5
(205) *Notophoyx pacifica*	15 x 8	..	6.5 x 2

ORDER XIV.—PELICANIFORMES.

(241) *Phalacrocorax melanoleucus*	14 x 7 to 8	..	6 to 7 x 2
	11.5 to 13.5 x 6.5 to 8		

ORDER XV.—ACCIPITRIFORMES.

273) *Baza subcristata* ..	13 x 7 to 8.5	..	5.5 x 2
279) *Hieracidea orientalis*	12.5 x 7 to 9	..	5.5 x 2.5

ORDER XVII.—PSITTACIFORMES.

301) *Trichoglossus novæ-hollandiæ* ..	12.5 to 14.5 x 5.5 to 7	..	5.5 to 6.5 x 2
	11 to 12.5 x 6 to 7	..	6 x 2
(304) *Psitteuteles chlorolepidotus* ..	11 to 12 x 7		
	10.5 to 12.5 x 7 to 8	..	5.5 to 6 x 2 to 2.5
(309) *Glossopsittacus pusillus*	11 to 11.5 x 5.5 to 6		
	10.5 to 11.5 x 6 to 6.5	..	5.5 to 6.5 x 2
	12.5 x 7	..	5.5 x 2
	12.5 x 7	..	5.5 x 2
	10 to 11 x 5 to 6		

(321) *Cacatua leadbeateri*	16 to 17 x 8 to 10	5.5 x 3
(324) *Cacatua roseicapilla*	11.5 to 13.5 x 6.5 to 7.5	4.5 to 5 x 2 to 2.5
	13 to 14.5 x 7 to 8.5	4.5 to 5 x 2.5
(332) *Aprosmictus cyanopygius*	12.5 to 13 x 7 to 9	5.5 to 7 x 2
	11.5 to 13 x 6 to 8	6 to 7 x 2 to 2.5
(339) *Platycercus pallidiceps*	11 to 12.5 x 7 to 7.5	7 x 3
(343) *Platycercus eximius*	12.5 x 7	5.5 to 6 x 2
Amazon or Mexican Parrot	14.5 x 8	

ORDER XVIII.—CORACIIFORMES.

(386) *Dacelo gigas*	14 x 9	6.5 to 7 x 2.5 to 3
	14 x 8.5 to 9	5.5 to 7 x 2
(387) *Dacelo leachi*	12.5 to 14.5 x 7 to 9	5.5 x 2.5
Halcyon vagans	12 to 14.5 x 7 to 8	7 x 2.5
(396) *Merops ornatus*	11 to 12.5 x 7	5.5 x 2
	12.5 x 7	5.5 x 2

ORDER XIX.—COCCYGES.

(407) *Cacomantis flabelliformis*	11.5 to 13 x 6.5 to 7	6 x 2
	12.5 x 7	5.5 x 2.5
	12.5 to 13 x 7	5.5 x 2
(412) *Chalcococcyx plagosus*	12 to 12.5 x 7	5 5 x 2

ORDER XXI.—PASSERIFORMES.

SUB-ORDER ACROMYODI.

B.—Passeres Normales.

Family I.—Hirundinidæ.

(429) *Hirundo neoxena*	11 x 5 to 6	3.5 x 2

Fam. II.—Muscicapidæ.

(433) *Micræca fascinans*	11 to 12.5 x 6 to 7	
	11 to 12.5 x 7	4 to 5.5 x 2.5 to 3
(449) *Smicrornis brevirostris*	9.5 to 11 x 6 to 6.5	4 to 5.5 x 2
	11 to 12.5 x 5.5 to 6	5.5 x 2.5
(476) *Rhipidura albiscapa*	9 to 11 x 6	5.5 x 2
	11 to 11.5 x 7	4 x 2
	11 to 11.5 x 6.5 to 7	5 x 2
(487) *Rhipidura tricolor*	11 x 6.5 to 7	3.5 to 5 x 2
(499) *Piezorhynchus gouldi*	9 to 10.5 x 6.5 to 7	

Fam. III.—Campophaginæ.

(504) *Coracina robusta*	12.5 to 13 x 7	5.5 to 7 x 2 to 2.5
	12.5 to 14 x 7 to 8	5.5 to 7 x 3.5
(507) *Coracina mentalis*	12.5 to 13 x 7 to 7.5	5.5 x 2.5
	11 x 7 to 7.5	
(510) *Lalage tricolor*	11 to 12.5 x 5.5 to 7	5.5 x 3
(509) *Edolisoma tenuirostre*	11.5 x 6 to 7	6 x 2

Fam. IV.—Timeliidæ.

(515) *Cinclosoma punctatum*	11 x 7	5.5 x 2
(516) *Cinclosoma castanonotum*	11 to 13.5 x 6 to 7	5.5 x 2
(526) *Psophodes crepitans*	11 to 12.5 x 6 to 6.5	5 x 2
(529) *Pomatorhinus trivolus*	11.5 x 7	4 x 3
	11.5 to 13 x 7 to 9	5 to 6 x 2.5
	11.5 to 12 x 7.5 to 8	
	12.5 x 7	5.5 x 2

Fam. VI.—Sylviidæ.

(568) *Acanthiza pyrrhopygia*	12 to 12.5 x 5.5 to 7	..	5.5 x 2
(569) *Acanthiza lineata* ..	10.5 x 7	..	6 x 2
(575) *Acanthiza reguloides*	10.5 to 12.5 x 6 to 6.5	..	5.5 x 2
(593) *Malurus cyanochlamys* ..	11.5 x 7	..	6 x 2
(610) *Stipiturus malachurus*	11 x 6.5	..	5.5 x 2

Fam. VII.—Artamidæ.

(624) *Artamus leucogaster*	11.5 to 12.5 x 7 to 8	..	5.5 x 2
(634) *Artamus tenebrosus*	11 to 12.5 x 5.5 to 7	..	5.5 to 6 x 2.5
	11 to 12.5 x 6.5 to 7	..	5.5 x 2
	12 x 7	..	5.5 x 2

Fam. VIII.—Prionopidæ.

(636) *Collyriocichla harmonica* ..	12.5 x 7	..	5.5 to 6 x 2 to 2.5
	11 to 12.5 x 6 to 7	..	5.5 x 2
(646) *Grallina picata* ..	11 to 12.5 x 7	..	6 to 7 x 2

Fam. IX.—Laniidæ

(654) *Cracticus nigrigularis*	11 to 11.5 x 6 to 7.5		
	10 to 12 x 6 to 6.5		
(658) *Cracticus destructor*	11.5 to 12 x 6 to 6.5		
(674) *Pachycephala rufiventris* ..	11 to 11.5 x 5.5 to 6		
	11.5 to 12.5 x 6 to 7		
(676) *Pachycephala gilberti*	12.5 x 7	..	4.5 x 2.5
(684) *Eopsaltria chrysorrhoa*	11 to 12.5 x 6 to 7	..	5.5 to 6 x 2

Fam. XI.—Sittidæ.

(697) *Neositta pileata* ..	12 to 12.5 x 5.5 to 6	..	5.5 x 2
(699) *Neositta leucoptera* ..	11.5 to 12 x 6	..	4 to 5 x 2.5

Fam. XII.—Certhiidæ.

(705) *Climacteris pyrrhonota*	12.5 x 7	..	5.5 x 2
Climacteris scandens	11.5 to 12.5 x 7 to 7.5	..	5.5 x 2.5

Fam. XIV.—Dicæidæ.

(726) *Pardalotus punctatus*	10.8 x 6	..	4 to 5 x 2.5

Fam. XVI.—Meliphagidæ.

(745) *Plectorhamphus lanceolatus* ..	11.5 x 6		
(756) *Glyciphila melanops*	11 to 12.5 x 6 to 6.5	..	5.5 x 2
(765) *Stigmatops ocularis*	10 to 10.5 x 6 to 6.5		
(769) *Ptilotis fusca* ..	10 to 10.5 x 6.5 to 7	..	5.5 x 2
	10.5 x 7	..	5.5 x 2
(770) *Ptilotis chrysotis* ..	11 to 11.5 x 6 to 7	..	5.5 x 2.5
	11 x 5.5 to 6	..	5.5 to 6 x 2.5
(777) *Ptilotis fascigularis*	11 x 7		
(791) *Ptilotis penicillata* ..	12.5 to 13.5 x 5.5 to 7	..	5.5 x 2.5
(797) *Meliornis pyrrhoptera*	11 to 12.5 x 5.5 to 6	..	5 x 2
(804) *Myzantha garrula* ..	10.5 x 6 to 6.5	..	4.5 x 2
	10.5 to 11.5 x 5.5 to 6	..	5.5 x 2
	11 x 5.5 to 6		
(810) *Anellobia chrysoptera*	10 x 5.5	..	4.5 x 2
(813) *Entomyza cyanotis* ..	11 to 11.5 x 7		
	11 x 7 to 7.5	..	5.5 to 6 x 2
	12.5 x 6.5 to 7	..	4.5 x 2

Fam. XVII.—Motacillidæ.

(822) *Anthus australis* ..	10.5 to 12.5 x 5.5 to 7	..	5.5 x 2
	10.5 to 12.5 x 7	..	4 to 5 x 2

Fam. XIX.—Ploceidæ.

(832) *Stictoptera bichenovii*	12.5 x 7	..	5.5 to 6 x 2
(838) *Ægintha temporalis*	11.5 to 12 x 6 to 8	..	5.5 x 2.5
(843) *Poephila cincta* ..	12.5 x 7	..	5.5 x 2
Passer domesticus (Sparrow) (3) ..	12.5 x 6 to 7	..	5.5 x 2 to 2.5

Fam. XX.—Oriolidæ.

(850) *Oriolus sagittarius* ..	10.5 x 7	..	5.5 x 2
	10.5 to 11.5 x 6 to 6.5	..	4 x 2
	12.5 x 7	..	5.5 to 6 x 2.5
(852) *Sphecotheres maxillaris*	10 to 12.5 x 6 to 7	..	5.5 to 6 x 2
	11.5 x 7.5		
	10.5 to 12.5 x 6 to 7		

Fam. XXI.—Dicruridæ.

(854) *Chibia bracteata* ..	10.5 x 7	..	5 x 2
	9.5 to 11 x 7 to 7.5	..	4 to 5 x 2.5

Fam. XXII.—Eulabetidæ.

(855) *Aplonis tuscus* ..	11 to 12.5 x 7	..	5 x 2
Sturnus vulgaris (Starling) ..	11 to 12.6 x 7		

Fam. XXIII.—Ptilonorhynchidæ.

(861) *Chlamydodera maculata* (4 specimens)	10.5 to 12 x 6 to 7	..	5 x 2.5

Fam. XXV.—Corvidæ.

"Crow"	12.5 x 7	..	5.5 x 2
(872) *Corvus coronoides* ..	11.5 to 12.5 x 7 to 8	..	5.5 x 2
	10 to 11.5 x 6 to 6.5		
(875) *Strepera graculina* (4)	12 to 13.5 x 7 to 10	..	5.5 x 2.5
	11 to 12 x 5.5 to 7	..	5.5 x 2
(878) *Strepera versicolor* ..	11 to 12 x 6.5 to 7	..	5.5 x 2
(882) *Struthidea cinerea* ..	11.5 x 6.5 to 7.5		
	13.5 x 9	..	5.5 x 3.5
	12.5 x 7	..	5.5 x 2
(883) *Corcorax melanorhamphus*	12.5 x 7	..	5.5 x 2
	14 x 7 to 8	..	5.5 x 2

MAMMALS.

CHEIROPTERA.

Chalinolobus morio ..	3.5 to 5, generally 4.5.
Vespertilio australis ..	5.5 to 6.5.
Rhinolophus megaphyllus	7. Polychromatophilic red cells present.

MARSUPIALIA.

Macropus dorsalis ..	6 to 7. Blood platelets. Several nucleated red cells.
Macropus ruficollis ..	6 to 7.
Macropus parryi ..	6 to 7. Blood platelets.
Macropus thetidis ..	One nucleated red cell seen.
Dasyurus viverrinus ..	5 to 6.5.
Trichosurus vulpecula (phalanger)	6 to 7.
Æpyprimnus rufescens (?) (kangaroo rat) ..	8 to 8.5. One nucleated red cell.
Phascolarctus cinereus (native bear) ..	9. Nucleated red cells fairly numerous; one mitosing.

Study of Birds' Eggs.

COLLECTION OF EDWARD J. COURT, WASHINGTON D.C.

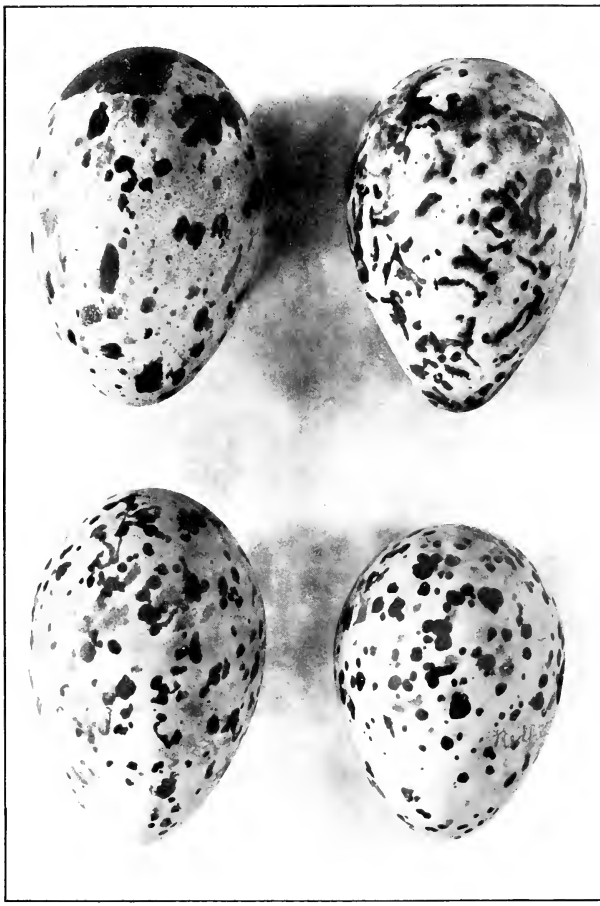
BY (DR.) R. W. SHUFELDT.

RECENTLY I had, through the courtesy of Mr. Edward J. Court, an associate of the American Ornithologists' Union, the opportunity of studying his valuable collection of birds' eggs, and of making photographs of such specimens as I required This collection is kept at Mr. Court's home at 1723 Newton-street, Washington, D.C., where every opportunity was given me to examine it, and even to take many specimens temporarily to my own home for photographic purposes. My friend is a most enthusiastic and conscientious collector, having taken a large number of his specimens himself—especially the larger Raptorial birds—while through exchanges, extending over many years, he has brought together a most interesting series of sets of birds' eggs from other parts of the world. Upon an approximate computation, this collection consists of some 7,000 specimens, many of which are in full sets, and, taken by countries, some 2,000 of these are of Australian birds, 4,000 North and South American, 1,000 European, besides a few from Japan and other parts of the world. They are preserved in a cabinet in neat trays, and are scientifically marked and catalogued. In the course of my connections with museums, and studying material of this class, including the enormous collection of birds' eggs at the United States National Museum, I have yet to meet with better-prepared eggs of birds than those possessed by Mr. Court. Not only is each specimen in a perfect state and clean, but it is a marvel when we come to examine the drill-holes in his specimens, and we are left to wonder how he ever succeeded in evacuating the contents of eggs through such minute openings. Often these latter are not larger than to admit the passage of the smallest size of sewing needle, and in some finely-speckled eggs easily escape our attention.

Up to the present time not much attention has been given to the nidology of the birds of the Philippines, though I came across, in the collection, a beautiful specimen of the nest and a set of eggs (¼) of the Weaver-Bird (*Gerygone simplex*), from Cavité. Among the North American birds, however, there are full sets of eggs of all the Grebes among the *Pygopodes*, and all the Loons (*Urinatoridæ*), save the Pacific and Yellow-billed; while the series in the cases of the Puffins, Auks, and Auklets and related forms are beautiful For example, in the case of the Murre (*Uria troille troille*) there is a remarkable series, especially brought together to show the great variation in the matters of form and colour of the eggs of this species. It was this series that first tempted me to make some photographs of Mr. Court's eggs.

Among the Longipennine birds, the collection is especially strong in the case of the Gulls and Terns and allied groups. We find sets of Kumlien Gull, the White-winged Black Tern, Ridgway

PLATE XVIII.



Pigeon Guillemot (*Cepphus columba*), Crested Tern (*Sterna bergii*).
Sooty Oyster-catcher (*Hæmatopus unicolor*), Pied Oyster-catcher (*H. longirostris*).

FROM A PHOTO. BY DR. R. W. SHUFELDT.

Noddy, elegant series of *Rynchops*, and many others. There are eggs of nearly every species of North American Gull and Tern, and some foreign ones.

Passing to the Tubinarine birds, we find a splendid specimen of the egg of the Black-footed Albatross (*Diomedea nigripes*), plenty of Fulmars, Petrels, and Shearwaters, there being five or six species of each of the latter groups and a few of the Fulmars. Before leaving the Auks I should have mentioned two eggs of a Guillemot (*Cepphus columba*), collected on the Faralone Island by Mr. Chester Barlow, an ornithologist so much beloved by all who knew him during his brief life's career. Many thoughts of bygone days arose in my mind, as, alone in my study, I was engaged in photographing one of these eggs.

Steganopodine birds, though pretty well represented, pale, indeed, before the superb series of sets of eggs of nearly all the Mergansers, Ducks, Geese, and Swans. There are full sets of both species of Tree-Ducks (*Dendrocygna*) and many of the rarer ones among the Geese. Then we find Flamingo eggs, those of the Scarlet Ibis (*Guara rubra*), and a great many others among the American Waders. *Aramus vociferus* is also here, and some of the Cranes. All the North American Rails are represented except the Yellow Rail (*Coturnicops niveboracensis*), even including the Black Rail (*Creciscus jamaicensis*). Full sets of all three of the Phalaropes are found, as well as those of the Avocet, of *Himantopus mexicanus*, Wilson Snipe, and lots of rare eggs of Plovers and Sandpipers, *Arenaria*, and the Oyster-catchers.

The Gallinaceous birds and the Pigeons are in fine sets, the Ground Doves among the latter being represented (*Chæmepelia*). The Ptarmigans—well, I could spend a whole evening examining and comparing those delicate and striking objects—they are fine!

Coming to the Raptorial birds, Mr. Court has himself collected many sets of eggs of the Bald Eagle (*Haliaetus l. leucocephalus*), and no end of Falcons, Hawks, Vultures, and their kin near and remote. We are shown a fine set ($\frac{1}{4}$) of *Falco mexicanus*, and other rarities. Leaving these and passing to the Owls, many North American species are well represented, as *Aluco*, both species of *Asio*, *Strix* (of which he possesses an egg of most extraordinary sphericity, lacking but little of being a perfect sphere), Hawk-Owl ($\frac{1}{3}$), various species of *Otus* and *Bubo*, *Speotyto*, and so on. Akin to the Owls we have the Caprimulgine birds, or Goatsuckers, of which nearly every species is represented, and half of our Humming-Birds are here, and, as is often the case in collections, the sets are in the nests in which they were found.

For some reason there are very few eggs of Woodpeckers, and Mr. Court has not given much attention to the *Passeres*, so we find but few eggs of Warblers, Flycatchers, Sparrows, and many others of the group. Still, there are numerous interesting sets even here, and that there are gaps is explained by the greater attraction the Raptorial and Anserine fowls have had for him. When one has, among hundreds of other experiences of the kind,

collected rare sets of Bald-headed Eagles' eggs, it is not surprising that he has overlooked some of the Warblers!

Among the eggs of the South American birds—of which there are 68 species in all represented—we note a set ($\frac{1}{5}$) of the Upland Goose (*Chloephaga magellanica*), the Fork-tailed Flycatcher (*Muscivora tyrannus*), *Crotophaga ani*, and the Guira (*Guira guira*). Those of the Guira are so extraordinary in appearance that they attract the eye above all others in the large trayful in which they are placed. The eggs of the Goose and Flycatcher named are rare in collections.

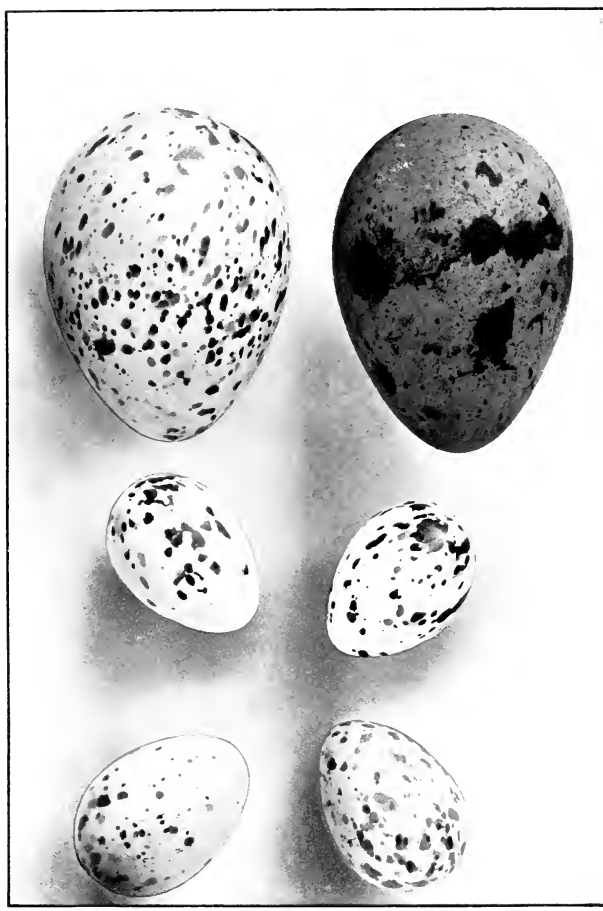
The eggs of the birds of Europe are represented by many sets of both land and water birds, and, although there are a thousand species or more, there are none of very decided rarity. The Vultures are very rich, and we find sets of *Neophron percnopterus*, *Vultur cinereus* and *V. monachus*, and *Gyps fulvus* and others. An egg of *Otis tarda* is also here, collected in Roumania.

In one of the trays two sets (each $\frac{1}{5}$) of very small, unmarked eggs interested me. They catch the eye at once. Both are of a bright brick-red—one set being very highly glossed, and the other not at all. They are eggs of Warblers—the last-named being those of *Cettia cettia*, from Spain, and the other set *Cettia cantanus*, from Japan. In all particulars they are alike, except that those of the Japanese Warbler are highly glossy.

Mr. Court's collection of the eggs of Australian birds has no equal in this country. As we pass the singles and the sets in review we meet with rarity after rarity, until one almost feels that he is in one of the museums in Australia, and studying a national collection. Some of these I show in the figures accompanying this paper, and to them the reader is referred for descriptions. Running through the trays at random we meet with eggs of the remarkable Victoria Lyre-Bird (*Menura victoriæ*), the Australian Bustard (*Eupodotis australis*), sets ($\frac{1}{2}$) of the Australian Wedge-tailed Eagle (*Uroaetus audax*), the Regent-Bird ($\frac{1}{2}$) (*Sericulus chrysocephalus*), the very rare egg in collections of the Spotted Cat-Bird (*Ælurœdus maculosus*), and one of the White Tern (*Gygis alba*). Both of these will be found among my illustrations. Rare, also, are the eggs ($\frac{1}{4}$) of the Australian Comb-crested Jacana (*Hydralector gallinaceus*), and, without exception, they certainly are the most beautiful objects I have ever seen in the way of a bird's egg. I found it almost impossible to photograph them on account of the unequalled high polish to the surface of one and all of them. Any light admitted produced an intense brilliant point on the egg at once, and this photographed pure white. I was greatly disappointed, for they are truly most wonderful objects to behold.

There are eggs of two species of Oyster-catchers, for which see Plate XVIII. herewith, and, unfigured, another rarity ($\frac{1}{3}$)—eggs of the Mallee-Fowl or Mound-builder (*Lipoa ocellata*). No fewer than seven sets are found of the Rufous-breasted Thickhead (*Pachycephala rufiventris*), one set being light terra-cotta coloured.

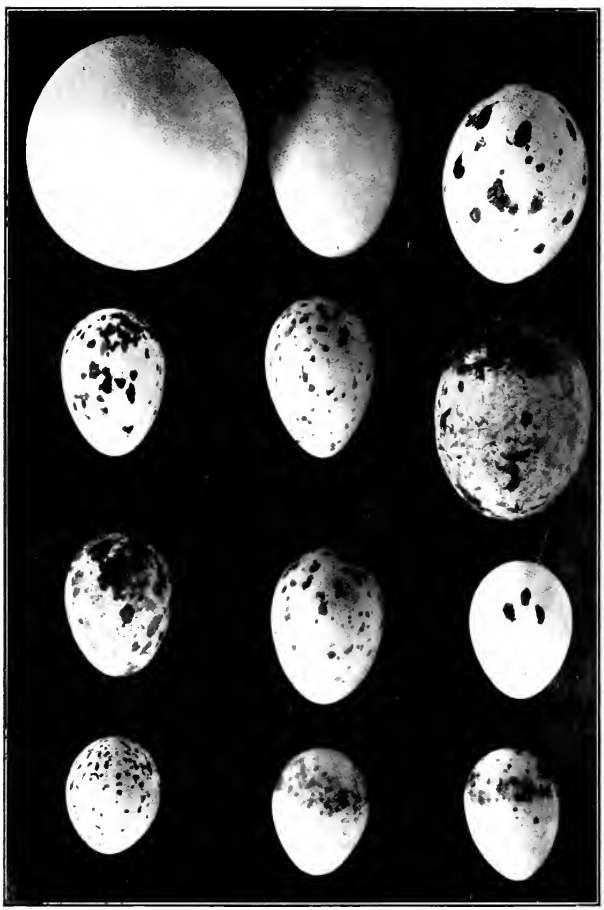
PLATE XIX.



American Kittiwake Gull (*Rissa tridactyla*),
Brown Shrike-Thrush (*Collyriocincla brunnea*),
Northern Oriole (*Oriolus affinis*), Helmeted Friar-Bird (*Philemon buceroides*).

FROM A PHOTO. BY DR. R. W SHUFELDT.

PLATE XX.



Barred Owl (*Strix varia*), remarkable for its spherical shape, Cat-Bird (*Ælurædus maculosus*), Chough (*Corcorax*).

Shrike-Thrush (*Collyriocincla brunnea*), Fig-Bird (*Sphecotheres flaviventris*). White Tern (*Gygis candida*), taken Norfolk Island by Basset Hull.

Friar-Bird (*Philemon buceroides*), Oriole (*O. affinis*), Jumper (*Struthidea*).

Bell-Bird (*Oreoica*), Magpie-Lark (*Grallina picata*) (2).

FROM A PHOTO. BY DR R. W SHUFELDT

Among the Raptores there is a set ($\frac{1}{3}$) of the rare—very rare—eggs of the Red Goshawk (*Erythrotriorchis radiatus*), and, among the Fowls, the beautiful and very small eggs of the Painted Quail (*Turnix varia*) ($\frac{1}{2}$). No fewer than five species of the Wood-Swallows, of the genus *Artamus*, are in this collection. They are heavily speckled, and much larger in proportion than the eggs laid by our American Swallows.

The well-known *Dacelo gigas*—the Laughing Kingfisher—is represented by five or six sets, and the Black Swan (*Chenopsis atrata*) by one set ($\frac{1}{5}$). There are four sets of the Butcher-Bird (*Cracticus destructor*), and the rare eggs of the Fig-Birds are represented by the Yellow Fig-Bird (*Sphecotheres flaviventris*) ($\frac{1}{3}$) Plate XX. and the Fig-Bird (*S. maxillaris*) ($\frac{1}{3}$). Fine eggs of the Orioles are also met with, as the Northern Oriole ($\frac{1}{2}$) (*Oriolus affinis*) (Plates XIX. and XX.) and the Yellow Oriole (*O. flavicinctus.*)

The egg of the Bell-Bird (*Oreoica cristata*) I show in Plate XX. ($\frac{1}{2}$) among those of other species; in fact, there are several described under the figures that are not referred to in the body of the article here. In such a wealth of material I found it difficult to make selections for photographic illustrations, and this fact can the more readily be appreciated when one comes to know that there are nearly as many species of birds in the Australian avifauna as there are in our A.O.U. Check-list for this country. I have before me a printed "List of the Birds of Australia," compiled by A. F. Basset Hull (Sydney, 1909), and, as the trinomials are not used, I was more than surprised to find no fewer than 885 species of birds listed for Australia alone. Many of the genera contain a large number of species, as, for example, *Platycercus*, where there are 15; *Acanthiza*, with 22; *Malurus*, with 20; the same for *Pachycephala*; *Ptilotis*, with 29, and so on, many of the genera containing from eight to a dozen species. This "List" starts in with a *Dromæus* and terminates with a *Corcorax*, and for this reason the Fowls and Pigeons, the Rails and their allies, are all listed before we arrive at the Grebes, Penguins, Petrels, and so on. Several of the Australian species seem now to be entirely extinct, as *Dromæus diemenensis* and *D. peroni*, the *Notornis albus*, and two representing the genus *Nestor*—viz., *N. productus* and *N. norfolcensis*; also *Cyanorhamphus subflavescens*, and I dare say others, thus reducing the list to 878, while some other forms are now rapidly disappearing, as they are everywhere else in the world.

While noting these facts, my attention was attracted to a set of very small eggs, three in number, in one of the trays. They are pure white, and lack very little of being bluntly ellipsoidal in form, or, in other words, the pointed ends differ but little from the butts. But the very unusual feature of each and all of these little eggs is that they are encircled *at their middles* by a band composed of minute specks and dots of brown and violet thickly clustered together. A few fine dots occur elsewhere on these eggs, but on the whole at first glance they strike one as

very small white eggs with a definite band around the middle of each. They are odd. It is a set from the Restless Flycatcher (*Sisura inquieta*). There are a great many other eggs of Australian birds in sight in these beautifully arranged trays.

[Dr. Schufeldt's article was accompanied by twelve finely executed photographs. Unfortunately, want of space prevents the reproduction of more than three plates, which depict the eggs more or less slightly under natural size.—EDS.]

Avifauna of New South Wales Islands.

BY A. F. BASSET HULL, R.A.O.U., SYDNEY.

PART II.

IN my article on the Montague Island Gullery (*Emu*, vol. viii., p. 80) I mentioned that the Little Penguin (*Eudyptula minor*) was reported as breeding on the Tollgate Islets, off Bateman's Bay, about 40 miles north of Montague Island. To verify this report, and to see what other birds bred on these islets, I visited them in September, 1911.

Accompanied by Mr. Henry Grant (Australian Museum) and Mr. H. Hamilton (Dominion Museum, N.Z.), I left Sydney at 8.30 a.m. on the 28th September, by the Illawarra train, reaching Nowra at mid-day. From thence we journeyed 80 miles by motor to Bateman's Bay, reaching that port at 10 p.m., after several delays *en route*. In the early morning we set out in Bennett's fishing launch, crossed the bar, and passed Schnapper Island, with the curious natural tunnel running right through it. The Tollgates were reached about 8.30 a.m., and, the sea being comparatively smooth, we experienced no difficulty in landing on the shingly beach of the southern islet. There are two islets, separated by a narrow strait. Each islet presents an almost sheer rocky face to the sea, and slopes rather abruptly to the landward side, where a beach renders landing easy in calm weather.

Having pulled up our dinghy, we found that the spit connecting the main islet with a pinnacle rock was covered with tussocks, *Atriplex* shrubs, and vines. Under this growth the Penguins were very much in evidence, numerous burrows being tenanted by adults sitting on eggs or young birds in all stages of growth—from the just-hatched to the nearly full-grown birds having only a little down adhering to the neck and head. In each nest examined the full complement of eggs or chicks was two. In one case a patient bird was sitting on two eggs covered with a thick black coating, the accumulation, apparently, of many weeks' handling (or, rather, footing). Both eggs were rotten, but the sitting bird was extremely loth to part with them. Under the pinnacle rock there was a cave, and in two crevices Penguins were established. Judging from the development of some of the

young birds found on this islet, I estimate that the first eggs were laid by the Penguins early in June.

In the cave floor, and in the rubble heap just outside, there were a few extensive burrows that appeared to be those of a *Puffinus*, but there were no signs of recent occupation or preparation for the coming season.

We then proceeded to ascend the steep slope to the top of the islet. The ground was very friable, and the few creepers growing in patches afforded very little hold. After ascending about half-way, we found indications of burrows, and Mr. Grant soon unearthed a *Pelagodroma marina*, which was evidently preparing for laying in a week or two. There were a good many burrows of this Storm-Petrel in course of construction or cleaning-out, and, owing to the numerous stones and roots in the soil, they were very tortuous.

Reaching the top of the slope, we found that a narrow ridge terminated in a cliff falling to a bed of boulders, over which the sea foamed, rushing in through a "blow-hole" under the opposite side of what looked like a crater. Crawling along the ridge, we reached the top of the islet, an elevation of about 200 feet. Here the tussocks were fairly thick, and some low scrub of *Banksia integrifolia* and *Monotoca elliptica* made progress a little slow. In all directions, however, we found burrows in course of preparation for occupation. Black sand was scratched out over the leaves, and one's feet frequently sank into a hole. We diligently opened up several burrows, but without discovering anything except one old Penguin. At last, when returning by the lower seaward slopes, I heard the familiar wail of the "Ghost-Bird," as the Norfolk Islanders call it, and after much searching found a Wedge-tailed Shearwater (*Puffinus sphenurus*) at the end of a burrow about 3 feet in length. From the number of burrows on this slope, I estimate that a thousand or more birds breed on this islet every year.

Near the top ridge we found a pair of the White-faced Storm-Petrels in a burrow. I do not think that very many of this species breed here, as there were not many of their small burrows, and their usual date for laying eggs is 15th October. In two patches of scrub on the top, and in the *Atriplex* scrub on the spit, we saw pairs of *Megalurus gramineus*, and found many old nests hidden amongst the creepers hanging from the rock or entwined about the banksias and *Ficus rubiginosa*. One female bird was shot for identification.

We then put off, and proceeded to the northern islet. Here we found much the same state of affairs as on the southern islet. Penguins occupied the lower slopes above high-water mark; White-faced Storm-Petrels and Wedge-tailed Shearwaters occupied the higher slopes and the top ridges. On one ridge I saw quite a number of burrows, all untenanted, intermediate in size between those of the two Petrels named. I am prepared to find that these belong to a Prion breeding in December. There were

old nests of grass and twigs in the chambers at the end of these burrows.

Other birds seen on these islets were *Hirundo neoxena* (a nest containing eggs being built in the cave on the southern islet), *Haliaetus leucogaster*, *Phalacrocorax carbo* and *P. gouldi*, *Demiegretta sacra*, *Hæmatopus longirostris*, *H. unicolor*, *Corvus australis*, and *Pelecanus conspicillatus* (11 birds on the spit).

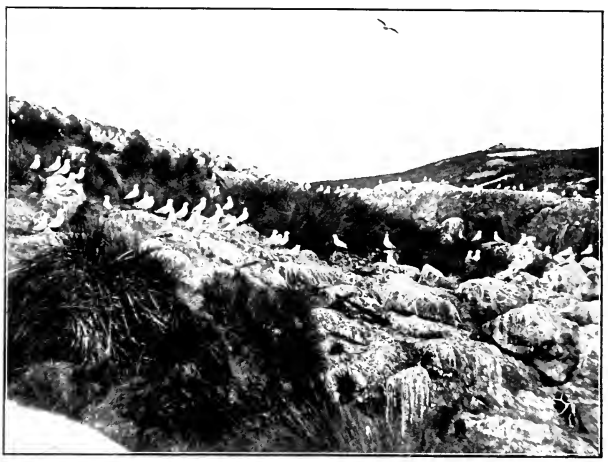
A storm coming up, we returned to port, and landed in a downpour of rain and hail.

There are several other islets between Bateman's Bay and Ulladulla, but the weather was not favourable on the following day, so we went up the Clyde River beyond Nelligen, landing on two "islands" on the way. The birds seen included *Platycercus elegans*, *Acanthochæra carunculata*, *Oriolus sagittarius*, *Cacomantis rufulus*, *Dicæum hirundinaceum*, *Malurus cyanochlamys*, *Alcyone azurea*, *Melithreptus atricapillus*, *Neositta chrysoptera*, *Collyriocincla harmonica*, *Strepera graculina*, and *Edoliisoma tenuirostre*.

The results of this trip were, therefore, the extension of the recorded breeding range of *Puffinus sphenurus* 70 miles further south (Five Islands, off Wollongong, being my previous most southerly record), and the addition of another breeding-place of *Pelagodroma marina* intermediate between the Five Islands and Port Phillip.

My first visit to Montague Island, in 1907 (September), had a disastrous ending so far as my photographs were concerned, all the negatives going to the bottom of the sea when we were capsized on Narooma bar. I therefore decided to pay another visit to this island to replace the pictures, and on the 9th October, 1911, accompanied by my son and Mr. H. Hamilton, left Sydney by the *Merimbula*, arriving at the island early on the morning of the 10th. Mr. Glover, the principal lighthouse-keeper, entertained us hospitably until the 13th, during which time I made observations on the following species :—

Larus novæ-hollandiæ.—As on my former visit, these birds were breeding in vast numbers, and their colonies had extended in all directions, so that the northern island was almost entirely encircled with nesting groups. Mr. Williams, second keeper, informed me that the birds left the south island, where they congregate prior to nesting, on the 28th August. This is later than the date recorded by Mr. Bailey in 1908—viz., 15th August—and earlier than those of 1907 and 1909, when they started in the first week in September and the 5th September respectively. They were a fortnight making their preparations, and the first egg was laid on 12th September, 1911. By the 14th *idem* they were in full swing. When we paid them a visit on the 10th October there were many nests containing young birds in down. Most of the nests contained three eggs, although not a few contained only two or one young bird and one egg. In only three cases were four eggs noticed, and the clutches of five and six seen on former occasions by myself and Mr. Bailey were not in evidence



Silver Gulls (*Larus novæ-hollandiæ*), Montague Island, New South Wales.

Nest of Silver Gull (*Larus novæ-hollandiæ*) with Eggs (red mutation), Montague Island.

FROM PHOTOS. BY A. F. BASSET HULL.

this season. In all directions, however, there was evidence of the ravages of the Gulls' enemies in the shape of broken eggs (the contents of which had been eaten) and dead or damaged young birds. Several Sea-Eagles were hovering about, a few Ravens were noticed, and a Harrier was also seen. We were fortunate enough to discover a nest containing three eggs of the remarkable red mutation described in my article for October, 1908. I obtained a good picture (Plate XXI.) of this clutch,* which was the only one of the kind seen by us, and the first full complement of three eggs—the former instances being one egg found by myself and two eggs found by my son in September, 1907, and two eggs found by Mr. Bailey in October, 1907. Mr. Bailey also saw two eggs in 1909, but left them in order that the full complement might be laid. Unfortunately, an enemy, in the shape of a Raven or Eagle, took them. One egg was found in the blue mutation without markings, and a very fine set of three in a deep blue colour with black markings. One egg was also seen in which a band of deep green colour extended round the centre. The egg was otherwise normal. An egg taken by Mrs. Glover as a curiosity was of a pale blue colour with a deep umber cap.

Sterna bergii.—In previous years some thousands of these birds bred on the island, inhabiting a shingly patch on the western side of the north island. In 1907 there were a few birds assembling when I was there (21st September), and the main flock arrived and laid their eggs about the middle of October. This year they commenced laying on the 21st September, but selected a new nesting-place on the eastern side of the island. Very few birds laid, and I only saw some 20 or 30 eggs. In one case there were two eggs, evidently laid by the same bird. Mr. Bailey saw several pairs of Terns' eggs in the 1908 season, and in 1909 he wrote (16th November):—"I have noticed this last week or so that a number of the Terns are laying two eggs, and there was one clutch of three." I had no one to take notes in 1910, as Mr. Bailey had been transferred to another station. The instance I mention as having seen, and which I photographed, is, I am quite satisfied, a case of two eggs laid by the same bird. The Terns must have found some other breeding-place for this year, so far as the bulk of the flock is concerned, for Mr. Williams informed me (9th November) that no more had arrived.

Eudyptula minor.—In 1907 this bird was breeding in considerable numbers on the south island. This year (1911) the numbers had increased largely, and burrows in the banks, holes under rocks, and tunnels under the tussocks were inhabited by birds sitting on eggs in all stages of incubation, or young birds in all stages of growth. On the 10th August Mr. Williams wrote me that there were then some young birds as large as the old ones. That would date the laying of the eggs back to May, or even

* This set is now in the collection of Mr. H. L. White, "Belltrees," Scone.

earlier. I think that my observations, and the information given me by reliable correspondents, point to the conclusion that this species is engaged in breeding practically all the year round.

Young birds of this species are evidently identical with the bird described by Gould as *E. undina*.

One calm evening I watched the Penguins coming home to their expectant families. Standing on the granite rocks near the boat harbour, and looking over towards the mainland, I could see numerous patches of broken water, darkened as if by a passing squall or a shoal of fish. These patches moved steadily in the direction of the island, and as they came closer I could see the black heads of the Penguins and hear their barking cries. They made for several different landing-places, but the one immediately below me was a favourite spot. As each group of perhaps twenty to thirty birds reached the rocks they waited, "back-pedalling," until the surge ran up a sloping rock, when they shot forward, rolling over and over in the white foam like currants in flour, and as the surge receded they were left clutching the rock or running forward to get clear of the next oncoming wave. Once out of reach of the water, they gravely shook themselves, and chatted in a rippling undertone to each other, huddling together until about a hundred birds had collected on the rock. Then, amidst a chorus of vibratory cries, they started up the slope, following a well-defined track until they reached the rushes and tussocks, where they branched off along smaller tracks to their respective nests. All night long (I slept out of doors) I heard their cries of welcome and endearment, mingled with unmistakable cries of anger and annoyance, resounding from the thick vegetation below the light-house quarters.

Puffinus sphenurus.—Previous to this visit I had not heard of any Petrel breeding on Montague Island, but on this occasion I found indications of burrows being driven in some black sand on the north island, and, after digging out one burrow, I discovered a pair of the Wedge-tailed Shearwaters preparing for the laying. This formed another farther south record, 40 miles from the previous record, the Tollgates. This is probably a new site for this species, as it certainly did not breed there in 1907, and the burrows I found were all apparently new ones, no sign of a previous year's occupation being visible.

This Shearwater is very plentiful on the New South Wales coast, and I have now authentic records of its breeding on the following islands:—Montague, Tollgates, Five Islands, Bird Island, Big Cabbage Tree, Broughton, Solitary, Coff's, Capricorns, and Raine Islands. This embraces nearly the whole eastern coast of Australia. I anticipate finding it still farther south, and it will be interesting to discover the point where *P. tenuirostris* meets *P. sphenurus*.

During my stay at Montague Island I saw vast flocks of this Shearwater feeding in company with the Gulls on the shoals of small fish or on "brit," and one morning, just after daylight, as

I lay in bed watching the passing birds, a stream of Shearwaters, many yards in height and breadth, was making north, and for over half an hour this stream passed by unbroken. It would not be any exaggeration to estimate the numbers in millions.

As to the Wedge-tailed Shearwater's tastes in the matter of food, I had an interesting experience. While we were out fishing, about a mile from the island, one of these birds came along, and settled on the water about 30 yards away. Mr. Glover threw some bits of boiled crayfish in its direction, and it came scuttling along the surface, and, reaching the spot where the bait had sunk, it dived under, presently reappearing with the crayfish in its beak. A few gulps, and that piece disappeared, to be followed by others flung to it by us. Bits of barracouta were next thrown to the bird, and greedily swallowed. Several others then arrived on the scene, and some Gulls joined them. I had just hooked a medium-sized shark, which Mr. Glover despatched with a harpoon. Taking its liver out, he broke it up and flung pieces to the birds. It was most amusing to see two Shearwaters catch hold of one piece, too large for either to negotiate, and go under with it, fighting and struggling, until they again rose to the surface gulping down what they had torn from the portion. I am quite sure that the bird we first attracted swallowed its own weight in various kinds of food that afternoon. It was unable to fly, and sat contentedly cleaning up after the feast.

I saw a somewhat mummified *Puffinus assimilis*, which had been picked up dead on the island; and on the way home we saw two small white-breasted Shearwaters flying by. These were doubtless *P. assimilis*.

Hypotænidia philippinensis breeds on the island, but we did not see any birds. Mr. Bailey sent me a set of eggs taken in 1908. *Cisticola exilis*, *Anthus australis*, *Rhipidura tricolor*, *R. albiscapa*, and a *Ptilotis* were also noted on the island.

Bird-Life in the Riverina.

By (Capt.) S. A. White, R.A.O.U., Adelaide.

Most Australians are aware that a rich tract of country, known as the Riverina, lies between the main branches of the great waterway of Australia. This country was once the home of countless thousands of Emus, Bustards, and other birds and mammals. To-day only a few Emus and kangaroos remain on some of the stations, to the praise of the owners and the managers, who are trying to save them. The part of the Riverina which my wife and I visited on our way back from attending the R.A.O.U session of 1910 was then, unfortunately, undergoing a dry spell, and we did not see the aquatic birds at their best. On leaving a little wayside railway station we drove out on to an undulating plain, dotted here and there with clumps of box. Deep wheel-

marks and cattle-tracks, then hard and baked, showed how soft the ground must be in a wet season. The country did not change until we approached the river, when we passed through a thick belt of red-gum trees. Not a bird had been seen before, but now the Noisy Miner (*Myzantha garrula*) made itself heard, the clear note of a Parrot (*Platycercus flaveolus*) was heard in the timber; a graceful Pied Grallina was busy feeding two fluffy young ones on a bough overhead. Driving on to the punt at the ferry, we were hauled slowly over the Murrumbidgee. The gate of the punt was opened, and we were soon dashing through the gums on the other side, and on to the plain beyond, passing through clumps of box, and, later on, native pine on the sandy ridges. We passed by large depressions, which in the wet season are lakes hundreds of acres in extent, with a grand fringe of stately gums. We reached a well-kept, comfortable homestead on the bank of the river, and were heartily welcomed.

In the early morn many bird-notes floated through the open window of our room. Above all others could be heard the melodious note of the Shrike-Thrush (*Collyriocichla harmonica*). Thanks to the great kindness of the manager, who placed his traps, horses, &c., at our disposal, we were enabled to work the country for miles around. The first things to attract our attention were the large flocks of Rose-breasted Cockatoos which we flushed from the ground. They flapped off with noisy screeching, to again alight in search of their breakfast. Although these birds were flocking, odd pairs were found nesting in hollow limbs. Grass-Parrots (*Psephotus hæmatonotus*) were numerous, but still in pairs, showing that they had not yet congregated after nesting. Cockatoo-Parrots (*Calopsittacus novæ-hollandiæ*) were met with in companies of 6 or 8, and they were also found nesting. Choughs (*Corcorax melanorhamphus*) were to be found in small colonies in nearly every clump of pine or box, but only stray nests were observed, where birds had laid for the second time that season. In close association with the last-named species we found the Grey Struthidea (*Struthidea cinerea*). These birds had nearly all begun to nest for the second time, although they had the first brood with them. The Struthidea uses the same nest in successive seasons, only replacing the lining, which consists of dry grass, and seems to prefer the pine clumps in which to nest—in fact, each of the many nests which came under our notice was placed in a pine-tree. Immense flocks of *Artamus superciliosus* were seen, and *A. tenebrosus* were in numbers. Among the more thickly timbered country a pair of *Lalage humeralis* was seen occasionally. The fine Crested-Pigeons (*Ocyphaps lophotes*) were found in pairs feeding on the ground. The Brown Song-Lark (*C. cantillans*) was found breeding, as also was *C. rufescens*. All the nests of the latter species contained young. The Australian Pipit was also breeding.

All along the river, where the timber was thick, we found the Yellow-rumped Parrakeet (*Platycercus flaveolus*), which seemed to

be very fond of the Scotch thistle seeds. We noticed small parties of 4 or 5, and often a single pair, of those beautiful Parrakeets known to the settlers as Green Leeks (*Polytelis barrabandi*) nearly always on the wing, and travelling very swiftly from the river outback. We came to the conclusion that they were returning to some feeding-ground after watering at the river. This surmise proved correct, for we drove out into the back country, and, calling at a settler's home, we were informed that some very pretty birds were destroying his crops. Sure enough, a flock of between 20 and 30 Green Leeks was busy amongst the standing wheat, which at this time was ripening. I believe that these birds are becoming very scarce in districts where they once were numerous. A few specimens of the Red-vented Parrakeet (*P. hæmatorrhous*) were noted, and I was told that they nest in the district. I was shown a young bird in captivity which had been taken from the nest by an aborigine. The Sulphur-crested Cockatoo was met with all along the river, and we saw the Spur-winged Plover. Large flocks of Maned Geese were also seen on the river. Black Duck, Grey Teal, Chestnut-breasted Teal, Marsh Terns, White-faced Herons, Pacific Herons, Cranes, and Emus were all observed in the marshy country. Crows were everywhere. White-backed Magpies were fairly plentiful, and Noisy Miners were seen in almost every tree. The Friar-Bird (*Tropidorhynchus corniculatus*) was noticed on the tops of some of the high gum-trees. Out on the plains we saw the White-fronted Ephthianura, and we were told that *E. tricolor* was often seen there. The Pied Fantail (*Rhipidura tricolor*) and the Welcome Swallow were observed round the homestead. We were only in this fertile country for three days, and every hour of that time was well occupied.

Stray Feathers.

The Dottrel (*Peltohyas australis*) **in Riverina.**—I have observed many Dottrel nests here since 1900, and have taken particular notice of them all. I have never seen any with five eggs. All except one nest contained three eggs, and one nest contained four. The Dottrel seems to have no particular breeding season here. I occasionally drop on their nests all through the year. Their principal enemy here is the fox, owing to the birds making their nests on the ground.—L. K. TURNER. Booligal, 14/2/11.

* * *

Stilts Breeding near Melbourne.—I saw some nests and eggs lately of the White-headed Stilt (*Himantopus leucocephalus*) in a swamp 6 miles from Melbourne, and obtained a fine clutch of five eggs, two nests, and four young birds (about a week old) for the National Museum. The Curator, Mr. J. A. Kershaw, intends having a life-group made of these. The birds, I learn, have been

breeding since end of September, and are now finished. The swamp is now nearly dry.—C. FRENCH, JUN. Melbourne, 13/12/11

* * *

Distribution of Black-fronted Dottrel (*Ægialitis melanops*).—A specimen in the flesh was secured in Southern Tasmania (Sandford) on 20th October, 1911. This appears to be the second record of the species having been secured in Tasmania, and observed so far south. Mr. W. Richardson, who forwarded the specimen per Mr. W. L. May, also secured the first find in the same locality about 1900. Mr. W. L. Butler handled a specimen secured in 1906 at the Ouse, in the Midlands. The weather and food conditions of this spring are favourable to the wide extension of the geographical range.—ROBERT HALL. Hobart, 23/10/11.

* * *

Description of Eggs of Myzantha melanotis (*Emu*, vol. xi., p. 124).—Form oval, texture fine, surface glossy, colour reddish-buff, thickly dotted with small reddish-brown (terra-cotta) spots, more numerous at larger end. Dimensions of a clutch in inches :—(1) 1.01 x .72, (2) 1.08 x .72, (3) 1.04 x .75. In my collection is another clutch, in which the spots are fewer over the greater surface of the eggs, but at the larger end are darker and thickly clustered in a zone. Dimensions in inches :—(1) 1.03 x .7, (2) 1.11 x .7. I have known of five clutches of this species, four of which contained two eggs each and the other three eggs.—J. A. ROSS. Malvern (Vic.), 18/10/11.

* * *

New Foster Parents for Fan-tailed Cuckoo.—I have to report two new foster parents to the eggs of *Cuculus flabelliformis* (Fan-tailed Cuckoo). (1) At Kow Plains, North-Western Victoria, I flushed a sitting *Hylacola cauta* from her nest, which contained two eggs of the Ground-Wren and one of the Cuckoo. Date, 30th August, 1911. Incubation, fresh. (2) At Blackburn, Victoria, Master Ray Tregellas found a nest of *Acanthiza chrysorrhoa* containing two eggs of the Tit and one of the Cuckoo The nest was in a gum sapling, 6 feet from the ground, and the eggs were quite fresh. Date, 28th October, 1911.—F. E. HOWE. Canterbury (Vic.), 30/11/11.

* * *

Another New Foster Parent for Fan-tailed Cuckoo.—On the 5th of November, 1911, at Beaconsfield, Victoria, I found a nest of the Emu-Wren (*Stipiturus malachurus*), containing two eggs of the foster parent and one of the Fan-tailed Cuckoo, all of which were fresh. This is, I believe, a hitherto unrecorded foster parent to the Fan-tailed Cuckoo (*Cacomantis flabelliformis*).—F. ERASMUS WILSON Melbourne, 12/12/11.

* * *

The Oriole as a Mimic.—It may not be generally known that the Oriole is a capable mimic. A few mornings ago an Oriole (*O. affinis*) treated us to a display of its powers, which proved it

a fit rival to any Bower-Bird. Just about sunrise, when we were sitting at our breakfast round the camp fire, the bird came, and the entertainment only ceased when we had to leave the camp. The calls most easily identified and perfectly rendered were those of the Wedge-tailed Eagle, Black-backed Magpie, Butcher-Bird, Blue-faced and other Honey-eaters, and Red-breasted Babbler; but his repertoire embraced several other birds, which the Oriole was apparently only learning, and could not render aright.—ERNEST D. BARNARD. Kurrajong, *via* Gladstone (Q.), 23/9/11.

* * *

Birds Killed by Lightning.—*Apropos* of the remarkable discovery lately in the Northern Territory of a cave containing the remains of 40 or 50 aborigines, supposed to have been killed by a flash of lightning (however, other causes may be assigned for this native holocaust), the following incident may be of interest:—Some years ago our member, Mr. H. L. White, was travelling along the Braidwood road, about 2 miles out of Goulburn, when a heavy thunderstorm came up, and he saw a flash of lightning pass through a large flock of Ibis (*Carphibis spinicollis*), killing 30 of the unfortunate birds. It is the first time I have known of such an event having been observed. Ibis, like most Waders, fly in a fairly compact company, which will account for the heavy mortality.—D. LE SOUËF. Melbourne.

* * *

New Eggs from the Mallee District, Victoria.—Appended are the descriptions of the eggs of two new sub-species, according to Mr. Gregory Mathews, of Australian birds:—

Diaphorillas striatus howei.—Clutch two to three; texture of shell fine and glossy, and the colour pure white, with small spots of reddish-brown and lilac fairly distributed, but inclined to a zone about the larger end. Measurement in inches:—(1) .81 x .6, (2) .81 x .61. This pair I took myself from a nest in a small bunch of porcupine grass. Locality, Kow Plains, Victoria.

Podargus rossi.—Clutch two, elliptical in shape, colour pure white; texture of shell fairly coarse and glossy, and is very minutely pitted. Measurements in inches:—(1) 1.7 x 1.23, (2) 1.73 x 1.19. Taken by myself at Underbool, North-Western Victoria. Another set measures—(1) 1.64 x 1.2, (2) 1.59 x 1.23. —F. E. HOWE. Canterbury (Vic.), 10/12/11.

* * *

Swallows Nesting on Railway Train.—There have been recorded some curious nesting-places for the Swallow (*Hirundo neoxena*), but I do not recollect a moving train being mentioned. Recently, Mr. Brown, fireman, at the station (Somerville) drew my attention to a Swallow's nest built on the iron framework on the under part of a carriage (second class portion). I felt the inside of the nest, which was warm and contained five eggs. The train is in motion twice a day—from Stony Point to Mornington Junction and back (15 miles each way). Occasionally the train goes on to

Mornington (additional 8 miles each way). Mr. Brown informed me that the Swallows took about five weeks building their nest, which was probably chiefly constructed at the Mornington Junction terminus. He did not notice the birds always following the train, but they appeared to join at various places *en route.*—G. E. SHEPHERD. Somerville, 9/12/11.

* * *

Re-discovery of Pachycephala rufogularis (Gould).—One hot day in November last Mrs. White and I were working the dense mallee scrub 40 miles east of the River Murray. Attracted by a call which we had never heard before, we came upon two male Thickheads fighting and calling loudly. The call, once heard, will never be forgotten—it is so unlike that of any other bird. The first note is a loud, clear whistle; the next note follows quickly, and resembles the noise produced by the drawing-in of the breath between partially-closed lips. Later in the day we secured a female. It is the opinion of some ornithologists, I believe, that the bird in question is the immature *P. gilberti.* I am positive this is not the case, for both the males I secured were mature birds in every respect. I cannot think for a moment that the lores, which are a reddish-brown, would change to black, as they are in *P. gilberti*; lastly, Gould had ample material to compare these birds, and he would not make a mistake of this kind. Evidently John Gould met with this bird in fair numbers in the bush near Adelaide over 70 years ago, but, strange to say, it has not been met with since.—S. A. WHITE. Wetunga, S.A., 2/12/11.

* * *

Notes from Belltrees (N.S.W.)—I saw for the first time, on 10th October, a pair of Little Whimbrel (*Mesoscolopax minutus*) in our neighbourhood. They were not at all timid.

The majority of our migratory visitors returned to us much earlier this year than in 1910 and 1909—in fact, this applies to practically all save the Wood-Swallows (*Artami*), who were only 8 days earlier than in the previous two years. Another noticeable feature is the comparative scarcity of the flocks in comparison with those of the two preceding years. This was very marked in the case of all the flocks of Wood-Swallows. It would be interesting to know if the same applies to other localities. Rufous Song-Larks (*Cinclorhamphus rufescens*) were very few this year. Coincident with the above notes it may be added that all our local birds nested from three weeks to a month earlier than in former years. This was very noticeable in the case of the Parrots and the Thickheads (*Pachycephala rufiventris*), the former laying a month earlier and the latter 23 days These cases refer to birds that breed beside my house in the same spot each year.

White-fronted Heron (*Notophoyx novæ-hollandiæ*).—For some time I have been observing a pair of these birds for further notes on their habits, and I noticed the following little incident—an unrecorded trait, I think.—The two birds were in a shallow pool

about 6 inches deep, and were vigorously at work over their morning meal. With one of their long legs they would disturb the bed of the pool, and for the next few moments their heads would be very busy. Apparently the object was to disturb the larvæ and such like at the bed of the pool, and then promptly catch them.—S. A. HANSCOMBE. State School, Belltrees (N.S.W.), 20/11/11.

* * *

Near Broken Hill (N.S.W.)—I have just been out back for about three weeks, with indifferent success from an observer's point of view. I saw one nest only of the Grey Falcon (*Falco hypoleucus*), and that contained young birds. I saw several pairs of Black Falcons (*F. subniger*), but no nest. However, I found three nests of the Spotted Harrier (*Circus assimilis*), the first that I have observed. Chats (*Ephthianura*) were far less common than usual, hardly any Song-Larks (*Cinclorhamphus*), and most of the smaller birds had bred early. Whistling Eagles and Allied Kites were in far greater numbers than I had ever seen them before. I could easily have taken 50 or 60 clutches of the former had I bothered to do so. Goshawks (*Astur approximans*) were also common. All had clutches of three eggs except one of four, which were just hatching. My old Buzzard (*Gypoictinia*) had deserted its former site, but I found another nest with two eggs just hatching. When I peeped over the edge I got rather a start, as several young Parrots (*Barnardius barnardi*) flew out of a hollow just beneath the Buzzard's nest. Langawirra Lake held more water than usual, and presented many beautiful views, as all the marginal trees were standing in water. It was pretty cold, too, wading from tree to tree, with an occasional immersion up to the neck, searching for Ducks' nests. Red-kneed Dottrel (*Erythrogonys*) were numerous and all paired, but not breeding. One day, when driving a four-horse team through a scrubby part, eight Emus (*Dromæus*) came out to look at us. When we pulled up, these fine creatures came and made a thorough inspection of the horses and trap, coming within five yards of us, and did not mind my getting out of the trap for a nearer view. What a snapshot for a camera man, I thought!—(DR.) W. MACGILLIVRAY. Broken Hill, N.S.W., 6/10/11.

* * *

Descriptions of Nests and Eggs from Cape York.—*Ninox peninsularis* (Cape York Owl).—Set of two taken by Mr. W. M'Lennan near Piara, Cape York, on 6th August, 1911.

Eggs.—Rounded oval in form, close-grained, smooth, and slightly lustrous, measuring—(1) 44 mm. x 38 mm., (2) 45 mm. x 38 mm. Mr. M'Lennan's field-note:—"About four miles from Paira, on the Lockerbie track, I flushed an Owl (*N. peninsularis*) from the branches of a Moreton Bay ash; flushed another from a hollow in a tree close by. Nest contained two eggs. Hollow in a big wart, 40 feet from the ground, 18 inches in diameter, 13 inches in

depth. The bird that flushed from the nest appeared to be the smaller of the two, probably the male. Tree, a Moreton Bay ash."

Ptilotis cockerelli (Cockerell Honey-eater).—*Eggs.*—Clutch, two, taken near the Jardine River, Cape York, on 10th May, 1911, by Mr. W. M'Lennan. Oval in form, close in grain, smooth, and slightly lustrous; ground colour pale pinkish-white, sparingly dotted with irregular spots and markings of reddish-brown, which are gathered at the larger end to form a zone, almost obscuring the ground colour. In this zone are a few underlying spots of a purplish hue. A second set showed much variation, one specimen being almost pure white in colour, with a very glossy surface and a small band of faint chestnut-red spots at the larger end, the other having a ground colour of a rich salmon, sparingly spotted with spots and blotches over two-thirds of the surface, and forming a distinct zone, almost covering the larger end.

Nest.—Cup-shaped (not pensile), but supported in a terminal, horizontal branchlet of "tea-tree." Composed almost wholly of very fine grass stems and the hair-like stems of some other plant, all beautifully interwoven, but admitting of perfect ventilation. A very few silky threads of cobweb are used here and there to bind it together. Mr. M'Lennan's note reads as follows:—"Twenty-two mile camp, near Jardine River, Cape York. Went through swamp near camp; found a *Ptilotis cockerelli* nest, two fresh eggs, in a small tea-tree bush 18 inches from the ground. Nest sent for description and identification; shot the female."

Pœcilodryas pulverulenta (White-tailed Shrike-Robin).—Mr. W. M'Lennan discovered this rare species building in the fork of a mangrove tree near Piara, Cape York, on the 22/9/11, and took the nest and pair of eggs on 2/10/11, the eggs being then somewhat incubated. These specimens appear similar to nest and eggs of this species described by Mr. H. L. White from the North-West coast in *The Emu*, vol. x., p. 132. The following is Mr. M'Lennan's field note:—"Went on to the nest of *P. pulverulenta* found building on the 22nd September. The female was sitting on the nest, so I sat down and watched her for about 1½ hours; she left the nest three times, and returned each time within a couple of minutes, and occasionally uttered a short, low whistle. The male did not put in an appearance, but I heard him call once some distance away from the nest. I imitated the call, and he came along to see what was the matter, but soon left again."—(Dr.) W. Macgillivray. Broken Hill, N.S.W., 6/10/11.

Bird Day.—The importance of Bird Day in most of the State schools of the Commonwealth needs a special notice. This has been unavoidably held over, together with an engraving of the certificate of the Gould League of New South Wales, till the next issue of *The Emu*.

From Magazines, &c.

Mr. Robert Hall, C.M.Z.S., Hobart, has contributed an interesting and technical article (with figures) to the Royal Society of Tasmania on "The Feather-Tracts of *Sphenura broadbenti* (M'Coy)."

The author deals with specimens kindly forwarded by Mr. Geo. Graham, Otway Forest, Victoria—(*a*) approximately four days old, (*b*) seven days later, with eyes open, (*c*) nearly ready to leave the nest, and (*d*) an adult male. Mr. Hall regards the *Sphenura* as a disappearing genus. The species under consideration, however, seems to hold its own in its littoral habitats from the region of Geelong to well over the South Australian border.

* * *

Ducks Nesting in Rabbit-Burrows.—Mr. James Drummond, F.L.S., in the *Lyttelton Times*, of New Zealand, for 11th November, 1911, writes of Paradise Ducks using unoccupied rabbit-burrows as nests. On the Waitangi Station, South Canterbury, he states, three instances are reported to have occurred :—" All the nests were fairly close to the homestead. One was near the woolshed, and, as it was conveniently situated, it was frequently visited. The parent birds, both duck and drake, sat very tight, and did not seem to resent the presence of onlookers, even when approached for a close view. The owners of that nest, probably, are a pair which frequent the homestead and are acquainted with their visitors, and know whom they can trust. The burrows in use are on rising ground, and the nests were near enough to the mouth to allow the tenants a glimpse of the outside world. 'I found a good many nests of the Paradise Duck,' Mr. J. W. Murdock says, 'and they were all, with one exception, in somewhat inaccessible places. Some were on rough and steep mountain faces, far from water. One was high up on a cliff overhanging a river, another was about 20 feet above the ground in an old birch-tree that had been partly burnt down. The nest was in a hollow scooped out by the fire. The drake takes his turn at sitting on the eggs. It is a solemn business with him. Perhaps it is his colouring that makes him seem so serious, so different from the gay and light-hearted duck. But for all that I do not think he is trusted to turn the eggs. The duck attends to that work, which can be noted by observing her pretty white head quite discoloured—greasy, in fact—from turning the eggs over amongst the down. The nests are marvels of warmth. The eggs lie upon and are covered with soft grey down, of which the mother bird has robbed herself.' "

Reviews.

["Catalogue of the Natural Science and Technical Periodicals in the Libraries in Melbourne," compiled by T. S. Hall, M.A., D.Sc., with the assistance of E. R. Pitt, B.A. (Second edition.) By authority: J. Kemp, Government Printer, Melbourne, 1911.]

THIS small but laborious task has been a labour of love by its collaborateurs. It is a most useful reference, and students and others will not only thank its compilers, but the Hon. W. A. Watt, as Treasurer of Victoria, for authorizing its publication by the Government Printer. Mr. Kemp might, however, have made it a still more easy and ready reference had he used, instead of cumbersome capitals for the principal names, the Clarendon type, of which he possibly has good fonts.

["The Destructive Insects of Victoria." Part V. By C. French, F.L.S., &c.]

IN Part V. of the "Handbook of Destructive Insects of Victoria," recently published, Mr. C. French, as Government Entomologist, carries forward his idea of making the public also acquainted with the value of insectivorous birds. By means of coloured plates and descriptive letter-press, twelve species are here presented. There are among them such well-known birds as White Ibis, Straw-necked Ibis, White-fronted Heron, Bustard, Jackass, Magpie, and Stone-Plover. Argument for complete and consistent protection of all such "friends of the farmer" can never be too frequently or too forcibly put. In Part I. of the "Handbook," issued in 1891, Mr. French began his crusade by a list of insect-eating birds. In Part III. (1900) eight species of insectivorous birds were figured, and their services recorded. Part IV. (1909) contained fourteen species The plates in Part IV., and in this part now to hand, are printed by a newer method of colour-printing. The bird plates in Part V. are drawn by Messrs. C. C. Brittlebank and L. C. V. Anderson, and reproduced by Messrs. Osboldstone and Co., Melbourne. Price (exclusive of postage), 2s. 6d. Obtainable at any leading bookseller's.

["Birds of the Water, Wood, and Waste." By H. Guthrie-Smith. Whitcombe and Tombs Limited, Little Collins-street, Melbourne. 1911.]

BIRD-LOVERS of the Dominion will welcome this volume, which is of the genus of White's "Natural History of Selborne," inasmuch as it treats of the wild life of a single locality, and comprises the observations of a true naturalist. Here are no discussions about nomenclature. It is a book of field ornithology, evidently written with keen delight, in which every reader is like to share.

Mr. Guthrie-Smith has studied the birds of Tutira to some purpose. Tutira is situated in the northern portion of Hawke's Bay. It is a sheep station, with "natural advantages of barren and waste land." But the lake, which is some miles in length, "may be considered the heart of the run. Round it centres all the station's life; all sheep tracks, roads, and stock routes lead to it." There is a peninsula, and, not far off, limestone ranges. The lake is a haunt of Ducks, Herons, Grebes, Bitterns, and other aquatic birds. The present volume deals with fewer than a score species, a chapter being devoted to each; but the author writes from first-hand knowledge, and the result is that the reader unfamiliar with New Zealand's avifauna learns more than he would from the perusal of a more pretentious and fuller work. The bird biography is, perhaps, the best method of popularizing ornithology. The most interesting chapters are those on the Weka Rail, the Fern-Bird, and the Tui. Mr. Guthrie-Smith has an easy style of writing, although he sometimes offends with such phrases as "happening on" and "dropping on." Here is a pleasant passage relating to the Mountain-Duck :—

"Dipping in summer's heat from the fern-clad downs and terraces of pumice grit, often have I enjoyed the cool damp of his fern-hung gorge, and have paused long to watch him in his solitudes. The little waterfalls dash into diamonds on his slate-blue plumes. He is thoroughly at home on the bubbling champagne pools. Where the swift stream shows each polished pebble clear he can paddle and steer with ease."

There are gleams of humour in the book, and the author writes in the liveliest manner about a pet Pukeko called "Budget," or "Budge" for short, and "Uncle Harry," a tame Pigeon. It would have added to the value of the volume had the scientific names of the different birds mentioned in it been given. Even in a popular work these should be included.

Bearing in mind the great difficulties of obtaining outdoor photo.-pictures of birds and their nests, Mr. Guthrie-Smith's records are extremely good. Special mention may be made of the "Pukeko's (Bald-Coot) Nest," "Harrier's Nest," "Falcon Feeding Young," "Pair of Wax-eyes (*Zosterops*) at Nest," "Hen Pigeon and Young," "Warblers," &c. Many of the illustrations are almost duplicates, such as Blue Ducks in river and in pool. Again, river scene with same. Perhaps the numbers of the Pigeon are warranted in view of the "passing" of the Passenger-Pigeon of North America. Some of the subjects are pure landscapes showing several planes, the part of ornithological interest being merely a detail. It is not necessary to fill up the whole plate with a bird study, neither is it wise to make the principal subject too small a part of an illustration. The "happy mean" always scores best. Mr. Guthrie-Smith's pictures have been technically well reproduced in photogravures and half-tone blocks by Messrs Hood and Co., Middlesbrough, England.

Correspondence.

NOMENCLATURE OF AUSTRALIAN AVIFAUNA.

To the Editors of "The Emu."

SIRS,—I was gratified to see Mr. Milligan's letter on this subject, and after this reply it would seem, in the words of the newspaper editor, "This discussion will now cease." For upon the points at issue between Mr. Milligan and myself unanimity of absolute thought may not have been reached, but uniformity of procedure must perforce be accepted.

I sincerely regret that my comments should have seemed to Mr. Milligan to savour of upbraiding; but I wrote rather vigorously, as I hoped thereby to stir up Australian ornithologists out of the lethargy, as regards purely scientific work, into which they appeared to have fallen. As I pointed out, I myself at the time my "Hand-list" was prepared, blindly followed the British Museum authorities in its compilation. Further research convinced me of the fallacy of such action, and I set myself the task of leading the van as regards Australian ornithology, fully convinced of the final success of my cause. The sequel is perhaps as pleasing to Australians as to myself. In the *Nov. Zool.*, vol. xvii., p. 492 (1910), concerning the matter Mr. Milligan firstly comments upon, I wrote:—"It seems only a matter of time before British ornithologists fall in line with the rest of the scientific world." When penning that sentence I fully understood the obstacles and their certain removal, but did not anticipate such an early fulfilment of my prediction as has followed.

Mr. Milligan's letter was received in England on the 11th November, and three days previously the British Ornithologists' Union had unanimously decided that "their adherence to the 12th" (not 13th, as Mr. Milligan has inadvertently written) edition was a "conservatism antagonistic to progress." That is to say, though I cannot claim that I have convinced the British Museum authorities, they have been convinced, and now the whole ornithological world of science is unanimous in the acceptance of the 10th edition of Linné's "Systema Naturæ," and also in the use of trinomials for sub-species, and "Australia must perforce fall into line," for at the same meeting of the British Ornithologists' Union the question of the use of trinomials was also discussed, and here again was uniformity of procedure adopted.

"But, whatever the merits or demerits of either system may be, I, as a member of the Check-list Committee, intend (quite regardless of my personal feelings) to give loyal adherence to the system presently adopted by the national authority on ornithology within the British dominions—namely, the British Museum." Thus writes Mr. Milligan, and this is a most important statement, as it at once enrols him absolutely on my side in every matter of any importance, as at the present time the British Museum ornithologists all follow the 10th edition of Linné's "Systema

Naturæ," employ trinomials to indicate sub-species, and reject the useless generic names adopted by Sharpe in the "Hand-list of Birds." It is thus apparent that my nomenclature (errors excepted) must be approved by Mr. Milligan.

As regards the other points of Mr. Milligan's letter, discussion would scarcely be profitable. The note regarding my rejection of Brisson's generic names shows that Mr. Milligan either does not know anything whatever about Brisson's work or he has very unhappily framed that paragraph. Brisson was the greatest ornithologist of the eighteenth century, and his work is the most used work of reference of that period. Living at the same time as Linné, his knowledge of ornithology far surpassed that of the great systematist, but he did not use a binomial nomenclature, and for this reason his names are inadmissible. It has been decided that Linné's 10th edition, which first proposed a binomial nomenclature for zoology throughout, be accepted as the starting-point of zoological nomenclature, and that only writers who accepted Linné's system be recognized. It should be remembered that there were many writers on various subjects for many years afterwards who refused to have anything to do with Linné's methods, and these have been most conscientiously ignored save, in ornithology, in the case of Brisson. The admission of exceptions breaks down the rigid application of the laws, and therefore I do not admit of any exception whatever. In Brisson's work, 1,386 (according to Allen) species are fully described and named, yet none of Brisson's specific names are used, simply because he was not a binomial writer. To my mind, there is more "positive injustice" in this action, but I accept the laws.

When I quoted Mr. North's words *re* trinomials I added a further sentence, and noted that North was not a user of trinomials. I clearly perceived the innuendo, and would have suggested the reading of a double innuendo regarding hair-splitting in Mr. Milligan's re-quotation had I not in front of me a vigorous defence of hair-splitting by Mr. Milligan himself (*Emu*, vol. iii., p. 245, 1904). If each species had only one sub-species, then would Mr. Milligan's suggestion regarding the nomenclature have been valuable; but, as sometimes sub-species of a species run into the teens, it is impossible. Such ideas have been attempted in other branches, but none has yet been found practicable. However, we have now reached the point of convergence, and henceforth Australian ornithologists will present a united front in that they will accept the International Code in its entirety.

With regard to the comment on p. 130, answer is almost unnecessary except as regards the sentence—"Well may Australians ask—'Why rely on the doubtful drawings of a botanist as against the life-like coloured figures of so great an ornithologist and author as Gould?' 'Bed-rock priority run riot,' people are apt to say." I am quite unable to understand this sentence, as in the paper under notice I can find no instance where I have contrasted

a "doubtful" drawing of a "botanist" with a Gouldian name or figure. The pros and cons of such a comparison are therefore presumptively impossible. Why was such a sentence written?—I am, &c.,

GREGORY M. MATHEWS.

Langley Mount, Watford, England, 16/11/11.

[Mr. Mathews is apparently incorrect, if his surmise be rightly understood. Mr. Milligan is not only familiar with the range and extent of Brisson's work, but is also a sound authority (by virtue of his legal training) on the principles and canons of the "International Rules" and those of the American Check-list Committee. Mr. Milligan's views on the so-called "law of priority" are well known to Australian ornithologists, and most probably his desire in writing as he did was to force from Mr. Mathews the admission that the "rule of priority" was, after all, only a "law of expediency." Mr. Milligan has openly contended that, if the rule were strictly a "rule of priority," all pioneers in zoology, including Brisson and all pre-Linnean authors, would receive acknowledgment. In point of fact, there seems little difference between Mr. Mathews and Mr. Milligan on the subject, for Mr. Mathews, in his first letter (*Emu, ante*, p. 53), states:—"But if the law of priority is applicable to present-day workers, how much more should it be meted to those whose works are all that speak for them? It should be remembered that these early writers, whose names I accept, were quite as enthusiastic and earnest as any of our own time. It cannot be denied that it is due to such writers that their names should be recognized, as it is only just that the merit should be given to those whose right it is. That is all I am doing."

On the question of "hair-splitting," Mr. Mathews is possibly again incorrect. Mr. Milligan has always advocated that, to be thorough, every constant variation, small (but not trivial) as well as great, should be distinguished—obviously a different proposition to "hair-splitting," a method which causes a division without ascertaining a difference.

Lastly, Mr. Mathews is "unable to understand," or has not fathomed the sentence of criticism (*Emu, ante*, p. 130)—"Why rely on the doubtful drawings of a botanist as against the life-like coloured figures of . . . . Gould?" In *Novitates Zoologicæ*, vol. xviii., Mr. Mathews writes:—"Re-examination of the Watling drawings having indicated errors of identification on the part of Sharpe with regard to some species, which are noted in this paper, I carefully went into the matter again." If two such eminent authorities as Sharpe and Mathews differ about a doubtful drawing, Gould's plates are good enough for Australians. Moreover, a "Recommendation" under Article 28 of "International Rules" reads:—"A specific name accompanied by both description and figure stands in preference to one accompanied only by a diagnosis or only by a figure."—Eds.]

South Australian Ornithological Association.

THE monthly meeting of this Association was held in the Institute, North-terrace, on Friday evening, 24th November, 1911, Captain S. A. White presiding. There was a good attendance. The hon. secretary drew attention to the depredations taking place with regard to that familiar little bird, the "Shepherd's Companion" (*Rhipidura tricolor*). It was resolved to draw the attention of the police to the matter, as these birds are totally protected. Mr. J. W. Mellor, who represented the association at the recent session of the Royal Australasian Ornithologists' Union, held in Sydney, gave a short *résumé* of the proceedings and the working excursion to the Ourimbah scrub, in the Gosford district, where about seventy species of birds were observed. Captain White gave an account of his trip taken to the mallee country about the Bow Hill district, whither he went a few weeks ago to study the birds in connection with Mr. Gregory M. Mathews' book in course of publication. The season proved somewhat dry and hot; nevertheless, Captain White was fortunate in securing a couple of specimens of the Red-throated Thickhead (*Pachycephala rufogularis*) and several other interesting species of birds, including the Chestnut-backed Ground-Thrush (*Cinclosoma castanonotum*), the Striped Grass-Wren (*Amytornis striatus*), and the Mallee Miner (*Myzantha melanotis*), which he exhibited in illustration of his remarks. Mr. F. R. Zietz exhibited specimens from the Adelaide Museum collection for comparison with the mallee specimens. These included the Noisy Miner (*Myzantha garrula*), Dusky Miner (*M. obscura*), and the Yellow-throated Miner (*M. flavigula*), Gilbert Thickhead (*Pachycephala gilberti*), and a series of Grass-Wrens—Striped (*Amytornis striatus*), Goyder (*A. goyderi*), and *A. gigantura*. Mr. Mellor also exhibited specimens. Mr. J. W. Hosking showed a Field-Wren (*Calamanthus campestris*) from Mount Gambier. Messrs. M. S. Hawker, J. Bathgate, H. Simpson, and A. H. Clark were elected members of the Association.

Notes and Notices.

Special Notice.—Members are kindly reminded that only matter for publication should be addressed to the Editors, *The Emu*. General correspondence should be addressed to the hon. secretary, while subscriptions, &c., should be forwarded direct to the hon. treasurer (whose address, and that of the hon. secretary, appears on the wrapper of this journal). Members will also please recollect that subscriptions are *payable in advance*—a necessity for the proper upkeep of *The Emu*.

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Field Ornithology in South Australia.—In connection with Mr. Gregory Mathews' work, in course of publication, Capt. S. A. White has been, during a series of trips, voluntarily collecting specimens for that author. Capt. White, who was accompanied by Mrs. White, has kindly promised for this journal a series of his field observations, commencing with an excursion to Eyre Peninsula, undertaken last August. This account will appear in

the next issue of *The Emu*. Capt. White's re-discovery of *Pachycephala rufogularis* of Gould will be read with extreme interest (*vide* p. 212).

* * *

Destruction of Mutton-Birds at Cape Wollomai.—Melbourne papers contained some startling accounts of alleged cruelty to the birds by eggers during the recent season, notably by visitors from Wonthaggi; but the evidence of such experienced eggers as Messrs. John Brunning, Chas. Ed. Gorman, and others from Somerville failed to substantiate any general acts of cruelty. They state a bird here and there may have been accidentally mutilated, while the barbed-wire protection to the marram-grass plantations ensnared and destroyed many birds flying at night. The authorities of the *Game Act* have under consideration at present a special report of an inspector who visited the rookeries on Wollomai during the egging season.

* * *

Western Emu-Wren.—In a footnote, page 105, *The Emu*, vol. viii. (1908), I state:—"The Western Australian form of the Emu-Wren differs from the eastern bird by the general upper surface being lighter coloured (greyish instead of brownish), and by the width of each of the curious tail-feathers being only about half the width of those of Eastern examples." (The filament-like structure of the tail is also finer in the Western bird.) Since, principally in connection with the Check-list Committee, more material has been examined, which appears to point to the difference mentioned as constant; therefore, with the concurrence of the Committee, I suggest for the Western bird the name *Stipiturus westernensis*.—A. J. CAMPBELL. Melbourne.

* * *

Traffic in Bird-Plumage.—Recently (according to the *Morning Bulletin*) members of the Rockhampton Chamber of Commerce waited on the Queensland Agent-General (Sir Thomas Robinson) to bring under his notice matters of importance pertaining to industrial development, &c. Mr. Wm. M'Ilwraith (brother of Mr. Thos. M'Ilwraith, the author of "The Birds of Ontario"), as a member of Council of the R.A.O.U., pointed out that, notwithstanding what the Union was doing, and the various State enactments for the proper preservation of wild birds, illicit destruction and export of bird-plumage were still carried on.

Sir Thomas Robinson said that he had listened carefully to what Mr. M'Ilwraith had to say, and he would be only too pleased to act upon the suggestion. He would take an early opportunity of bringing the matter before the High Commissioner (Sir George Reid) and the other Agents-General, and if it were found that birds were being imported from the Australian States contrary to the prohibition issued there, he was sure that the Customs authorities of Great Britain would be pleased to see what could be done in the matter.

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

Vol. XI.] 1st APRIL, 1912. [Part 4.

Bush-Birds of New Zealand.

By J. C. M'Lean, M.B.O.U., Gisborne, N.Z.

Part IV.

Zosterops cœrulescens—Blight-Bird or White-eye.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 77

As the result of the observations of two winters, it is thought that the Blight-Bird does not, in the natural course of events, frequent the higher virgin bush in any great numbers. Naturally, their movements are somewhat difficult to follow. In the autumn they become gregarious, and in each year were observed in flocks in many parts of the lower open country before I reached this bush. Here, in 1906, they were noticed as odd birds in May, and from then on began to appear in small flocks about the different camps; but in 1907 they were already present on the outskirts when I arrived in March, although only a few were noticed in the bush. In each year they soon found out the camps, and by the end of June were in fair numbers about these spots, feeding upon whatever they could get in the way of vegetable refuse among the scraps deposited outside. When once a camp was selected, the flock, gradually being recruited, settled down in a manner unwarranted by the local food supply, hunted but little in the surrounding bush, and practically starved. Generally speaking, those camps nearest the edges of the bush harboured the largest flocks, and the further in one went the smaller they became. For instance, possibly one hundred birds frequented one on the edge of the 1907 bush, while my farthest in camp of the preceding year supported only some ten or twelve. The snowstorm of July, 1906, when 3 feet of snow covered the country, so dispersed these flocks—probably killing many—that hardly a bird was seen or heard for some weeks; but in August a few again appeared, no doubt from outside, and from then on small flocks remained about these spots till all the bush was down, and were there when I left in October. At a camp from which the men (having finished their contract) had departed a fortnight before, dead birds were picked up in September, where, it appeared, they had simply died of starvation. Thus it seems that, had there been no camps to attract the birds, few would have ventured to winter here.

In New Zealand the Blight-Bird, though never eating grain, is

practically omnivorous. Fruit, honey, insect life, and vegetable garbage are greedily devoured, and it is inordinately fond of fat —butter especially. They have been seen upon the sheepskins at the gallows, and even in the pig-trough! Here, in the bush, they were not well spoken of by the men, for, once a flock has taken up its quarters near a camp, it is hardly safe to leave eatables uncovered during the absence of the owners. The birds flock into the galley and help themselves to any butter or fat they find. They have been known, at my first camp, to clear all the fat, inside and out, from a cooked leg of mutton; and at a camp in 1907 they picked the plums from the outside of the Sunday pudding. On 3rd October, 1906, I revisited my second camp, where I intended spending the night in a tent left pitched for the purpose. The few eatables brought over were deposited on a stump while I opened up the tent. My back was hardly turned when two Blight-Birds settled on the piece of paper with the butter I had just deposited. They behaved like a flock of Sparrows on and about our meat-block after a sheep had been cut up. There they were so busy with the particles of fat, and so intent, that the cat landed in their midst before one flew. Each camp had its cat as a protection against rats and mice, and the Blight-Birds, as they hustled about the scraps, fell victims every day. They were the only birds I saw so captured during my stay.

Naturally, its impatient, plaintive call was frequent near the tents, but was not often audible in the bush itself. In the breeding season, however, there may be heard, for many minutes at a time, a pleasant little warbled trill, which the Blight-Bird repeats, at short intervals, from some smaller tree in the vicinity.

Though the nest remains attached to its twigs for a season after the young are gone, I never saw an old one in this bush; but, while the bush birds were still in flocks in October, their friends were busy nesting in the lower country in 1906. It has been noticed that in some years the pensile nest of this bird, usually containing three eggs, but sometimes four, is to be found in fair numbers about the manuka scrub (a species of tea-tree) and creepers in the lower country, while in another season hardly a Blight-Bird will be seen about that particular part in which they had previously nested. This bird, so common in our scrub and gardens, merits more than passing notice. It is considered a colonist from Australia, and it will be interesting to note its ultimate behaviour here as compared with its habits in its native land. (For illustr. tion of nest see Plate XXIII.)

Acanthidositta chloris—RIFLEMAN.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 113.

The Rifleman, our smallest bird—measuring only 3 inches in length—inhabits the higher bush country of both islands. Here, both on the North and on the South, it was fairly plentiful in the tawa and mixed bush, but was never met with in the open tawhera. In the white-wood gullies and denser parts of the birch it was

PLATE XXII.

Typical Home of the Rifleman (*Acanthidositta chloris*), moss-clad tree trunks in dark and damp gully.

FROM A PHOTO. BY J. C. M'LEAN.

a common bird, and could be seen even on the tops of the highest ridges. In March and April it was generally met with in couples; but occasionally small parties of four or five, no doubt late broods, were noticed. In winter and spring it was invariably found paired—the male distinguishable by his somewhat brighter garb. So far as was ascertainable, its food consisted almost wholly of minute insect life, which it gathered chiefly from the moss that grew in such profusion on the trees about its haunts. However, some acquired a taste for other food. One pair, whose home was in a small gully near my first camp, regularly visited the place to see what pickings were to be obtained among the scraps. They were often watched at close quarters, and have been seen to take small shreds of cooked meat from bones; but they never stayed more than a few moments at this food. At my third camp, too, a pair was in the habit of fossicking near the tents in the same way, and from what I saw it was possible that this habit was indulged in in another part. The home of the Rifleman (Plate XXII.) is in the dense and damper parts of the forest, and, unlike other birds, it does not seek the warmer, sunny spots; while the weather, no matter what it be—rain or snow or sun—has little influence on its daily routine. During the heavy snowfall of July, 1906, it was much in evidence about my camp, where two or three pairs could be seen, apparently the only cheerful beings in the locality; and at the "trig." of the southern side, at an elevation of about 3,500 feet, from which, in winter, the mist seldom rolled away, where no other species cared to dwell, I found this little bird at home, hunting diligently about the dripping, moss-clad fuchsia and other smaller trees, or skipping, in sprightly manner, along the dewy stretches of that handsome sub-alpine fern *Todea superba*, which formed a soft and springy carpet on the ground below. They are most industrious little birds, being continuously on the move from dawn to sunset; and the pair may be seen, with slightly drooped and ever-flicking wings, daily working over the same ground in the vicinity of their home, from which they never wander far, and to which great attachment is shown, for, when the bush was felled, many pairs remained about these spots—some to nest—and, no doubt, were unfortunately destroyed by the fire. Although its wings are rarely still, its powers of flight are possibly limited. Direct flight is seldom witnessed, and then only for short distances, and its mode of progression is generally by a succession of short, quick flights of a few inches at a time. But, by a system of its own, the Rifleman rapidly examines the timber and moves from tree to tree in such a way that true flight is practically dispensed with, or rarely required. One soon remarks the consistent method by which the bird searches for food—a search in which, unlike some other birds, it never loiters or diverges from its path, and never wanders aimlessly about a tree. Starting low on the bole of some larger tree, it climbs the mossy trunk with short hops to the accompaniment of its flicking wings. Up it goes in its perpendicular path in

successive steps until, satisfied with the height attained, it lets itself drop, with open wings, almost vertically down to the base of a neighbouring tree, whence it starts again. Rarely does it mount to a greater height than 30 feet, and sometimes, on reaching the first large limb, skips along its length, ignoring adjacent twigs and branches. Now, this horizontal limb above appears to be used as a means to further progress, for, by dropping from the end towards the butt of a neighbouring tree, up which it means to climb, the Rifleman saves itself a certain amount of flight. However, it has been seen to hover in mid-air against the moss of some forest giant or describe an upward spiral flight around its trunk, as if in quest of a suitable spot for more minute investigation. Twigs and creepers and their leaves are little to its liking, and in the smaller vegetation it behaves in much the same way as it does in the heavier timber, running up, perhaps, the roughened stem of a tree-fern, disregarding the leafy crown for the base of a sapling in the vicinity, whence to trip aloft again.

The vocal attainments of the Rifleman are in keeping with its diminutive size, and its notes are weak, like those of a nestling. Its song was never heard, and it is doubtful if it possesses one The call, however, a faint single note, very rarely duplicated, like "Sit," is called at frequent intervals, during winter, by both sexes as they move about the bush, but it was thought to be less frequently uttered in spring. When the bird is alarmed, this note becomes a scolding rattle, "Str-r-r," but slightly intensified in sound, which was heard only on rare occasions, and then from the male alone. The call, "Sit," has been likened to that of our handsome native cricket (*Xiphidium maoricum*), a large-winged, sap-green insect, with long antennæ, whose soft, monotonous chirp — not to be confused with that of its introduced black relative—is audible on autumn evenings about our gardens and shrubberies. This comparison of notes is hardly to the advantage of the higher organism, but it is not very far from being the truth.

Were it not for the habit of continually flicking its tiny wings, the Rifleman would hardly attract attention, for it is by no means vociferous, and its plumage, of green and brown and white, is in keeping with its surroundings; but it is such a lively little mite, and, with its trustfulness, soon commends itself to one. None of our bush-birds, however, takes so little notice of one's presence, and it is far too businesslike to interest itself in the affairs of others. Even the Whitehead's excited summons, which is quickly responded to by other birds, fails to impress this ever-busy bird. But if undue attention be paid to it the bird becomes shy in one's presence, and it is at all times difficult to arouse any inquisitiveness. I repeatedly failed to attract its attention by the usual methods employed with other species, but on one occasion caused some excitement; but it was in September, and the nesting season, when the birds appear somewhat more cautious, was drawing near. The toast was overdone, and the scraping made by the knife which was being used brought up a

pair, of the presence of which in the vicinity I had, until then, been ignorant. They came within 3 feet of me. The male, in the advance, was very angry, and scolded with the faint rattled note, while the female backed him up on the same log, both drooping their little wings in great excitement. On one occasion I was resting in the bush and observing a party of Whiteheads above, when a pair of Riflemen came near. I kept perfectly still, and had the satisfaction of seeing the male first settle on my boot and thence run up the legging to my knee. There he paused for a moment's survey ere he flitted off to join his mate. In this no curiosity or fear was shown, but he was wide awake. It seems well able to take care of itself, and in the daily visits to our camp this alertness always saved it from the cat, who was sorely tempted, and I have seen the male boldly face and rate the Falcon sitting in too close proximity to his haunt.

From what had been read about the bird's nesting habits in other parts, it was thought that the Rifleman would be found breeding early in the spring; but, although no other species was more carefully watched, it was not until the last few days of my stay in 1906 that a nest was obtained. From observations made at this nest, it was evident that the birds are far too circumspect to reveal the nesting site. This is somewhat strange of a bird which at other times pays little regard to the presence of man; but it was noticeable to the writer that some other species which, in the more open country, are more in touch with human beings, and are not there so tame as when met with in the virgin forest, do not display so much caution when nesting in the former as they do when building in the bush.

On 8th October a glimpse was obtained of a bird carrying something into a steep face of felled bush in the Mangamaia Creek. Some considerable time was spent on the 10th in an endeavour to locate the nest by watching from the opposite bank, but the birds could not be seen. However, on the following day a more careful approach was made, and from my hiding-place the female was seen flitting in the felling on the face, and soon disappeared under a small felled tawhera limb which hung a foot outwards from the mass of exposed rootlets that fringed the top of a steep stone face about 18 feet from the water. After about a minute the bird emerged and flew quickly off, but returned in a few moments and again entered. She stayed inside for a second or so only, and on coming out evidently saw me, for she flew over the creek and started explorations about the bole of a large birch. There the male soon joined her, and, although watched for fifty-five minutes, they never approached nearer than 50 feet to their nest, and then only as if in the usual course of their hunting. During this time no difference in their behaviour from that usually observed could be detected; and, as I had known and watched this particular pair for some months, I came to the conclusion that there is little or nothing in the actions of the nesting Rifleman to betray the fact. At the end of the hour, the female, who had worked

up unobserved through the felled timber, paid a momentary visit of inspection, just slipping in and out and away like a flash. Before proceeding to examine the nest, which my impending departure made necessary, on 12th October I again carefully approached and watched for the birds, as on the previous day. Both male and female were seen to enter on several occasions. They generally came unseen through the felled stuff, rested a moment on the overhanging limb, and invariably flew directly out, disappearing in the felled scrub again. On one occasion the female was in at the nest when the male brought something. He went in too, but came out almost immediately, having handed over his supply of material to his mate inside. It was afterwards found that the nest was practically finished, and this would account for the infrequent visits, and for so little time being spent inside. The material, too, was so fine that it rarely could be seen whether the birds were carrying anything at all. Being now satisfied that both birds worked at building, a move was made to photograph the site before going up to the nest. This caused the birds to cease their operations, and they disappeared; but while taking the nest the male sounded his rattling note in the timber near, but was never visible. From the above it may be seen how careful the birds are when they know that danger threatens their home. The position of the nest did not admit of its being photographed *in situ*, and, even had it been possible to rig a camera up in such an insecure spot, the nest was absolutely hidden in the mass of rootlets; so, after removal, it was carefully photographed in the bed of the creek below, simply resting on the stones at the foot of the bank (Plate XXIII.) Amid these roots, with its base in touch with the more or less distributed mould, the nest was hidden, its entrance being about 8 inches from the outside; and although it was, in a way, supported by the rootlets, none was incorporated with the material of which it was composed. Other nests have, I believe, been observed in holes and cavities of tree-trunks, so this may have been a somewhat unusual position. Some readers may possibly know the style of architecture employed by the family *Pittidæ* in Australia, to which *Acanthidositta* (*Xenicidæ*) is considered akin—dwarf Pittas, in fact; and so, although a full description of this nest has already been published in *The Ibis*, it may be of interest for comparison if repeated here. As will be seen from the illustration, it is a work of considerable labour and skill on the part of so small a bird, and on the day of removal, although dry and somewhat lighter, it weighed 11¾ ozs. It is a compact, oval ball, with one end slightly flattened. In height it measures 5 inches, in breadth 5.1 inches, and in length 5.5 inches. It is composed principally of very fine rootlets, much interwoven, a little moss, a few leaf skeletons, and one or two pieces of bleached ribbon-like bark are intermixed. The flattened end is wholly composed of very lightly interwoven rootlets, through which the entrance, .85 inch in diameter, tunnels for 1.8 inches to the circular egg-chamber, about 2.5 inches in

Nest of Rifleman (*Acanthidositta chloris*)

Nest of Blight-Bird (*Zosterops caerulescens*).

FROM PHOTOS. BY J. C. M'LEAN

diameter, situated towards the other end of the oval. As the nest was placed with its longer axis at an angle of about 30° to the horizon, and the tunnel was horizontal, the entrance opened towards the upper part of the egg-chamber. This cavity is lined with brush-like particles of brown fern-down and very fine moss, well felted together. Its most characteristic feature is the long, tunnel-like entrance through the thickest and most closely woven part. No feathers can be felt among the lining of the nest, which, however, seems finished. Reference to the "Birds of New Zealand," vol. i., pp. 108, 112, 115, and 250, and to "Animals of New Zealand," p. 112 *et seq.*, will show that the different members of the family *Xenicidæ* construct very similar nests, and also place them in situations much the same. The eggs of this bird are white.

The Rifleman is not uncommon in the higher wooded ranges of the East Coast district, but is never seen outside them.

Glaucopis wilsoni—BLUE-WATTLED CROW.

Buller, "Birds of New Zealand" (2nd edition), vol. i., p. 1.

The Blue-wattled Crow, which is restricted to the North Island and one or two of its islets, was always local in its habitat, and is now regarded as a rare bird in New Zealand; so I was perhaps fortunate in meeting with it in this Maunga-Haumia country in each year. In 1906 it was observed in parties of from four to seven during April and May, but in midwinter little was seen or heard of the birds, when, owing, no doubt, to their dislike to the noise of the falling timber, they retired further up the sheltered Mangamaia valley of tawhera and mixed bush, which, for that year, remained unfelled. In September and October odd pairs were about my third camp, where the surrounding lighter bush was in touch with the main forest, and remained to the last days of my stay before being felled. However, in the following winter they were occasionally to be met with about the scrubby parts of the southern side, where, in one particular patch, a pair or two remained until the felling forced them further back, in October, to the adjoining standing bush. It was thought that possibly the parties seen in autumn were composed of adults and their full-grown young; but, as none was ever shot, I cannot be sure of this. In spring I never saw more than two birds together, and sometimes a single bird would be noticed feeding by itself about the scrub or on the ground. They were not observed or heard upon the higher ridges, but seemed content in the lower valleys of tawhera and other light timber, paying an occasional visit to the adjoining denser tawa slopes.

To the writer's mind, the Crow can hardly be called inquisitive. Although displaying some caution or shyness on first acquaintance, it will eventually allow a near approach to be made, and may then be observed at close quarters; but it was noticeable that the bird's first care, on hearing steps in the bush, was to place

between itself and the sound a mass of leaves through which to spy. A party of five, which I saw on the first day that I visited this bush, remained directly over the track, not more than 20 feet from the ground, while the stumbling pack-team, with its two attendant riders, passed below; and as we rode along behind they peered through the leaves and branches at us, while evincing not the slightest inclination to depart. Sometimes the movements of the Crow cause some rustling of the leaves; but, speaking generally, it is not a noisy bird, and its notes are rarely heard when feeding; so that, unless one keeps a good look-out, it may be easily passed by. However, they are not in the habit of shifting about much, and each party or pair remains for days about the one locality, so that, when once discovered, I soon came to know pretty well where to expect them when next I came that way.

One of my tracks led down through the tawhera country to the point of a low spur overlooking the Mangamaia, thence across the creek and up the face of mixed bush opposite to the ridge above. About two chains up from the creek it passed through a patch of white-wood and fuchsia trees, where, at times, I spent a few minutes watching a party of seven Crows, which, by 10 o'clock, was always near on the days when I passed through in the first three weeks of May. On odd days—chiefly after rain—their rich notes would be heard from this point, far ahead, as I came along the track, but usually they had passed across to the patch before. Once, being somewhat earlier than usual, I found them working along, with short flights and great bounds, through the tops of the manuka trees on the spur, one or two breaking into music at intervals. They were making a direct march, and at length launched themselves across in straggling order to their feeding-ground below. Here they remained quietly working through the trees and shrubs until late in the afternoon. Their notes—different now from the morning song—would be heard in the manuka and tawhera face again, to which they had retraced their steps, and where, I fancy, they spent the night. Mixed with the undergrowth of this particular patch, to which they daily resorted, grew a number of the large-leaved karumu (*Coprosma grandiflora*), a straggling 10-foot tree, upon whose translucent orange berries the Crows fed eagerly; but they varied their diet with insects, and with leaves and fruit from the surrounding trees. On first viewing them they would probably be found in the karumu bushes, busy at the fruit; one or two on the ground turning over the leaves with their bills as if looking for fallen berries or for insects; but my approach would send them higher up into the white-wood or other trees, and, after peering at me for a few moments, they would settle down to investigate the bark and foliage. I was much struck with the careful manner in which the Crows take their food. They seemed to toy with it. There was no picking and pecking at the berries, which they deliberately drew from the branches; no tearing of moss and bark for insects;

and, with leaves, they rather nibbled than plucked them. They assumed extravagant attitudes while examining with sharp eyes the nooks and crevices about the mossy forks of a many-limbed white-wood; and their long legs enabled them to execute many gymnastic feats, one of the best being that when a bird, on an outgrowing branch, dropped backwards till it hung underneath, and then gradually drew itself up sufficiently to peer at me over the top side of the branch—head above and tail and legs below—like a performer on the horizontal bar. By means of these long legs they actually swing themselves from branch to branch at times, and very rarely use their wings as a means of locomotion. In moving through the bush they simply run—using the wings to balance—in great bounding hops through the interlacing branches, and in this way can move at a greater pace above than one can walk below.

It is doubtful if the Crow is able to make any sustained flight, and on the only occasion that I have seen an attempt made, when a party dropped across a creek—a distance of about 40 yards—to the opposite face, the wings were hardly moved, and the tips of the primaries were much separated, so they floated rather than flew. Once, on the southern side, I came upon a flock of Whiteheads whose scolding appeared to alarm some Crows who, until then, had been invisible in the undergrowth. Off the latter went in great strides through the smaller trees, causing the vines and slender branches to shake considerably; but I caught them up a little further on, where I found them busy picking the reddish berries from the grape-like clusters of the supplejack—a vine that climbed about the trees and formed great masses in the branches there. Little of their mode of progression on the ground was seen, for on the few occasions they were noticed there their stay was short. One day four were observed on the track moving slowly along, independent of each other, examining the ground and the ferns; but my approach sent them up. They hopped into the branches of a hinau, and started feeding upon the fruit. It is evident that their food, in winter at least, consists to some extent of leaves, for in the scrub below the slip hardly a berry existed, and the pairs that wintered there were, whenever seen by the writer, busy eating the foliage of the puka and of one of the smaller coprosmas (*C. lucida ?*). The latter plant had here and there an odd berry, but they were few and far between, and it was upon the leaves alone that I saw them feed. They may have obtained a few wetas (*Deinacrida megacephala*)—a repulsive insect, whose tunnels were numerous in the branches of the wineberry and white-wood, and which, though nocturnal, were occasionally seen out on dull, damp days. One damp morning I watched one for some considerable time at a distance of a few feet as it fed upon the leaves of the puka—a large, thick-leaved plant which grew plentifully about this stony face, and varied from saplings a few inches high to solid trees. The bird appeared in good plumage, but the wattles were not conspicuous, and its

closely-packed feathers were in marked contrast to those of the wet, bedraggled Tits and Whiteheads that were close about. I watched the bird feed quietly for perhaps five minutes, and within 6 feet of me—now taking pieces of coprosma leaf and nibbling them with the point of the bill; then a spring to another branch to nibble again, or down to the ground, where it turned and tested, bit by bit, the fallen puka leaves. I watched it nip off and nibble, piece by piece, a leaf from a young plant of the latter, and found many leaves marked on their margins about here. At length it jumped up to a low branch, wiped its bill, and then, after surveying me, drew itself up, and, with head in the air, called a very soft, guttural "Kur-r-r," eventually moving off to join its mate.

On 2nd July, 1907, the notes of a pair of Crows were heard close at hand, and taken down at once; and there were frequent opportunities of verifying them afterwards:—(*a*) "Whe!" (sharp piping whistle), "Twerr" (long-drawn and organ-like), "Tol-tol-tol-tol" (soft, bell-like, see Plate, page 77, No. 13); (*b*) "Twor" (long-drawn), "Tor-tor-tor-tor" (fast, No. 14); (*c*) "Twee" (sharp whistle), "Tu tu tu tu" (soft, musical tapping, No. 15); (*d*) "Click-click-click" (sharp clicking, many times and fast); (*e*) "Twee" (the sharp whistle), "Click-click-click"; (*f*) "Tū" (soft, low whistle), "Kik-kik-kik-kik" (a sucking note); (*g*) "Twerr" (long organ), "Click click"; (*h*) "Whe! whe! whe! whe!" (a piping whistle), "Torr" (clear and organ-like, as in No. 16). There was a fair pause of eight or ten seconds between each line, and perhaps half a second between the first and second, and between them and the duplicated notes. These latter were sounded fast, but clear. The organ-like notes are ventriloquial, and at first puzzled me, for they often sounded as if from overhead or very close at hand. The birds were about 30 yards distant, and they were the only two about. It could not, at that distance, be determined whether both birds were calling or not. The last line (*h*) was heard several times, as also were some of the others; but the above practically represents the whole repertoire, and was written on the spot. As the birds moved off I tried to follow, but it was a matter of impossibility to do so in such awful scrub, and I had to be content with taking a photographic record of their haunt. It had been raining lightly, and was still somewhat misty at the time (9.30 a.m.) the birds were heard.

Although in other lands the family name is usually associated with anything but melody, there is in our present-day New Zealand bush no bird whose music, when heard in concert with others of its species, surpasses that produced by our sombre-plumaged Crow. Few sounds are so enchanting as when a party of these birds is practising a number of rich flute and organ-like notes, many as if in chord, and some ventriloquial. It is only at early morning, when the sun first tips the trees, that such a combination may be heard, for then the clicking and tapping sounds of other times are not indulged in. In

sets 13, 14, and 15 are shown the music corresponding respectively to the lines *a*, *b*, and *c* of the song. In these morning carols the first two notes of set 13 stand out frequently in rich, long-drawn tone and in harmony with many others which blend with the mellow ringing notes—the last of that same line. The final note (set 16) of line *h* often swells deep and clear among the rest, as if in chord. In their broken outburst of melody they somewhat resemble the imported Australian Magpie (*Gymnorhina*), whose notes are now to be heard from some of the clumps of trees in parts of the lower country: but the latter has not the music of the native bird. Sometimes towards evening the final notes of line *c*, "Tu tu tu," may be heard in the scrub as the birds are retiring. They may be repeated many times in succession, and always seem to come from one bird. One note, "Kik-kik," of line *f* is uttered in the same way, and exactly resembles the sound made by a driver when urging on a horse. It was noticed that these two tapping notes were in evidence before rain, while on sunny mornings, especially after rain, the chorus was pretty sure to be indulged in. The soft, ringing notes of line *a* (last of 13) were occasionally heard from the trees during the daytime, and were very characteristic—so much so that the bushmen always spoke of the Crow as the "Bell Bird." This led to some confusion when speaking of the true Bell-Bird, and it took some little time to gather from some of the men that, while *Glaucopis wilsoni* was to be met with in some parts of the Taranaki and Bay of Plenty districts, *Anthornis melanura* was in the former province to some unknown.

I believe these birds are very much attached to each other when paired, for they always keep close company, and I have seen them (20th August) now and then halting in their slow wanderings to caress (bill) each other. I was much annoyed when one of a pair I knew of was killed by one of the Pigeon-shooters; and I felt sorry for the remaining bird, which stayed about the locality for many weeks, where I heard it calling for its murdered mate. Unfortunately, it falls an easy victim to those unacquainted with the bird; but I can say this for the bushman—he leaves the Crow alone, because it is unfit to eat.

As previously mentioned, pairs came into the unfelled parts of the 1906 sections from the adjoining main bush in September, and one pair remained not far from my third camp until towards the end. Many references occur in my notes to this pair, which treated us on many occasions to morning music, and to whom I am inclined to assign the large nest, which was discovered after the tree was felled, in the final face of bush put down on 12th October. The men assured me that two Crows were about the spot when they started felling that day. I had seen and heard the pair about this tawhera face for some time, but had not suspected their nesting, and that part was seldom visited, for it was a corner near the standing bush, and, although near the camp, was not in the direction that took me to where the gangs were

working. It had been left for the last. This nest was placed about 20 feet up in the large fork of a leaning tawhera, which grew, with others of its kind, among heavy manuka and other trees, in a small gully opposite the patch of nei-nei in which the Robins' nests were found. A careful examination of the ground after felling failed to discover any signs of eggs or young having been thrown out by the fall. It was a large, rough structure, the base being composed of small twigs of manuka and other trees, much mixed with strips of manuka bark, rootlets, moss, and leaves, fairly compactly built, but spread. The ends of the twigs and pieces of bark projected somewhat outside the moss and leaves, giving the nest a very irregular shape, but in the upper part there were fewer large twigs and more bark, rootlets, and moss. There was not much system except where the lining of the interior came up over the edge. The cavity was fairly well lined, principally with narrow strips of manuka bark worked in with moss, leaves, and rootlets; but, of course, I cannot say if it were complete, but it appeared finished. It was unlike any nest I have ever seen, and its features were its outward irregularity, looseness of construction, and the marked disproportion in the size of the materials used to each other, rough ¼-inch twigs being mixed up indiscriminately with thin rootlets and moss. The cavity was fairly deep, and seemed large for the size of the bird, measuring 4.75 inches wide and 2.5 deep. The width of the nest, with the straggling ends of the twigs, was about 16 inches, but the more solid part would be about 11. In depth it measured 6.5 inches. I think there can be little doubt but that the above nest belonged to the pair of birds which had kept so long to this spot, and that the two were, among others, intending to remain and nest in this valley during the approaching summer is probable.

The genus *Glaucopis* is confined to New Zealand, and there are only two species — the present one, and *G. cinerea*, its representative of the South Island, also much rarer than it formerly was. Its affinities are said to be with the Australian Crows and Bower-Birds; and Dr. Gadow has said "if a Satin-Bird could be induced to marry a Piping-Crow, their offspring might, in New Zealand, become a *Glaucopis*" (see "Birds of New Zealand," 2nd edition, vol. i., p. 4). In this district the bird is still to be met in a few places in the higher country, but will surely decrease. It is so very local that, unless the bushes which in the end may be reserved are specially suited to it, it will ere long be numbered with our lost species. This is much to be regretted, for there is still much to learn about it. The bird claims a high place in its class; in fact, Professor Parker states (see "Birds of New Zealand," 2nd edition, vol. i., p. 4):—"In all respects, physiological, morphological, and ornithological, the Crow may be placed at the head, not only of its own great series (birds of the *Crow-form*), but also as the unchallenged chief of the whole of the *Carinatæ*."

CONCLUSION.

Including the Bush-Hawk and the Owl, or Morepork, of the twenty-one species of North Island birds which may be called arboreal, sixteen * are here enumerated as occurring in the Maunga-Haumia bush. But we must exclude the Huia (*Heteralocha acutirostris*)—now an extremely rare bird—as unlikely to occur, for its range does not extend so far north. Of the five remaining species, the Red-fronted Parrakeet (*C. novæ-zealandiæ*) was possibly overlooked, and the Long-tailed Cuckoo (*Eudynamis taitensis*) had probably not arrived when I left, for the party of surveyors who "cut up" the 2,000 acres of adjoining bush met with it in November and December of 1906, and Mr. H. D. Evans saw it there on many occasions. While there is some evidence of the presence of *Creadion carunculatus* and *Turnagra tanagra* in the East Coast district, the Saddleback was not identified and the Thrush was not observed by the writer. That the Stitch-Bird (*Pogonornis cincta*) now exists in any of this country, or even on the mainland, is very improbable. With the exception of *Miro australis*, all the species observed in 1906 were met with in the following year.

Round the edges of the bush of the southern parts the following native species were also observed; but, as they are not bush-birds, we will, after enumerating them, leave them for the present. An odd Harrier (*Circus gouldi*) frequented the older country, and, as previously mentioned, occasionally visited the burns. A party of Kingfishers (*Halcyon vagans*)—two adults and three birds of the year—spent the autumn and winter about the slip valley, and the old birds were busy preparing their nesting-hole in a rotten tree in the spring. A pair of Pipits (*Anthus novæ-zealandiæ*) frequented the grassy open immediately below the white slip, and others were noticed on the older country. The call of the Weka (*Ocydromus greyi*) was once or twice heard in the slip scrub. It is now a rare bird in the district. A Grey Duck or two (*Anas superciliosa*) was occasionally seen in the creek, and in 1906 a pair of the Mountain-Duck (*Hymenolæmus malacorhynchus*)—a bird of the mountain streams—was observed in the Mangamaia. Curiously, too, the White-throated Cormorants (*Phalacrocorax brevirostris*) were seen taking a short cut through the saddle, and high over this bush, on their way from the Waipaoa River to the inland Motu streams. But fancy a sea-bird in the bush! One of the Petrels may be heard, during summer evenings, as it flies, with sharp call and high in the air above the bush, to its breeding quarters in the bush-topped hills beyond.

The open country of this district holds but few of our New Zealand species, but is overrun by aliens—some good, many doubtful. All have their failings, but no truly native bush-bird

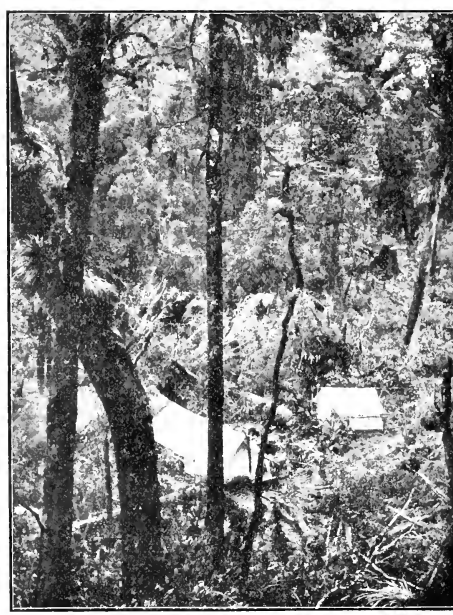
* In *The Ibis* it has been put at fifteen; but it is thought advisable, in this article, to include *Harpa novæ-zealandiæ* as a tree-frequenting species.—J. C. M'L.

has yet been declared harmful. With the exception of three or four species, our bush-birds cannot exist in the scattered bushes of our open country. There the undergrowth, so necessary to many of our species, and to the bush itself, has been destroyed by stock, and food is scarce through competition with the imported birds.

Finally, let me advise anyone who wishes to see our birds to visit the higher virgin bush. There, in the sheltered valleys, he will surely find many of those recorded here, and, I hope, some, if not all, of those which were not observed by me.

CORRIGENDA—PARTS I AND II.

Plate III., for "*Harpa novæ-hollandiæ*" read "*Harpa novæ-zealandiæ.*"
Page 8, lines 21, 22, for "makauri" and "pipiwhaka" read "Makauri" and "Pipiwhakau" respectively.
Page 9, line 6, for "Hungaroa" read "Hangaroa."
Page 14, line 31, for "*noctura*" read "*noctua*"
Page 72, line 42, for "See" read "See't."
Page 74, line 1, for "Mauga-Haumia" read "Maunga-Haumia."



Camp on Birch Ridge (birch and tawari trees), 3,000 feet above sea-level.

Field Notes on the White-browed Field-Wren (Calamanthus albiloris).

By L. G. CHANDLER, R.A.O.U., MELBOURNE.

(*Read before the Bird Observers' Club, 17th January, 1912.*)

IN the open, heathy scrubs around Frankston, Victoria, the White-browed Field-Wren is fairly numerous. Wherever the dwarf sheoak (*Causarina distyla*) flourishes, one is almost certain to find this species. The sheoak bushes afford excellent hiding and a shade from the sun. *C. albiloris* is also partial to bayonet-grass country, and although it generally frequents damp, swampy ground, I have frequently observed specimens in summer on a dry, treeless hillside. However, during the winter months these slopes are wet and slippery through numerous small springs, which bubble and trickle through the soil. In April, 1909, several days were spent studying the habits of those shy little aviforms, and I have taken every opportunity since to verify and add to my observations. In one paddock about six pairs of birds were located, and their warbling songs could be heard from the bush-tops in all directions. The usual song may be described as a repetition of a series of sweet notes, mingled with a few notes that are slightly harsh. One call, used apparently during the breeding season, resembles the familiar "tang" note of the White-fronted Chat (*E. albifrons*). When mounting a bush-top to sing, the Wrens are extremely wary. The song is often begun in a low key, and repeated in this strain for some time. By actual count, one bird sang for twenty seconds. The effect is ventriloquial, the song seeming to come from hundreds of yards away. Having satisfied itself that no danger is at hand, the bird breaks into the full-throated song. As it sings the head is restlessly moved from side to side, the bird being ever on the watch for an enemy. At almost any time of the day one may hear the song of the Calamanthus, and in the dark I have heard one pouring forth its joyous notes. The bird allows one to approach to within about 30 yards, and then its song ceases. The tail is moved swiftly from side to side, the body swaying too, and suddenly the bird darts nto the bush below. From my observations it would appear to be the male bird which sings so vehemently, the female being remarkably quiet. The female, lacking the white eyebrow and throat of her mate, would be readily distinguished when singing on a bush-top, and every example I have noticed was a male.

Owing to the protective colours of their plumage, the birds are not easily detected when hiding. The speed with which they run is amazing. In the curious crouching attitude which the Calamanthus assumes it resembles a mouse when running swiftly through the grass. It almost invariably alights on the ground after a flight. On the wing the tail is lowered to the plane of the body. For a second or two, when the bird settles, the tail is elevated over the back, and immediately lowered as the bird darts

to cover. If one is lucky, he may flush the bird, but generally several yards from where it alighted. Having seen a Calamanthus enter a small clump of dwarf sheoaks, I trampled the undergrowth under foot for several minutes, and failed to see a sign of it. Remaining quiet for a while, I was surprised presently to see the bird run—apparently from my feet—swiftly through the bushes. In the early morning, when the grass is wet with dew, it is exceedingly difficult to flush these birds. They seem to realize the disadvantage of wet plumage, and trust almost entirely to their powers of running and hiding to evade discovery. This habit being characteristic of the genus, it requires much patience to secure a specimen. If accompanied by a dog one's object is soon attained, but without that ally one may waste a considerable amount of time.

The White-browed Field-Wren is not a wanderer, but restricts itself to an area of ground fifty to a hundred yards square. At different periods I have visited localities mentioned above and noticed a bird singing on a favourite bush where one was observed months before. From an examination of several roosting-places it would appear that the birds perch at night about a foot above the ground in dwarf sheoaks (*Casuarina distyla*). Of course, this applies to country where stunted gum saplings are not growing. I have noticed nests only in August, September, and October, the one nest observed in August being found by Mr. F. E. Wilson, R.A.O.U. A nest found at Frankston with the aid of a setter dog, on the 17th October, 1911, contained two addled eggs. During a heavy fall of rain the nest had been swamped, and was consequently deserted by the owners. Wet weather in swampy country causes a number of birds to desert their nests, and this possibly accounts for the extended breeding period.

Early in April, 1909, a bird was seen chasing another through the bushes, and several males on dissection disclosed the fact that the breeding season was at hand. A female which was obtained showed no signs of breeding. The staple diet of the Calamanthus is, possibly, insects. The stomach of one bird contained a number of a species of ant, and that of another grass seeds and small beetles. Snakes and blue-tongue lizards no doubt eat the eggs and young of this species. I have had two narrow escapes from being bitten by a snake when searching for the closely-hidden nest of the Calamanthus. My father, on one occasion, hearing some young birds squeaking in distress, hurried to the spot and caught a blue-tongue lizard in the act of devouring a nestling. On cutting the lizard, open a second bird was obtained. The young birds in the nest exhibit as much timidity as their parents. One chick, when I approached the nest, stood on its head, with its stumpy tail erected above its back. It squeaked with fear as I handled it, and, although scarcely able to run, made desperate efforts to escape through the grass. Foiled in its attempts, it again stood on its head, and remained in that position while I was in the vicinity.

The nests of *C. albiloris* examined were in most cases loosely

PLATE XXIV.

Nest (*in situ*) of Chestnut-backed Ground-Bird (*Cinclosoma castanonotum*).

FROM A PHOTO BY F. L. WHITLOCK

constructed of dried grasses, bits of bark, and a few skeleton gum-leaves. They were warmly lined with rabbit fur and feathers. The nest is dome-shaped, with the opening near the top. It is built usually on the ground under a tussock of grass, or in the heart of a dwarf casuarina. The description of a bird about one week old is as follows:—Abdomen creamy-buff; chest and flanks pale buff streaked with black; back dark olive-green, centred black; head quills blue, not yet broken; primaries and secondaries breaking, black, tipped with buff; tail half an inch long, breaking, buff at tips. Gape yellow; irides brown; legs light horn; bill dark horn.

Further Notes from the Stirling Ranges, W.A.

BY F. LAWSON WHITLOCK, YOUNG'S SIDING, D.R., W.A.

IN the spring of 1910 I was collecting eggs and nests, on behalf of Mr. H. L. White, of Belltrees, New South Wales, in the Stirling Ranges, and an account of the trip appeared in *The Emu.** I had to leave the locality before the season was really far advanced to search for certain rarer birds still believed to inhabit our south-coastal region. Naturally, my work was not complete in the Ranges, and a further trip was necessary to make it so.

The winter of 1911 proving very mild, with a rainfall considerably below the average, I arranged to leave home on 1st August, arriving at my hunting-grounds five days later. Birds were already nesting, and by the end of the month the young of certain species were on the wing. I was particularly anxious to obtain further information regarding the nesting habits of *Cinclosoma castanonotum*, *Hylacola cauta*, *Sericornis maculata*, *Falcunculus leucogaster*, *Malurus pulcherrimus*, and a few other species of lesser importance. How far I was successful the following notes will show. To the list of birds found in the Ranges I can add only one or two species which are not mentioned by other explorers or in my previous notes. They are:—*Petrœca goodenovii* (Red-capped Robin), *Ægialitis cucullatus* (Hooded Dottrel), *Heteropygia acuminata* (Sharp-tailed Stint). The presence of the two former may have been due to the dry season in the interior of this State. In the previous season I had found several pairs of a *Hylacola* inhabiting stony hillsides covered with low scrub. I was too late to find the nest, as the young were already on the wing. In my previous paper I referred to this species as *Hylacola pyrrhopygia*. On referring a skin, however, to experts, I find that I was wrong, the bird being really *Hylacola cauta*. I determined to have a good hunt for the nest, which is described in A. J. Campbell's "Nests and Eggs" as always a difficult one to find—an opinion which I can now thoroughly endorse. I was not long in locating two pairs of birds, though the species is distinctly local, and rare, in the Stirling Ranges.

* *Emu*, vol. x., p. 305.

I fully expected to find this bird an early breeder, and I was not mistaken. I was much hindered by the rough winds prevailing during the greater part of August and September in my searches and observations on the nesting and general habits of the more secretive birds. Especially was this the case with the present species. The easiest way to discover the presence of a pair is to listen for the song of the male, which, to my ears, resembles somewhat that of *Acanthiza apicalis*, and, again, that of *Calamanthus montanellus*. *Hylacola cauta*, however, does not appear to sing in the very early morning, which is a pity, for the winds at that early hour are usually light ; and as the bird has not at all a powerful voice, and is by no means a constant singer, one does not hear it to advantage in half a gale of wind.

It was some days before I found the first pair, which haunted rather open and low scrub, with a few patches of marlock and stunted jarrah trees. In the marlock *Ptilotis cratitia* was breeding. On the ground itself were small patches of what looked like a dwarf banksia, and it was amongst this latter growth that I caught sight of a beautiful male Hylacola. It was only by keeping motionless that I had any chance of watching him. On my making the least movement he hopped or flew at once into a clump of marlock, and disappeared. Once or twice I saw him catch a caterpillar and hop into the scrub with it—I suppose to share the capture with his mate, whom I never once saw. Despite the most persistent and systematic search, I failed to find the nest of this pair.

To vary the monotony of non-success, I went on alternate days to watch the second pair, and at the third attempt I flushed a bird from a nest built in a little hollow excavated in the ground under the lee of a clump of dwarf banksia. I hid myself and waited patiently until the bird returned, when I satisfactorily identified her as *Hylacola cauta* — a similar bird in all respects to the specimen procured the previous year. The nest was globular, and much like that of a Calamanthus, the entrance being flush with the ground. The general structure, however, was not so firmly interwoven as that of the former species. The interior was lined with fine grasses and a little fur and feathers. The eggs have been accurately described in Campbell's "Nests and Eggs," and the present clutch of three was typical. In this particular set there seems to be a tendency for the spots to form a zone. The eggs of *Hylacola* appear to have an affinity to those of *Sericornis*, and also to those of *Calamanthus*. The nest, too, belongs to the same class as those of the two latter kinds. As a field naturalist, therefore, I should be inclined to place the three genera very near together rather than admit other intrusive genera in the present classification obviously less nearly related.

I was again successful in finding nests of *Calamanthus montanellus*, the Rock Field-Wren. With one exception all were, as previously described, being built in a little hollow excavated in the bare ground by the parent birds. The odd nest was in a

PLATE XXV.

Nest of Western Emu-Wren (*Stipiturus westonensis*).

Nest of White-bellied Shrike-Tit (*Falcunculus leucogaster*).

FROM PHOTOS BY F. L. WHITLOCK.

tussock of coarse grass, 18 inches from the earth. I caught a young one able to fly at the end of August, so that the species must be an early breeder. The fully-fledged young closely resemble their parents. The Rock Field-Wren is not double-brooded, but, naturally, some pairs are much later than others in breeding, and fresh eggs may be obtained from the beginning of August to the beginning of October. I found this species more common on the open sand-plains and around the margins of salt lakes than on the slopes of the foothills. Both the male and female utter the simple, but pleasing, little song, which may be heard at daybreak and for half an hour after sunset. The female is a very close sitter. Three nests that I found were within a few feet of a frequently used track. None was really concealed, or even sheltered. The entrance seemed usually to face the east or north.

Sericornis maculata, the Spotted Scrub-Wren, is by no means a rare bird in the Ranges in suitable haunts; but, owing to the dense nature of the scrubs and the secretive habits of the female during the actual nesting season, the nest is a difficult one to find. I managed to secure only one. This was placed in an excavation made by the parent bird at the foot of a tuft of sedgy grasses growing on a scrub-covered sandbank. The nest was like that of *Hylacola cauta* or *Calamanthus montanellus*, but rather loosely woven, and with coarser material externally. I found this nest by flushing the female from the eggs, which were fresh, and may possibly have been a second laying, as other broods were already on the wing.

Cinclosoma castanonotum (Chestnut-backed Ground-Bird) does not extend its range much further south, in this State, than the Stirlings, where it is by no means common. At one of my camping-places, in a large tract of white gum timber, I found one or two pairs, and had the good fortune to walk right up to a sitting bird, which flew off her eggs close to my feet. The nest was a deep excavation in a very sparse tuft of fine grass, which in no way hid it from view. The interior was neatly lined with fine, flat grasses. The nest contained two fresh eggs, which were both true to the already described type. The female was very wary. I wished to photograph her near the nest, but she exhausted my patience, and would not come nearer than within 20 or 30 yards, where she remained sheltered by some low bush. This nest was in the open, and away from any tree-trunk or other natural shelter.

One of the first eggs I took on this trip was that of *Cacomantis flabelliformis* (Fan-tailed Cuckoo). The foster-parent in this instance was *Acanthiza apicalis* (Broad-tailed Tit). These Tits were particularly unfortunate. They had the great industry to build three nests. The first was invaded by the Fan-tailed Cuckoo, and I regret to say both the latter were pillaged by some lizard or other enemy, which tears out the bottom of the nest to get at the eggs or young. I am rather inclined to suspect the White-browed Babbler of doing this mischief. All nesting birds seem

greatly to resent the presence of this Babbler near their home. I obtained a second egg of the Fan-tailed Cuckoo in the nest of *Ptilotis cratitia*. The only other Cuckoo's eggs observed were those of *Chalcococcyx basalis* in nests of the Banded Wren (*Malurus splendens*). In one case the Wren's nest was deserted, and, in addition to the Bronze-Cuckoo's egg, contained only one broken egg of the lawful proprietors.

To obtain a nest and eggs of *Falcunculus leucogaster* (White-bellied Shrike-Tit) was one of the chief objects of my trip. Though by no means a rare bird, it is a species difficult to observe, owing to its habit of haunting the tops of gum-trees—seldom feeding near the ground—and also on account of its quiet and unobtrusive habits in general. It is a very busy bird, however, and a most voracious feeder. The easiest method to find a pair in the large tracts of white gums or yates (which it favours most), is to listen for the soft but clear call notes. These may be represented by the syllables, "Tüee, tüee, twee." It is nearly always the male that calls, and he, too, leads the way from tree to tree in the incessant search for food. Occasionally the male breaks into a little chattering song, and on one or two occasions I heard him join vigorously in an altercation between other birds. In the first instance the members of a party of *Platycercus icterotis*, our local Rosella, were squabbling, and I was greatly puzzled by hearing notes very similar to theirs, but distinguishable from them, owing to the softer and more musical manner in which they were uttered. The songster was a fine male Shrike-Tit.

Until late in the spring the young of the previous year remain in company with their parents; and if the members of the party are haunting low trees it is possible to distinguish them by the feathers of the head being much less glossy, or in places dull, and by the looser development of the crest. The Shrike-Tit is a fearless little bird, and will search for food within a few feet of the observer. Both sexes are indefatigable hunters, searching the foliage and the bark of the various gum-trees. Occasionally I have seen them hunting in acacia scrub for larvæ, but have never seen them on the ground. Their attitudes are very pleasing, and infinitely varied. In hanging underneath a limb head downwards they are very like the true Tits (*Paridæ*) of Europe. When a caterpillar is found it is always carried in the beak to some convenient perch, and there firmly held down by one foot and devoured piecemeal. Usually the head and tail are nipped off first and rejected. The male shares his food with the female in a very generous manner. Often she follows him about the tree, with quivering wings and a querulous cry, but more often she is busily searching for food on her own account. The quantity of grubs eaten is astonishing, and the search appears to go on the whole day, with few intermissions. I spent many hours watching these birds, during the whole of two months, without seeing a sign of their building.

It was not until the beginning of October that I saw a female

PLATE XXVI.

Nest and Eggs of Dusky Miner (*Myzantha obscura*).

FROM A PHOTO.] BY F. L. WHITLOCK.

fly down into some low acacia scrubs and presently reappear with a sprig of very fine grass in her bill. She carried this to the summit of a York gum, hopping about the foliage as though in search of a suitable nesting-site. Nothing more transpired for the time being, and in a few days I lost sight of this particular bird and her mate. I re-discovered them two weeks later, a mile away, in a small group of yate gums. After some watching I again detected the female with a sprig of fine grass in her beak. She flew to the top of a tall, slender yate, and I could just discern the outline of a half-completed nest. The site of the nest was almost inaccessible, but I determined to make an attempt to get it. I returned to the spot on 2nd November. I soon saw the male bird, and he presently flew to the nest and fed the sitting female. I had a rope ladder with me, and as soon as I began to get the fine line over the limb nearest the nest the female flew off, uttering some harsh, grating notes. Without entering into details of how I went to work, I may say that, although I secured the nest, I failed to save the eggs. I found that I could not venture within 7 feet of the nest, and had perforce to cut the branch to which it was attached. I was within an ace of success, when a gust of wind capsized the branch, the eggs rolling out of the nest, and, of course, being broken in the fall. The nest was 45 feet from the ground. It was a most beautiful structure of spiders' webs and the very finest of dried grasses. Both branchlets and growing leaves were interwoven in the substantial walls. Fragments of the eggs which I found showed the ground colour to be French grey, with markings of darker grey and brownish-grey. The clutch consisted of two, slightly incubated. For some reason or other the White-bellied Shrike-Tit is a very late breeder. Another pair I had under close observation had not commenced a nest at the beginning of November, although the majority of birds had young on the wing. A third pair was just commencing to build in a very tall yate on 7th November. They, too, had chosen an inaccessible nesting-site.

The White-bellied Shrike-Tit is really a smaller bird than it looks. It is the powerful beak and the thick, bushy crest on the head that makes the bird appear so large. In reality the body is very slender, and the tail feathers are narrow and forked in the centre. It is possible, at first glance, to mistake the commoner *Melithreptus whitlocki* for the Shrike-Tit, or, again, the males of the Western Thickhead (*Pachycephala occidentalis*); but, of course, either mistake is improbable when a good view is obtainable.

I obtained only one nest of *Malurus pulcherrimus*. This nest was very low down, like the three nests which I found in the previous year. It was hardly concealed at all, being clear of any larger scrub. It contained two typical eggs. I had other pairs under observation. Either they were very late or not breeding on account of the absence of rain.

The illustrations with this article include the nest and eggs of a familiar forest bird, the Dusky Miner (*Myzantha obscura*).

Notes on Megalurus striatus (Milligan).

By F. LAWSON WHITLOCK, YOUNG'S SIDING, D.R., W.A.

THERE is a swamp which originally covered an area of nearly 40 acres, but is now only about half that size, the remainder being cleared and cultivated. The soil is chiefly true peat, which, when dried, burns readily. Some years ago, during a dry summer, the peat did take fire, and numerous holes, from 18 inches to 2 feet in depth, were burnt. From about the beginning of June till the end of November all the lowest parts are under water. A heavy growth of cane-grass still covers the unreclaimed portions of the swamp—sometimes in clumps of greater or lesser size, but often in one almost impenetrable reed-bed. This Western Grass-Bird (*Megalurus striatus*) is confined strictly to the cane-grass, and never resorts to the tea-tree or other scrub which grows on the margins or on the drier portions of the swamp.

The spring of 1911 was noteworthy for its light rainfall, and the shallow depth of water remaining on the swamp at the beginning of November gave me an opportunity of studying *Megalurus striatus* unaccompanied by the discomfort of wading nearly waist-deep through mud and water, as in previous years. On entering the cane-grass I could hear the plaintive but sweet notes of the Grass-Birds calling all around me. Never had I known them so numerous before. The usual call is "Tee, ti, tee, tee," uttered in rather a high-pitched, piping manner, or more slowly in a lower and more musical tone. The only other notes heard from these little birds are alarm notes, which are sharp and rather harsh, resembling the syllables "Chuck" or "Tcheck." One hears these when near a nest, or when young are concealed in the thick clumps of cane-grass. As I was anxious to see a nest *in situ*, I commenced a systematic search, selecting the larger clumps of cane-grass as the most probable nesting-sites. There I made a mistake. Certainly, I did find nests in the thicker cover, but later experience taught me that clumps of only 2 or 3 feet in diameter, growing in the more open portions of the reed-bed, were much more favoured for nesting purposes. Altogether, during the months of November and December, I must have discovered nearly two dozen nests, some with eggs, some with young, and again others from which the young had flown. As I write this (7th January, 1912) I have three nests under observation—one with one egg, a second with three fresh eggs, and a third with newly-hatched young. This last nest is in a very small clump of reeds growing on the margin of a large hole burnt in the peat. All the nests I found were very similar both in situation and in construction. The parent birds commence to build as low down in the reeds as the growth of the latter allows—none would exceed 18 inches from water-level, which would give an average of about 2 feet 6 inches from the solid peat.

I collected typical nests and eggs for Mr. H. L. White, Bell-trees, New South Wales, which he describes on p. 249.

The female is not a close sitter, and only once did I flush her from her eggs. However, it is almost impossible to walk quietly through the water, or where the reeds are growing thickly I was never able to detect a female in the act of building, and the males do not appear to call in the immediate vicinity of the nest. When the young are in the nest, or hidden in the neighbouring reeds, both parents become very anxious, fluttering from clump to clump with harsh cries, or even shamming lameness, or a broken wing, where the peat is above water-level. In the nest the young are able to flatten themselves down in a remarkable way. One brood I was examining was so quiet and motionless that I was quite deceived, thinking they were all dead.

Megalurus striatus is a very jealous bird, and the greatest care is necessary to avoid disturbing an unfinished nest. One I found was just ready for eggs. I only gently felt to the bottom with one finger; but this was quite enough to cause its desertion. A new nest was built in a neighbouring clump, the lining of feathers being removed from the nest I had disturbed and utilized in the new one. All this was accomplished, and four eggs laid, within seven days.

About the end of January the birds appear to leave the swamp, returning towards the end of June. The males may be heard calling the following month.

To my thinking, *Megalurus* has some affinity with the Reed-Warblers (*Acrocephalus*). In the nature of its haunts and the situation and construction of its nest it has much in common with the latter. Also, there is a certain peculiarity about the flesh of both genera. It is remarkably soft, and has a peculiar smell. *Megalurus* is a delicate, loose-plumaged bird, and should be skinned quickly when preparing scientific specimens.

Young birds closely resemble their parents, and are very secretive, remaining hidden in the densest clumps of reeds.

Annotations.

By A. J. CAMPBELL, COL. MEM. B.O.U., MELBOURNE.

New Sericornis.—At the Sydney session (1911) of the R.A.O.U., Mr. J. W. Mellor, Adelaide, exhibited a *Sericornis* which he procured in the Mount Lofty Ranges. It somewhat resembles the *Sericornis* frequenting the Victorian ranges, but differs by the dark sub-terminal markings of the tail, which markings are absent in the Victorian species The South Australian bird is clearly Gould's *S. osculans*.

Comparing this mainland bird of South Australia with those collected by the R.A.O.U. expedition to Kangaroo Island (1905), it will be observed that the insular bird is generally darker (a feature peculiar to other kinds of birds inhabiting that island), except the abdomen and edgings of the primaries, which are lighter, while some of the tail feathers are slightly tipped with white.

At the time we regarded the Kangaroo Island bird as referable to *S. maculata*—the Western form; but I now venture to separate it under the name of *Sericornis halmaturina* (Kangaroo Island Scrub-Wren).

Description of Adult Male.—Upper surface, wings, and tail brownish or fuscous, the upper tail coverts being olive-brown; primaries edged with grey or dull white; tail near the tip banded with dark brown or black, and all but the two central feathers tipped (on the inner web) with white; spurious wings black, some of the feathers edged with white; line above the eye and a spot below white; space between the eye and bill black. Under surface whitish, throat, chest, and breast having dark centres to feathers; flanks and tibia tinged with brownish-grey. Dimensions in inches:—Length, 5; wing, $1\frac{3}{16}$; tail, 2; bill, $\frac{7}{16}$; tarsus, $\frac{7}{8}$.

A Correction.—In *The Emu*, vol. x., p. 168, I described a supposed new *Eopsaltria* from North-West Australia as *E. hilli*.

Notwithstanding its yellowish breast and upper tail coverts, Mr. Gregory M. Mathews (see *Bulletin B.O.C.*, vol. xxvii., page 41) has pronounced it to be a female of *Pachycephala melanura* (Gould). A re-examination of the specimen confirms Mr. Mathews' opinion, and I take this opportunity of correcting my mistake, with apologies to Mr. G. F. Hill.

The female of *Pachycephala melanura* has not yet been figured. Gould figured the male only.

Emu-Wrens.—Concerning my remarks in the last issue of *The Emu* (p. 222), herewith is given an illustration of half the tails (natural size) of the males of the two forms, Eastern and Western, kindly drawn by Mr. C. C. Brittlebank. The Western (left-hand portion) is from a fine skin collected at Ellensbrook, and obligingly loaned by Mr. B. Woodward, F.G.S., Perth Museum. The other portion is from a bird collected at Springvale, Victoria, by Mr. A. G. Campbell.

In addition to the difference in character of the tail, as figured, *Stipiturus westernensis* has a lighter-coloured (greyish instead of brownish) mantle, darker

blue on the throat, and some white streaks on the feathers of the ear-coverts, which are light rufous on *S. malachurus*.

Dimensions in inches of a male *S. westernensis*: Total length, $7\frac{1}{4}$ (including tail, $5\frac{1}{8}$); wing, $1\frac{13}{20}$; tarsus, $\frac{15}{20}$; culmen, $\frac{7}{20}$.

While on the subject of Emu-Wrens, I may mention that a party of field ornithologists, led by Mr. A. H. E. Mattingley, procured in the Mallee district of Victoria, during the spring of 1910, the first female of *Stipiturus mallee* (Campbell, *Emu*, vol. viii., p. 34), but it was so damaged as to be almost unrecognizable. However, some of the party returned to the locality the following (last) spring and secured several examples of both sexes.

The female, in general upper surface, resembles the male—olive-brown broadly striped with a darker colour, with forehead and crown chestnut. Under surface cinnamon-brown, lighter on breast and abdomen, while some feathers about the ear-coverts have a bluish stripe, differing from the rufous stripe in the female of the common Emu-Wren (*S. malachurus*) and the white of *S. westernensis*.

New Pseudogerygone.—Through the courtesy of Mr. H. L. White, Belltrees, New South Wales, I have examined a small series of a Fly-eater collected by Mr. S. W. Jackson in the north-west corner of that State. I believe it to be hitherto undescribed, and venture to name it

Pseudogerygone jacksoni (Reddish-crowned Fly-eater), sp. n.

Adult Male.—Upper surface olive-brown, darker on the head, approaching cinnamon-brown; wings fuscous, primaries edged with grey; two central tail feathers olive-brown, rest of tail almost black (fuscous), broadly crossed with white, each feather also more or less marked with white at the extremity, chiefly on the inner web, but in instances across both inner and outer webs; line from bill to over eye whitish; dark spot behind the ear. Under surface, including tail coverts, white; buffy wash on flanks. Eyes red; bill and legs almost black, the former lighter at the basal half of under mandible.

Dimensions (approximately) in inches:—Length, 4.1; wing, 2.2; tail, 1.5; tarsus, .7; culmen, .3. Dimensions in millimetres:—Length, 110; wing (outstretched), 80; tail, 44; tarsus, 17; bill (at gape), 44 (Jackson).

Adult female similar to male, but not so white on the under surface; greyish on throat and chest. Dimensions:—Length, 113 mm.; wing (outstretched), 82; tail, 46; tarsus, 17; bill (at gape), 12 (Jackson).

Juvenile.—Upper surface rufous; primaries edged with ochraceous buff; eyes pale blue; legs brown. Dimensions:—Length, 86 mm.; wing (outstretched), 62; tail, 32; tarsus, 16; bill (at gape), 10 (Jackson).

Habitat.—Mogil Mogil district, New South Wales.

These birds are distinctly darker on the upper surface than typical *P. culicivora*, taken in Victoria and Riverina, from which

they may be further distinguished by the reddish-tinged (cinnamon-brown) forehead and crown. This colour might have been taken for youthful plumage had not the birds above described been parents. Again, the eyes are "ruby red" (Jackson), as against "reddish-yellow" (Gould) of *P. culicivora.*

The new bird is named in honour of Mr. Sid. W. Jackson (collector for Mr. H. L. White), who discovered it while camped and enduring great discomfort from excessive heat in the back-blocks of north-western New South Wales.

The following is taken from Mr. Jackson's field notes :—

"My camp was within a few miles of the Queensland border fence, and I had only been couple of days camped on this extensive belt of rich, flat country when my attention was attracted to the sweet and characteristic song of a *Pseudogerygone*, the song being different to that rendered by any other species of the genus with which I am acquainted. Later, and during my journeys between the camp and Collarenebri (40 miles), I do not remember having heard or noticed this bird in that area ; and all the specimens seen and collected have been on Cambo Cambo station only, but in all probability their habitat extends beyond that, and ranges westward over a big portion of this dry and inland north-west part of New South Wales. One of the first birds observed of this species was on the 25th September (1911), and it warbled at the same place as I had heard it for two days previously, and its neat pensile nest was discovered getting built, both birds being busily engaged going to and fro with material. It was placed about 9 feet up from the ground, and well hidden in a mass of the round-leaved foliage of a clump of bibble box (*Eucalyptus*, sp.) suckers which grew up from the base of a ringbarked tree. This nest contained a clutch of three eggs on 9th October (1911), when I also secured both the parent birds. The birds were not plentiful, but very local ; and I usually heard one during my daily tramp, and now and again at early morning one would visit the wilga tree at the head of my tent, and there pour forth its sweet but feeble little song. From what I saw of the birds, they appeared to be partial to the suckers of the coolibar and bibble box trees, but the wilga trees were also great favourites with them. The birds preferred the open forest, where the trees were well scattered, and the height of their breeding season (October) was the period when they most frequently twittered their sweet notes. By December these songs grew remarkably less, and in January (1912) the birds became silent, or were rarely heard, consequently, owing to their small size and dull colour, they were difficult to locate. Most of their time is spent feeding on small insects, &c., on the leaves and bark of bushy trees. The bird has a habit of moving its tail and the ends of its wings up and down rapidly on alighting on a branch, then folding its wings on its back."

Mr. H. L. White describes the nest and eggs on page 249.

Descriptions of two Nests and Eggs.

By H. L. White, R.A.O.U., Belltrees (N.S.W.)

Megalurus striatus (Milligan).

Nest.—Loosely constructed of dried grass, warmly lined with Duck and Bald-Coot feathers, and placed low down in clump of reeds growing in water. A pair of birds has been received for identification.

Clutch.—Four eggs. (1) Measuring—*a*, .67 x .53; *b*, .69 x .53; *c*, .67 x .52; *d*, .66 x .51. Surface of shell smooth and without gloss; ground colour pinkish-white, rather thickly covered all over with small spots of brownish-red, which increase towards the larger end, where they form a distinct zone. (2) Measuring—*a*, .72 x .54; *b*, .72 x .54; *c*, .72 x .52; *d*, .70 x .54. Similar in colour to clutch 1, but the markings are not so numerous, nor do they form such a well-defined zone at the larger end.

Both clutches are similar to eggs of *Megalurus gramineus*, but the markings are larger, and not so thickly distributed over the shell; the colouring is also much brighter than in *M. gramineus*, and more nearly approaches that of *M. galactotes*.

These eggs were collected for me by Mr. F. Lawson Whitlock at Wilson's Inlet, near Albany (W.A.), October and November, 1911.

Pseudogerygone jacksoni (Campbell, *ante*, p. 247).

Nest.—The usual *Gerygone* shape, suspended from a thin twig of a green coolibar tree at a height of 8 feet from the ground. Total length, 9 inches (including a tail of 4 inches); the hooded entrance (1 inch in circumference) almost in the centre of the nest proper.

The nest is constructed of fine shreds of bark, matted together with spiders' web and ornamented with spiders' white egg-bags, and lined with wool and feathers.

Eggs.—Type clutch of three (9/10/1911). Shape, long ovals; texture of shell fine, surface slightly glossy; ground colour delicate pinkish-white, finely spotted all over with reddish-brown, particularly at the larger end, where a well-defined zone of larger markings of reddish-brown occurs. The spots or blotches forming the zones in specimens *a* and *c* are much larger than those in specimen *b*, which is also similarly zoned, except that the markings are composed of a mass of minute specks and not blotches. Dimensions in parts of an inch:—*a*, 0.68 x 0.44; *b*, 0.68 x 0.45; *c*, 0.68 x 0.44.

Observations.—Mr. Jackson, the collector, states that "Ten nests were found getting built, five of which were ransacked and pulled to pieces by some nest-robbing creatures. This usually took place just as the structures were nearing completion. The first nest found contained a clutch of three eggs, on 9th October (1911), but the remaining four only contained two eggs each, although ample time was allowed for the third egg

to be laid. The nests were placed at heights varying from 5 to 9 feet, and well hidden in the masses of leaves of the green suckers growing from the bases of ringbarked coolibar and bibble box trees (eucalypts). The nests and eggs closely resemble those of *Gerygone albigularis*, except that they are somewhat smaller."

Notes on the Native-Hen (Tribonyx mortieri).

By (MISS) J. A. FLETCHER, TASMANIA.

THE grassy flats along the banks of the South Esk and Macquarie Rivers are favourite resorts of the Tribonyx, and to observe the birds is somewhat easy, provided the observer remains quiet. The Native-Hens appear to dread movement more than they do noise. I remember a certain flat along the Esk with an area of about 10 acres. Except on the river frontage, this strip was bounded by low, rocky, barren hills, with an anabranch of the river running in a semicircle at their base. The creeklet had a great number of water-weeds, reeds, and rushes growing in it. Here the Native-Hens were present in great numbers at all periods of the year. When disturbed they ran for shelter to the bracken ferns on the hills. Very rarely they attempted to escape by crossing the river. Presently a few of the older birds, presumably males, would return and begin to eat the grass. By degrees the others also returned, though there were always a few individuals ready to run at the slightest movement.

Several of these Native-Hens were very pugnacious, and chased intruders from the particular patch of ground they considered to be their own. They would run at the trespassing bird with head held low and wings partly down, uttering at the same time a noise resembling the grunt of a pig. At other times there would be a general chorus of their "saw-sharpening" call, the birds darting backwards and forwards in an apparently senseless manner. I have watched them crossing a river when wishing a new feeding ground. Once I counted a dozen birds which had been feeding on a low hill and were returning home. They swam one behind the other, but appeared rather to "tread water" than to swim, and to keep their bodies below the surface.

Once I saw a Native-Hen try to escape observation by walking beneath the water. Amid a bank of ferns I knew that a Tribonyx had her nest. Below this bank was a hole in the river, 4 feet deep, with a pebbly bottom. I stood on a log and with a long stick probed the ferns above the nest. Instantly there was a splash, and, looking down, I saw the bird sink to the bottom and run along the river's bed up stream a little distance and then dash out and race with full speed across the opposite flat. I jumped down among the ferns, and, parting them to view the eggs, saw a snake making its way slowly across the nest. I was soon back on the log again.

Both sexes assist in the making of the nest. Should the birds be disturbed when carrying material they immediately drop it and run to cover. If the watcher hides they will return, pick up the dropped material, and trot off to the selected building site. Along the edges of the lagoons and rivers large open nests of these species are often to be found during the nesting season. They are generally placed in conspicuous places, on large stones, flat rocks, exposed edges of the bank, or in solitary tussocks. The nests are made of soft tussocky grass, the hollow centre being about the size of a dinner plate.

Between 70 and 80 nests were inspected by me in 1910, and in one only did I see a clutch of eggs. Extra nests are built, I believe, to deceive Hawks and Ravens, and my experience with Bald-Coots (*P. melanonotus*)* and Bitterns (*B. poeciloptilus*) points to the fact that these birds also construct dummy nests. Generally speaking, a broody Tribonyx, when disturbed, slips off her nest and runs away. The crouching attitude when running, and the frequent backward looks which the bird gives, usually betray ownership of a nest or hidden offspring. On one occasion I found a nest and three fledgelings were hiding head downwards in the tussock grass around it. A fourth chick, whose down was not yet dry, lay in the centre of the nest squeaking feebly. The chicks had a patch of down on each wing; legs and bills were black.

The nest sites are most varied, ranging from a hollow in the ground to a willow tree (6 feet above the ground) and flood *débris*. In the Scottsdale district I have seen nests built in the centre of a tree-fern. Ravens (*Corone australis*) destroy the eggs of the Tribonyx. Occasionally the Ravens hunt in pairs. One will frighten a bird off her nest and chase her while the other attends to the eggs. When the Tribonyx is sufficiently far off her pursuer returns to assist in devouring the eggs, which are sometimes eaten in the nest, sometimes carried away.

Once while eating my lunch near a lagoon I heard the hunting call of a Harrier (*Circus gouldi*) to her mate, which flew across from the far side of the lagoon. I watched the two birds swoop down in turn and strike at some creature with their claws. Presently I heard a cry of pain, and knew that a Native-Hen was in trouble. So intent were the Harriers on their prey that I was able to approach closely, and saw blood-stained feathers on the hunted bird's back. I frightened the Harriers away, and the Tribonyx quickly concealed herself in a thick tangle. I have seen Native-Hens sitting on clutches of from three to nine eggs, and in exceptional cases of twelve, fourteen, and sixteen eggs respectively. The nest containing fourteen eggs appeared to be owned by two pairs of birds, while in other instances the eggs were uniform in appearance.

*Mr. Gregory Mathews deems the Bald-Coot of Tasmania to be sub-specifically different from the mainland form, and has named it *P. m. fletcheri*, in honour of the writer of this article.—EDS.

Additional Notes on the Helmeted Honey-eater (Ptilotis cassidix).

By F. ERASMUS WILSON, R.A.O.U., MELBOURNE.

SINCE the publication of a paper by Mr. L. G. Chandler and myself on this bird (see *The Emu*, vol. x., p. 37), I have collected the following additional notes.

After removing a clutch of eggs early in the season I affixed a few pieces of pink cotton wool in a fork of a tea-tree to see if the birds would utilize it in their new nest. On finding their nest

Yellow-tufted Honey-eater (*Ptilotis cassidix*) on Nest.

some time later, I was pleased to see a pair of eggs resting on a lining composed of the cotton wool. One nest found during the season had its lining composed entirely of the green leaves of a shrub (*Pomaderris apetala*).

While observing one nest containing young I was surprised to see that the chicks were attended by two pairs of adult birds, who

were sometimes all perched by the nest at the same time. Observations this year substantiated my theory that these Honey-eaters are kept greatly in check by the Pallid Cuckoos (*C. pallidus*), as in nearly every case where nests were observed they either contained an egg or young of this Cuckoo. One nest in particular contained two Cuckoos' eggs, one having been built into the lining. As far as I am able to ascertain, Cuckoos are the only birds credited with devouring hairy caterpillars, but on one occasion I witnessed a Helmeted Honey-eater catch and eat a hairy caterpillar close beside me.

P. cassidix frequently lays one egg only, as several instances of this have come under my notice.

During the winter months these birds are exceedingly quiet, and, although frequently seen, it is rarely that they give utterance to a note of any kind. This year the birds in the Beaconsfield district started laying exceptionally early, nests being noted in the middle of August, a month earlier than I have seen them in previous seasons.

The following note illustrating the pugnacity of these birds was obtained during the breeding season :—A flock of Sittellas (*S. chrysoptera*), in their search for food, happened to enter the domain of *P. cassidix*, who immediately attacked them with such vigour that they were all forced to take wing, when in sheep-dog fashion he rounded the stragglers into the centre of the flock and kept them well bunched together till he had driven them from the locality.

I was also able to fill in two gaps in the immature stages of *P. cassidix* :—Two days old.—Gape lemon-yellow ; throat orange-yellow ; crown, dorsal and wing tracts covered with blackish-grey quills ; eyes just opening ; primaries and secondaries just emerging from quills ; a faint line of quills extending down each side of abdomen, and legs slightly downy ; feet bluish. Nine to ten days old.—Gape lemon-yellow ; long quills on crown breaking, olive-yellow, with the down still adhering ; quills of ear coverts breaking ; yellow feathers on throat, and breast pale olive-green ; primaries and secondaries black, edged with olive-green ; abdomen and legs bare ; back covered with dusky downy feathers ; legs and feet bluish ; irides light brown.

While taking the description of this immature bird, the parents returned with food. Knowing this pair of adult birds to be very tame, I gently extended my hand containing the young one towards one of them, and was delighted to see her alight upon my hand and feed the chick there.

I am indebted to Mr. A. H. E. Mattingley for the illustration accompanying these notes.

Stray Feathers.

New Foster-Parent for Pallid Cuckoo.—On the 11th November, 1911, in company with Mr. F. E. Wilson, R.A.O.U., I observed at Beaconsfield (Victoria) a nest of the Bell-Miner (*Manorhina melanophrys*) containing fresh eggs. Two of the eggs had been laid by the Miner and the third egg by a Pallid Cuckoo (*Cuculus pallidus*).—L. G. CHANDLER. Malvern, 20/11/11.

* * *

Honey-Lovers.—On the 7th December last, I noticed several Honey-eaters (*Meliornis novæ-hollandiæ*), making a great fuss in a tecoma creeper (*T. radicans*) in full flower. I soon saw that while gathering honey themselves out of the long tubular flowers, they were protesting most emphatically at the presence of a pair of *Melithreptus gularis*. The latter were using their sharp and short beaks to pierce the tecoma flowers near their base, and thus extracting the honey by a short cut. I examined the flowers, and noticed that the birds had made quite a considerable perforation in the corolla tube. Were the "New Hollands" objecting to the damage done the flowers or to the "Black-throateds" sharing the supply of honey?—EDWIN ASHBY. Adelaide, 12/12/11.

* * *

The Malurus.—A pair of Blue Wrens (*Malurus cyaneus*) has for several years built in the creepers on my house, "Wittunga," Blackwood, South Australia. On the 11th November last I noticed two full-plumaged males on the guttering of the house, fussing about, evidently waiting to take some morsel to the young birds in the nest, but a little fearful because of my presence. The female bird then appeared on the guttering, and I moved a little further away, and immediately one of the male birds flew down to the nest to feed the young ones. Directly he had flown away the second male flew down and supplied the cravings of the young birds, and when he had returned the female bird did likewise. My sight was not good enough to see the insects in the birds' beaks, but there was no doubt that each of the three adults was supplying the young with food.—EDWIN ASHBY. Adelaide, 11/12/11.

* * *

Cuckoos as Nest Robbers.—Recently when fishing along a creek near Yea I flushed a Narrow-billed Bronze-Cuckoo (*Chalcococcyx basalis*) from some grass tussocks. Thinking it was after the nest of some Blue Wrens (*Malurus cyaneus*), which seemed excited, I looked about and soon found a nest of the Wren containing one fresh egg; so, placing myself behind cover, I waited, and soon the Cuckoo came hopping along the ground to the nest, but whether it carried its egg in its bill I cannot say. After being at the nest for about half a minute the Cuckoo flew away with the Wren's egg in its bill and left its own in the nest. The Wren subsequently laid two more eggs. I think this accounts for the finding

of so many nests containing the egg of a Cuckoo and an unusually small clutch of the foster-parent.—ARTHUR P. INGLE, R.A.O.U. Yea, 2/1/12.

* * *

Acclimatization of Torres Strait or Nutmeg Pigeons.—When at Herberton, N.Q., in January, I visited my friend Mr. Newell. He is an old bird-lover. He showed me a small flock of fourteen Torres Strait or Nutmeg Pigeons (*Myristicivora spilorrhoa*)—glorious birds, with their white plumage and black pinions flashing in the sunshine. These birds came from Low-wood Island, off Port Douglas, when quite young, and were put in a cage. Three or four got out and one was lost, the rest caught and put back. Then a dog got at the cage and more got out, but returned to be fed. One by one the rest were let out, and one was drowned, but the rest are still here—for the past three years. On 28th January I saw one on its nest, some 8 feet from the ground. What a primitive raft for the single egg! The bird sat quite quietly, and I was but a few feet away. These birds remain here all the year round, and their home is 3,000 feet above sea-level. The migratory instinct is evidently gone. They know Mr. Newell well, and it is a very pretty sight to see these handsome Pigeons come down to him to be fed. They will take food from his hand.

I was at the Museum to-day, and an *employé* tells me he has for years past had Torres Strait Pigeons at his home at Kangaroo Point—quite domesticated, he says. I inquired as to breeding, but he said they had not bred. I saw them breeding, egg and young, 3,000 feet up, and so I fancy there may be some mistake about their not breeding in Brisbane. As to any hybridizing, the answer was in the negative, and that corresponds to what Mr. Newell told me and I saw. A beautiful Torres bird was in love with a Columba bird of local origin. I saw them repeatedly together away from home. Mr. Newell reports this has happened, and an egg or eggs laid, but with no result. These very handsome birds should be a great attraction to any park or gardens, and evidently are easily kept.—F. HAMILTON KENNY. Sherwood, Brisbane, 6/3/12.

Forgotten Feathers.

SHAW, "ZOOLOGY OF NEW HOLLAND, 1794."

BY GREGORY M. MATHEWS, F.R.S.E.

IN 1793 was begun a book dealing with some of the "Zoology and Botany of New Holland," as it was then called. The botanical specimens therein figured were all sent to England by John White, the Surgeon-General to the colony.

Although the title-page and preface to the "Botany," both of which are dated December, 1793, appeared in part i., I cannot find that that part was issued before 1794. The title-page of the

"Zoology" is dated 1794, and there is no preface or dedication, thus showing that it was considered to be one book, and it was so bound in one of my copies.

The wrappers in parts i. and ii. are small, and pasted on larger covers. No. 1 reads :—

"To be continued occasionally/of/Zoology and Botany/of/New Holland/and/the Isles adjacent/Published by J. Sowerby and Co., No. 2 Mead Place/Lambeth; may be had at No. 42 Paternoster Row,/and of the town and country booksellers."

The wrapper on part ii. is almost the same, but it has—"In future a number of this will be published every two months."

Part i. contains title page, half-title page, dedication, preface, and plates i.–iv., with their letter-press of botany, and, I think, *Psittacus eximius* and *Didelphis pygmæa* (original description), with their letter-press of zoology.

Part ii. contains plates v.–viii., with their letter-press of botany, and, I think, *Columba antartica* (original description) and *Chætodon constrictus* (original description) (?), with their letter-press of zoology.

After this the "Zoology" and "Botany" were issued separately. Two more parts of each came out and contained each four plates. The botanical plates were issued as now numbered, and are sixteen in number, and probably most of them received their scientific names for the first time. Part iv. of "Botany" is dated 1794, but three of the plates are dated 1st January, 1795. Plates vii. and viii. are dated 1st October, 1793; plates xiv., xv., xvi. are dated 1st January, 1795.

In the "Zoology" the plates were not issued in their right order. Part i., I think, contained plates i. and ii.

Part ii. contained plates v. and vi.

Plates Nos. ix., *Turdus punctatus* (original description); x., *Colubor porphyriacus* (original description); xi., *Didelphis sciurea* (original description); xii., *Didelphis macroura*, were issued together, and are dated September and November, 1794.

Plates Nos. iii., *Psittacus terrestris*; iv., *Merops phrygius* (original description); vii., *Testudo longicollis* (original description) (?); viii., *Canser serratus* (original description) (?), were issued together, and have "1794" on them. The wrapper to this part reads :—

"Zoology/of/New Holland/by/George Shaw, M.D., F.R.S.,/&c., &c./ The figures by/James Sowerby, F.L.S./ This volume contains/The Ground Parrot. The Embroidered Merops. The Long-necked Tortoise. The Serrated Lobster./ In binding this work, the order of the pages only is to be attended to in/Descriptions, which are immediately to follow the corresponding Plates/. London/Printed by J. Davis/published by J. Sowerby, No. 2 Mead Place, Lambeth, to be had/at No. 13 Broadway, Black-Friars, and of the Town/and Country Booksellers/M.DCC.XCIV."

It will thus be seen that after the "Zoology" and "Botany" were issued separately, they were published at a different place than formerly, although still by the same publisher. In the "Zoology" there are 5 plates of birds, 3 of mammals, 1 fish, 1 tortoise, 1

crustacean, 1 reptile, and out of the 12 plates, I think 9 are original descriptions. What is now plate i. has No. 2 in the bottom corner, and some printing erased; plate iv. has No. 1 in the bottom corner, and also has something erased: these are the only two plates without a Latin name. Probably the author changed his idea before actually publishing. Plate ii., the first mammal plate, has "1" in the top right-hand corner: all the others have their correct numbers.

In the foregoing I can speak with certainty only of the "Botany"; for the "Zoology" I have gone on external evidence, as I only have one wrapper stating what that part contained.

A FRENCH EXPLORER'S AUSTRALIAN BIRD LIST.

By Ernest Scott, Melbourne.

Captain Nicholas Baudin was the commander of the French expedition despatched to Australia by Napoleon in 1800. He died at Mauritius before the return of his ships to Europe, and the history of his explorations was afterwards written by the naturalist, François Péron. Hitherto it was not known that Baudin himself wrote any account of the voyage, but researches made recently at the Archives Nationales, Paris, at the instance of an Australian student, have brought to light an interesting long letter, sent from Port Jackson, in November, 1802, to the Minister of Marine. In this document Baudin gives an account of his explorations in southern Tasmania, and includes a few notes on flora and fauna. His observations on birds may not be very striking, but, as they record the species seen by an early navigator, they have a certain value for ornithologists. The birds mentioned in the passage translated below from the manuscript copy were seen by Baudin at Bruni Island, Frederick Henry Bay, Maria Island, and Schouten Island, which were the principal anchorages of the British ships while engaged upon their explorations in Tasmanian waters. He wrote:—

"The species of sea-birds, without being remarkably varied, could, nevertheless, become a resource of an establishment at the outset. The Black Swan, the Pelican, the Albatross, the Cormorant, the Duck, the Teal, the Yellow-headed Booby ('le fou blanc à tête jaune'), the 'Goueland gris' (?), the Pied Oyster-catcher ('la Pie de Mer à pieds et bec rouge'), the Sandpiper ('la Bécassine'), and the Seagulls are not to be overlooked. The Swan, however, appeared to us to deserve preference over all the others, independently of its size. Its flesh is delicate and agreeable when preserved in brine. But it is difficult to approach. The most favourable time for the pursuit of this bird is the moulting season, when it can only fly with difficulty, and when it can be captured while swimming, notwithstanding that it can acquit itself well even then. The Duck and the Teal are, after the Swan, the birds whose flesh make the best eating. The Cormorant and the

Albatross, although less good, are not for that reason to be disdained. The Oyster-catcher, the 'Goueland,' the Booby, and the Gulls are scarcely worth catching. I do not doubt that in the mating and egging seasons other species than those of which I mention frequent these shores, where they appear to enjoy perfect security. The land-birds that we have met with in the islands of the channel (*i.e.*, D'Entrecasteaux Channel) and upon the mainland are not very numerous, and they were so shy and difficult to approach that I was led to believe that they are often chased by the aborigines. The commonest species are the Parrots, blue-headed and yellow-breasted, and another kind with red wings and green plumage; the latter is much smaller than the former, which is as large as a dove, and very beautiful. The Eagle, the Hawk, the Crow, the Magpie, the Cuckoo ('le Coucou'), 'la Pigrieche,' 'la Grieve,' the Blackbird ('le Merle'), the Partridge ('la Perdrix'), and the Quail are only rarely met with, and it was only with difficulty that we were able to obtain specimens of these species. We have also met with several kinds of small birds which were unknown to me, of which the plumage is nicely shaded ('bien nuancé'), and the song agreeable. All those which we have procured are included in the collection of Citizen Maugé (one of the scientific staff), and I hope that they will augment the number already collected in the National Museum. The beautiful Golden-winged Pigeon, of which Anderson speaks, was so rare here that we obtained only one specimen."

It must be remembered that Baudin was not a trained zoologist. Several of his words are puzzling. What Tasmanian bird did he call the Cuckoo, for instance, and what the Blackbird? What are the "Pigrieche," the "Grieve," and the "Goueland gris?" It should be noted that the French ships were in Tasmanian waters during January and February, 1802.

Bird Day.

THE first celebration of Bird Day has been successfully carried out in New South Wales. The second celebration in South Australia and the third in Victoria have assisted in firmly establishing the present keen interest that is being displayed by Australians in the rich and varied avifauna of this great island-continent.

In New South Wales the Gould League of Bird Lovers has been established, and an appropriate certificate has been issued. (See Plate XXVII.—one-third original size.)

In South Australia new bird clubs are constantly being added to the list. Creditable work is being done in connection with the education of pupils and teachers by the publication of special Bird Day articles. A special Bird Day number of *The School Paper* was also issued. Mr. A. G. Edquist keeps the matter constantly before the children by his attractively-written columns in *The Children's Hour.*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W. G. HALL
S. A. HANSCOMBE
C. HAWKE
J. S. MAIDEN
H. E. PAGE
W. T. SWANTON
H. W. HAMILTON, (Hon. Treas.)
This is to Certify
that
is a member of the
Gould League of Bird Lovers
W. Finigan Hon. Secretary.
BIRD LOVER'S PLEDGE
"I hereby promise to protect all birds except those that are noxious and to refrain from the unnecessary collection of wild birds' eggs.
Signed

In New South Wales a special supplement of *The Teachers' Gazette*, containing four coloured plates, was issued. This contained interesting and valuable articles by well-known writers and ornithologists. Special Bird Day school papers were issued for October. A public meeting, attended by far more than the hall could accommodate, was presided over by the Chief Inspector, Mr. Dawson, the president of the Gould League of Bird Lovers of New South Wales.

In Victoria the chief feature was the special issue of *The School Paper* containing original articles by members of the R.A.O.U.; special lectures and addresses by bird lovers, headed by Mr. J. A. Leach, M.Sc., Inspector of Nature Study, to the senior pupils; and excursions to the Zoological Gardens, under the leadership of such ardent ornithologists as Dr. Geo. Horne, his niece, Miss Bowie, and Mr. E. Brooke Nicholls.

From each school reports were forwarded to the Education Department. These are of great value to the members of the Union, for the first list gives the birds seen on Bird Day, the second a copy of the school bird-list to date. These lists will provide much valuable matter for the student of the migratory and nomadic movements of birds.

The Union views with approval the work of the Bird Observers' Club, the South Australian Ornithological Association, and the Gould League of Bird Lovers, with their thousands of members, and anticipates that the efforts to protect our native birds will be much more successful because of the weight of public opinion created by so many intelligent enthusiasts, who can appreciate the beauty, the song, the interest, and the value of the most remarkable avifauna of any land in the world.

In addition to the metropolitan area, excellent Bird Day celebrations were held in the provinces, notably at Geelong (where Mr. C. F. Belcher addressed 1,200 scholars in the Eastern Gardens), Tallangatta, Elmore, and Maryborough. At the last-mentioned place Mr. A. H. Chisholm addressed both East and West schools. At the former a pretty poem on "The Honey-eater," specially written for the occasion by Miss C. B. Coutts, was recited. The veteran bird observer, Mr. Isaac Batey, and Mr. D. C. Swan took Drouin and Drouin West schools respectively, and Mr. L. C. Cook Poowong, with happy results, while Mr. G. E. Shepherd did yeoman service on the Mornington Peninsula, addressing schools or public meetings at Somerville, Tyabb, Frankston, Mornington, and Dandenong.

Rhipidura (fulvifrons) mayi, Ashby (*vide Emu*, vol. xi., p. 41). —I have recently received a series of this Flycatcher, which might be known as the "Northern Rufous Fantail," from Mr. May, from the same locality as the last, and they are all true to type, thus proving that the distinctive characteristics were not due to immaturity.—EDWIN ASHBY. Adelaide, 12/12/11.

From Magazines, &c.

Mr. D. Seth-Smith, F.Z.S., continues his admirable and practical articles on "Bird-keeping" in *The Avicultural Magazine*. The issue for December (vol. iii., No. 2), contains remarks on "Quails" of special interest and instruction to Australians.

* * *

The Progress of Oology.—In the course of his address on the opening of the twentieth session of the British Ornithologists' Union (8/11/11), Dr. P. L. Sclater, F.R.S., stated:—"Last, but not least, we are delighted to hear that the fifth volume of the 'Catalogue of Birds' Eggs' in the British Museum will be issued next year. The work, which was commenced by Mr. E. W. Oates some years ago, has been almost completed by Mr. W. R. Ogilvie-Grant. We wish to become acquainted with every part of the bird's structure in all its stages, and rejoice in the progress of oology as shown by these publications."—*Bulletin B.O.C.*, No. CLXXIII.

* * *

Mr. Thomas Parkin, M.A., F.Z.S. &c., has issued a neat little *brochure* entitled "The Great Auk: a Record of Sales of Birds and Eggs by Public Auction in Great Britain, 1806-1910," with historical and descriptive notes and five plates, issued as an extra paper, vol. i, part 6, of *The Hastings and East Sussex Naturalist.* While it is regretted that civilization has destroyed this fine fowl from off the face of the earth, Mr. Parkin is to be thanked for his painstaking task in preserving an authenticated record of a number of skins and eggs that are still extant. The highest prices realized at the sales were, for a handsome skin, £350, which was purchased for the Royal Scottish Museum, while Mr. James Gardner of Oxford-street, London, gave £330 for the finest known egg for its special type of markings—an unrecorded specimen from a French collection. The price of the *brochure* is 2s., and it may be had from Rowland Ward Limited, 167 Piccadilly, London.

* * *

A New Journal.—A small but significant ornithological publication closely concerning Australians has been issued by Mr. Gregory M. Mathews, who is also its editor. It is styled "The Austral Avian Record: a Scientific Journal devoted primarily to the Study of the Australian Avifauna," and is issued in connection with Mr. Mathews' Austral Avian Museum, Watford, Herts., England. The editorial note reads:—"While preparing my 'Reference List to the Birds of Australia' (now in the press), I accumulated many notes of great interest regarding matters that need investigation. In that Reference List I have shortly indicated some of these matters, but detailed accounts could not

there be introduced. I have therefore decided to publish, at irregular intervals, such notes as I deem necessary to require immediate attention and referring to birds which either have been already treated of in my 'Birds of Australia' or will not be dealt with in the immediate future. In this place it is proposed to indicate new forms, notes on nomenclature, and any other interesting matter relating to the Australian avifauna."

Twenty-one pages out of the 24 pages of the initial part (vol. i., No. 1) contain a very interesting and critical paper, showing much research on the part of the editor—"Notes on Australian Cuckoos." From all the reasons and references set forth, Mr. Mathews has allotted to our hitherto 6 genera or 13 species, 5 genera (1 new), but has multiplied the species and sub-species to 23 (including 1 species and 8 sub-species new).

It is to be sincerely hoped that the advent of this new publication does not signal the withdrawal of all Mr. Mathews' serious Australian work from the pages of *The Emu*—a course to be regretted, especially as Mr. Mathews has received much support from Australian workers (to wit, from Capt. and Mrs. White, who are collecting, regardless of time, inconvenience, and expense, throughout the State of South Australia, and with special Government permission), and still expects and undoubtedly will receive continued support until the consummation of his self-imposed work.

Reviews.

["Home Life of the Osprey." By Clinton G. Abbott, B.A. Witherby and Co., London. Price 6s.]

THIS is the third volume of the Bird-Lover's Home Life Series, and is in every way worthy of its predecessors. The Osprey makes a fine subject for special study, and the photographs reproduced in this pleasant volume form a pictorial record of the domestic life of the great sea-bird. Some of the illustrations show Ospreys in flight, others depict the female alighting on the nest, the young birds, and nests in different situations, including the top of a telegraph pole and the posts of a sapling fence. All the photographs are excellently reproduced, and the plates are artistically mounted on stiff brown paper. The text accompanying this portfolio, although of minor importance, is full of interest, as the author relates his adventures on the coast of New Jersey, at the Great Lake, North Carolina, and at other places where he studied Ospreys. He describes how the wonderful photographs were obtained, and his observations on the habits of the birds are valuable. It was on Gardiner's Island that he found the best opportunities for studying the Osprey, which is protected by natural isolation as well as by the owners of the island.

["A Naturalist on Desert Islands." By Percy R. Lowe, B.A. Witherby and Co., London.]

FEW books of travel are more fascinating than those which describe the wanderings of naturalists. Darwin's "Voyage of the *Beagle*," Wallace's "Malay Archipelago," Bates's "Naturalist on the Amazon," and Sir Joseph Hooker's "Himalayan Journals," are the classics of this class of literature; but every year the library of natural history voyages and travels is increased. Few of the modern volumes can compare with the older ones, because they are so often written by men, or women, in a hurry; the old leisurely years have gone. Mr. Lowe's book, if it lacks distinction as a literary production, is delightful to read, for it deals with remote islands, where man has rarely been, and who can resist the romance of the little lands of the sea?

For six consecutive winters Mr. Lowe has accompanied Sir Frederic Johnstone and Lady Wilton, his wife, on yachting cruises in the Caribbean Sea and the Gulf of Mexico. On these voyages nearly every island in the two basins was visited, but the present volume is devoted to Swan Islands, Blanquilla Island, and the Hermanos Islands, all of which are sea-bird haunts. The Swan Islands are at the western end of the Caribbean Sea—"anchored like floating gardens on the placid surface of a sapphire sea"—and on the smaller of the two Frigate-Birds and Gannets nest in great numbers. The nests of the Frigate-Birds are built on the tops of the trees, whose branches are interlaced, making an arboreal platform. Occasionally a bird, when scrambling about the branches, loses its balance, and, in falling, becomes caught in a fork and is strangled. Mr. Lowe observed that the birds "live a good deal on floating animal refuse, which they pick up daintily off the surface."

The illustrations in "A Naturalist on Desert Islands" are interesting, but some of them have suffered in reproduction. The book is well printed and neatly bound—a desirable acquisition to the naturalist's library.

["Nest and Eggs of Birds Found Breeding in Australia and Tasmania." By Alfred J. North, C.M.Z.S., &c., Ornithologist to the Australian Museum.]

PART iii. of volume iii. of this work has been issued. It is a continuation of the Order Accipitres, and contains the sub-family *Accipitrinæ* (commenced on the last page of part ii.), the sub-family *Buteoninæ*, and the greater portion of the sub-family *Aquilinæ*. The figures of eggs, which are natural size, are reproduced by the heliotype process from photographs taken under the direction of the Government Printer and the supervision of Mr. A. E. Dyer. The illustrations of the birds are reproduced from drawings made by the late Mr. Neville Cayley, who also hand-coloured the plates of eggs in the coloured copies.

This part is particularly interesting, as it deals with a favourite group of birds, and is full of first-hand field-notes from the author's

correspondents in various parts of the Commonwealth. There are also some fine illustrations of "tall" climbing. Here, under the heading of Black-breasted Kite, formerly called Buzzard (*Gypoicinia melanosternum*), is a sample field-note, by Dr. Wm. Macgillivray, of Broken Hill, and a member of the R.A.O.U. :—

"During nearly nine years' residence, and a good deal of wandering through the scrubs and along the creeks of the district, I have only come across two pairs of these birds, and until 1909 had found only one nesting-place. My notes must necessarily deal mostly with one pair of birds. In 1907 Mr. M'Lennan and I, with some others, on our return journey from Langawirra, camped on Talcowinna Creek, about 35 miles from Broken Hill. Early next morning 9th September, we proceeded to investigate the nesting along the creek; cutting off a large bend to leave a portion near the camp, we struck the creek where a Cockatoo (*Cacatua sanguinea*) flying from a hole 40 feet up in a tall gum attracted our attention to a large nest in the same tree, on which a bird was seen to be sitting. It was a very windy morning, and the bird sat closely; sticks and stones were thrown up, but she did not move until a shot was fired in the air from the specimen gun, when a magnificent female of the Black-breasted Buzzard left the nest, but kept soaring round and round at a respectful distance. Seen from below she was a splendid bird, both from her proportions and colouring; her black breast and ruddy under surface, and the dark primaries contrasting with the conspicuous white band across their bases, easily distinguish her from all other birds of prey. The male, who soon joined her, is only about half her size, and not nearly so conspicuously marked; he has none of her rich colouring, no black breast, and pinions not so dark, his breast seen through the glass being fawn-coloured. When soaring, which they both do, like the Wedge-tailed Eagle, with the carpal joint fully extended and primaries all spread out and separate, the male appears in colouring like a brightly marked Little Eagle. The difference in size between male and female is, however, more marked even than in the Goshawks. When soaring round watching the climbers at work, the female kept uttering a series of short, sharp cries in quick succession, much resembling the alarm note of the Wedge-tailed Eagle The nest was at a height of about 70 feet, placed in the fork of a rather thin horizontal limb. Seen from below it presented a loosely built and flat appearance. Sticks half to one inch in diameter were used in its construction; it was 2 feet by 3 feet across, with an egg cavity 9 inches in diameter, lined with green gum-leaves. The nest contained two fresh eggs. On the ground under the nest were the remains of rabbits. The Blood-stained Cockatoo's nest in the same tree contained three eggs."

Under the White Goshawk (*Aster novæ-hollandiæ*), on the authority of Mr. Geo. Savage, Mr. North quotes an instance of that species inter-breeding with the Grey Goshawk (*A. clarus* (*cinereus*)), but offers no comments on the interesting occurrence. Although Mr. North quotes Mr. H. Greensill Barnard in several instances, he omits that collector's field observations of the apparently common occurrence of the inter-breeding of the White Goshawks and the Grey, at Cape York—*vide Emu*, vol. x., p. 247 (1910). The author of the Australian Museum's "Special Catalogue, No. 1," is to be commended for his consistency in two things—he never quotes where there is the faintest suspicion of doubtful authenticity, and he never quotes contemporary Australian authors. The latter, of course, keeps his work original, but at the risk of leaving students in the dark.

This important work must now be nearing completion, having been commenced over 10 years ago, and as the last decade has been rich in Australian ornithological discovery, perhaps Mr. Etheridge will recommend to the trustees of the Museum, which he represents, the necessity of publishing an appendix to this "Special Catalogue." Mr. North must possess much that is new and of interest concerning species already dealt with by him in previous parts, or species not mentioned at all.

Correspondence.

MUNGOOSES AND RATS.

To the Editors of "The Emu."

SIRS,—Mr. C. Coles is credited in *The Emu* * with having said—"The mungoose released in Fiji had already mated with the rats there, and the hybrid destroyed birds." I have lived in Fiji for four years, and have seen great numbers of mungooses and rats, but have never seen or heard of a hybrid between the two.

Is it likely that two such dissimilar animals would mate when they are both living under natural conditions? One might as well expect a dog to mate with a cat, or a lion with a cow. Readers of Mr. Coles's statement might infer that the mungoose itself did not destroy birds. This animal was brought to Fiji to kill the rats, but has failed to do so. It is a great pest amongst poultry, destroying chickens and eggs, and no doubt does the same with the wild birds.

It would be interesting to know where Mr. Coles obtained information about the rat-mungoose hybrid.—I am, &c.,

Rarawai, Fiji, 14/2/12. A. F. SMITH.

[Mr. Coles's statement appeared in a report of the proceedings at the R.A.O.U. Congress at Sydney. The editors are not responsible for any opinion thus expressed. It is, of course, not possible for the mungoose to breed with the rat—one belongs to the Order Carnivora and the other to the Order Rodentia.—EDS.]

South Australian Ornithological Association.

THE usual monthly meeting was held in the Royal Society's rooms, North-terrace, when Capt. S. A. White presided. The secretary (Mr. J. W. Mellor) read a report from the Police Department, stating it had been unsuccessful in detecting the persons who killed Flycatchers lately at the Reedbeds. Mr. Mellor tabled a specimen plate on a work being compiled in Europe by Mr. Dyseman on the classification of the world's ornithology. Capt. White read extracts from letters written by a lady of Yorke Peninsula. These letters were forwarded by Mrs. Bundey, and contained some interesting descriptions of bird-life on the Peninsula. The practice of destroying bird-life on the River Murray by holiday-makers while passing

* Vol. xi., p. 149.

up and down the river was again referred to, and it was thought advisable to request the authorities to keep a sharp look-out for law-breakers. Mr. E. Ashby showed specimens from the Lower Murray districts, and explained some interesting habits and distinctions in same. Among other specimens were the Little Eagle (*Nisaetus morphnoides*), Nankeen Night-Heron (*Nycticorax caledonicus*), Black Shag or Cormorant (*Phalacrocorax carbo*), Pied Cormorant (*P. hypoleucus*), Chestnut-backed Ground-Thrush (*Cinclosoma castanonotum*), the Shy Scrub-Wren (*Hylacola cauta*), and the eggs of the last-named bird. Mr. Robert Zietz (ornithologist to the Museum) stated that half a dozen Cormorants had been shot for scientific purposes, and that he had examined the contents of each bird's stomach, which were found to contain numbers of fresh-water crayfish or yabbies, with but one or two non-edible fish. That went to prove that the birds did more good than harm.

Bird Observers' Club.

THE monthly meeting of the Bird Observers' Club was held at the residence of Dr. G. Horne, Queen's-parade, Clifton Hill, on Wednesday evening, 20th December, 1911. Twelve members accepted Dr. Horne's invitation to dinner, and two additional members attended the meeting. Before dinner the aviaries were inspected, a fine pair of young Maned Geese being the centre of attraction. A beautiful specimen of the Yellow-tufted Honey-eater was also much admired. At 8.30 o'clock Dr. H. W. Bryant, president, took the chair. A discussion took place in connection with the Gould League of Bird Lovers. On the motion of Mr. Chas. Barrett, seconded by Mr. O. W. Rosenhain, it was decided that fraternal greetings be sent to the committee of the New South Wales Gould League of Bird Lovers. Mr. L. G. Chandler, hon sec., said he had written to Major Semmens regarding the protection of Mutton-Birds at Cape Woolamai, and had not yet received a reply. Mr. A. J. Campbell thought that there was not the slightest danger of the rookery becoming deserted. The birds were late in arriving this year, but were as numerous as ever. Several members spoke on the subject, and it was decided that no action be taken in the matter until the secretary heard from Major Semmens. Mr. F. E. Wilson read an interesting paper on a trip to the Mallee. Mr. Wilson discovered a new Honey-eater, and Mr. F. E. Howe, F.Z.S., his companion, secured specimens of the undescribed female of the Mallee Emu-Wren. A series of bird-skins collected during the trip was shown, also photographs of the nests of the Scrub-Robin and the Mallee Emu-Wren. A long discussion on the paper followed. Drs. Bryant and C. Ryan, Mr. A. H. E. Mattingley, C.M.Z.S., and the hon. secretary were appointed as a sub-committee to meet a committee of the Game Protection Society to discuss the proposed game-bag limit. Mr. Mattingley stated that he had been informed that poison laid for rabbits in the Alexandra district had destroyed innumerable Great Brown Kingfishers and Magpies. A hearty vote of thanks was passed to the host and hostess.

The first meeting of the Bird Observers' Club in 1912 was held at the residence of Mr. O. W. Rosenhain, "Koala," Balaclava-road, East St. Kilda, on Wednesday evening, 17th January. Mr. Rosenhain had invited members to dinner, and thirteen accepted the invitation. At 8 o'clock Dr. H. W. Bryant, the president, took the chair, and the hon. secretary read the minutes of the previous meeting. The hon. sec. then read two letters from Major Semmens, and reports from Inspector Rowson, of the Fisheries and Game Department, and Constable M'Donald, of Wonthaggi, regarding the Mutton-Bird rookeries on Phillip Island. A lengthy dicussion took place, and it was decided that the birds should have some measure of protection. Mr. A. J. Campbell moved, and Mr. C. Barrett

seconded, that a sub-committee be formed, consisting of Messrs. E. B. Nicholls, D. Le Souëf, and T. H. Tregellas, to go into the whole question and submit a report at the next meeting of the club. Mr. L. G. Chandler, the hon. sec., read a paper on the White-browed Field-Wren (*Calamanthus albiloris*), which was dicussed by several members. Mr. A. J. Campbell commented on the early opening of the Quail season, and moved that the hon. secretary write to the Minister of Agriculture asking him to receive a deputation which would protest against the early opening of the season. Mr. J. A. Leach, M.Sc., seconded the motion, which was carried unanimously. Mr T. H. Tregellas read the balance-sheet of the Buckland fund lecture. After expenses had been paid a balance of £3 11s remained. This money was handed over to Mr. O. W. Rosenhain to pass on to Mr. Buckland. Mr. D. Le Souëf was congratulated by members on being elected a corresponding member of the American Ornithologists' Union. Mr. Leach drew the attention of members to the wholesale destruction of birds at the Sandringham Golf Links, where poison was being laid for rabbits. The exhibits were :—Skins of *Calamanthus albiloris*, *C. fuliginosus*, and *C. rubiginosus*, by A. J. Campbell ; skins of *Calamanthus howei*, eggs of *Stipiturus malachurus*, with egg of Fan-tailed Cuckoo and eggs of *Calamanthus albiloris*, by F. E. Wilson ; series of lantern slides of birds in their native haunts, by Mr. A. H. E. Mattingley ; skins of *Calamanthus albiloris*, and photographs of young *C. albiloris* in nest, by Mr. L. G. Chandler. A vote of thanks was accorded the host and hostesses, and on behalf of the club the president wished Mr. Rosenhain and his son, who were leaving shortly for Europe, a pleasant voyage. The host suitably responded, and the meeting terminated.

Notes and Notices.

Brisson.—There has been discussion recently in scientific circles of the old world, and incidentally in the pages of *The Emu* between Mr. Mathews and Mr. Milligan, as to whether or not the genera of Brisson's "Ornithology" (1760) should be accepted under the International Code of Zoological Nomenclature. According to "Opinion 37," just received, the International Commission has ruled (voting 9 to 1) that Brisson's generic names of birds are available under the code.

Albinism.—It is interesting to note, in phases of albinism among Parrots, the hue the feathers assume ; for instance, in a Rosella (*Platycercus*), the green becomes yellow, the blue becomes white, but the red does not usually change. I have not known of a case of melanism among birds, but have of albinism among all our Australian birds except the Cranes.

I remember seeing a skin of the Blue Tahiti Lory in the Liverpool Museum which was white, following the same rule as is general among Australian Parrots.—D. Le Souëf. Zoological Gardens, Melbourne.

A Lesson from America.—I see that New York State—the most important State in the union—has just passed two acts of great importance to its wild bird fauna generally. One, the Bayne law, makes it unlawful to sell or offer for sale, in New York, any wild game. At one stroke, therefore, the market for the ill-gotten

booty of the pot-hunter has been closed. There is an old saying that if there were no receivers there would be no thieves; and this applies admirably to the game and wild bird question. The other act, the Sullivan law, forbids anyone under 16 possessing any sort of gun, even an air-gun. Also all weapons have to be licensed. These are two admirable laws, and they are expected to work well. The Sullivan law, at any rate, should be the means of saving quite a quantity of human life during the year.—"F. R.," *Australasian*, 27/1/12.

Obituary.—It is with great regret that we have to record that Mr. Eugene William Oates died at Edgbaston, Birmingham, on 16th November, 1911, at the age of 66. From 1867 to 1899 Mr. Oates was in the Public Works Department, India. As an ornithologist, he will be best known for his excellent volumes on the "Birds" in the well-known "Fauna of British India," edited by the late W. T. Blanford. He also wrote "A Handbook to the Birds of British Burmah," edited the second edition of Hume's "Nests and Eggs of Indian Birds," and wrote "A Manual of the Game Birds of India." Mr. Oates was also the author of the first two volumes of the "Catalogue of the Collection of Birds' Eggs in the British Museum," and was joint author with Captain Lavile G. Reid of the third and fourth volumes of that work. Mr. Oates was Fellow of the Zoological Society, and was elected a member of the B.O.U. in 1882, but retired in 1903, and shortly afterwards, owing to ill-health, he ceased to do much active bird-work.—*British Birds*, vol. v., No. 7 (December, 1911).

Far North-West Exploration.

THE Kimberley exploration expedition, led by Mr. C. P. Conigrave, F.R.G.S., member of the R.A.O.U., after an absence of twelve months, returned safely to Perth on the 6th March.

At the Town Hall, on the afternoon of the 8th, a civic reception was given to Mr. Conigrave and his companions, Messrs. L. M. Burns and R. N. Collison. Besides the Mayor (Mr. T. G. Molloy) and councillors, there were present Bishop Riley, Rev. W. T. Kench, Sir John Forrest, K.C.M.G., Mr. E. Allen, M.L.A., Mr. Conigrave, sen., Mr. F. S. Brockman, and many others.

The following account of Mr. Conigrave's adventurous journey is abridged from an interview published in the *West Australian*, 8/3/12:—

The party made Wyndham their starting point, and there they were joined by two local white men and two aborigines. Before actually commencing the journey which they had set out to take, a couple of months was spent in exploring the country between Wyndham and the South Australian border. There were found large belts of pine forests, the commercial value of which was deemed to be very high. Much of the timber was exceedingly well grown, and fit for the market at once. It was in June that a start was made upon what was called "the big trip." In order to

cross the head waters of the Gulf, it was necessary to make a detour round the south of the Cockburn Range, and then circle to the north through the ranges which flank the western side of the Cambridge Gulf. Forrest River was reached at a spot about 20 miles from the mouth, where it had been arranged that a supply boat should call about the middle of August. The boat duly put in an appearance, and, re-stocked with provisions, the party set out from the river at the end of August. It was with great difficulty that a crossing of the river was effected, on account of the precipitous banks. As a matter of fact, three days' travelling sufficed only to take the party a distance of three miles on their way as the crow flies. They were equipped with 18 horses, most of which were used as pack animals. On the way to the head a fine stream, which was named the Berkley River, was met with and followed a distance of some 70 miles. Along its course were many magnificent pools or reaches, bordered with palms and other luxuriant vegetation. It wound for the most part between flat-topped hills, and discharged into the sea near Mt. Casuarina. This mount, the most outstanding feature along that part of the coast, was some 1,000 feet in height, and was used by mariners in taking their bearings. The mountain had never yet been ascended by whites. Upon climbing its thickly-wooded slopes the party found at the summit species of birds which were not found anywhere else throughout the trip. A fortnight was spent in the vicinity of Mt. Casuarina, and an investigation conducted of the wonderfully deep ravines and gorges, in which was found tropical vegetation in profusion. A course was then laid for Drysdale River, and on the way another fine stream was met with and named King George River. This was found to empty itself into the sea near Cape Rulhieres. After passing this river there was an exceedingly rough stage as far as the Napier Broome Mission Station, which was reached on 22nd October. This was the turning point, at which it was expected there would be a vessel containing supplies for the march back.

Whilst waiting for supplies the party explored the country 100 miles to the west of Admiralty Gulf, following more or less the course of the King Edward River. In this locality they came across a good deal of basaltic country, richly grassed. The scenery inland was magnificent, while the littoral scenery was of the wildest description. So tremendous were the cliffs and bluffs of the gulf that it was impossible to reach the sea from inland without going a long way round. The outstanding feature about here was Mt. Connor, which is 1,000 feet high. The seaward slope was covered with tropical scrub which very much resembled that of Queensland. It was expected that the collections made here would yield several entirely new specimens of birds. As a district it was perhaps the most promising that they saw. If it had not been for the heavy tropical rains, the party would have made a longer stay about the gulf, but as there were now five big rivers dividing them from Wyndham, it was imperative that a start should be made for home.

On return to the mission station it was found that the vessel had not put in an appearance, and as supplies at the station were running short it was decided to push on as fast as possible. So, after a week's spell for the horses, the party set their faces for Wyndham, a distance of 350 miles, with only a week's full provisions in their packs. They left the mission station on 7th December, and, setting out for the Drysdale River, reached Brockman's camp, "F.B. 85." The river was followed for several days, and at last the point was reached where Mr. Brockman could get no further and was obliged to turn back. It was here that great difficulties were encountered. It was necessary for them to force a passage through the range on to a high sandstone table-land, which took them two days to accomplish. This was part of a table-land which stretched from Cape Londonderry to the head waters of the Forrest River. The table-land here was estimated at about 2,800 feet above sea-level. In the course of

their scramble up the sides of the ravines three of the horses fell and rolled down, smashing the packs, but doing little damage to themselves. Subsequently, however, three of the horses died. On arrival at the summit of the ranges the going was found to be comparatively easy. They struck the head waters of the Pentecost River, and from that point bore away in a south-easterly direction, cutting the head waters of the King George River, and crossing the table-land country at a height of 2,000 feet. They then crossed the high ranges near the head waters of the Berkley River. The average length of a day's stage was about 15 miles. They next crossed the two branches of the Forrest River, 40 miles to the westward, just where they had crossed on the outward journey. Owing to the heavy rains and the flooded state of the river this part of the journey was undertaken with much anxiety for all concerned. The river was in flood, and was only crossed with the greatest difficulty. The river was fully 300 yards wide, and the waters so deep in places as to necessitate swimming. Even where the horses could obtain a foothold, this, because of the pebbly nature of the bottom, gave but poor fording ground. All, however, got through safely, and finally camped on the first camp which they had left in July, thus completing the round trip.

Dealing generally with the trip, Mr. Conigrave said that the country was of all types. The ranges were generally poor and useless for stock purposes, but the table-lands and the flats between the ranges were all of the highest class of pastoral lands, and he would estimate the acreage at between four millions and five millions. Some of the country, notably that between Napier Broome Bay and Mt. Casuarina, was covered with large timber. Pandanus palms were found wherever there was water. The cabbage-tree palm, however, strangely enough, grew only at the summit of the hills, in company with a smaller though very similar palm. Ferns were found in abundance. One particularly magnificent fern, 12 feet in height, had been found by a large creek which ran into the King Edward River. None other of the same variety had been seen. A feature of the rich flats was the growth of cabbage-gums, whose bright green foliage and white trunks presented a most picturesque sight. The party had come into touch with the natives along the Forrest and the Berkley Rivers. The only show of hostility was on the Berkley River, but this came to nothing. The natives were numerous, and were scattered about all over the country. Scarcely any water-fowl were to be seen on the creeks or rivers, probably because these were swarming with crocodiles, but on some of the salt-marshes by the Pentecost and Forrest Rivers game of every description abounded. Mr. Conigrave regretted that the destruction of the White Cranes (Egrets) was being permitted. He understood that thousands of the plumes of these birds were being sent away annually to Europe, notwithstanding regulations prohibiting this wholesale slaughter.

Mr. Conigrave was particularly grateful to the Government which had helped the party, to the departments which had lent them so many requisites, and to the settlers and Messrs. Connor, Doherty, and Durack, of Wyndham, who had been so good to them in many ways. All the records of the trip would be handed to the Government as arranged.

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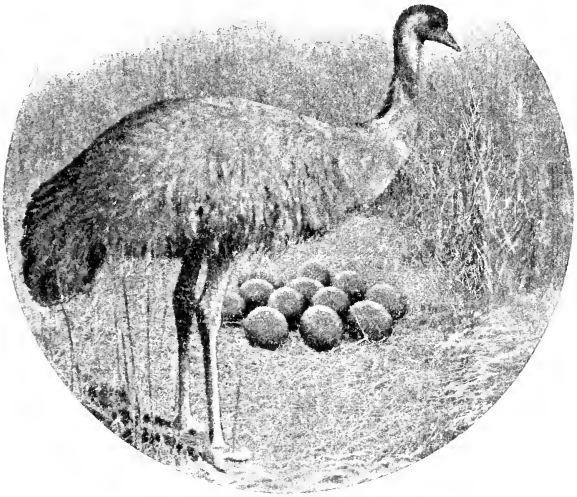

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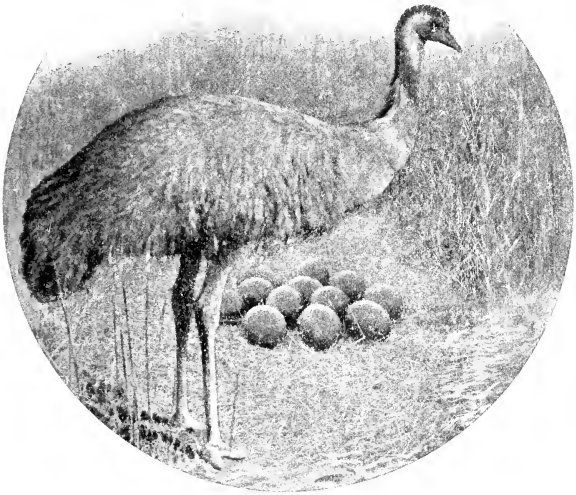

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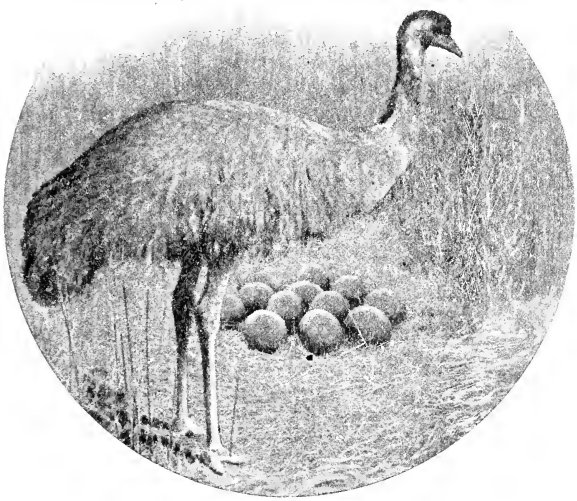

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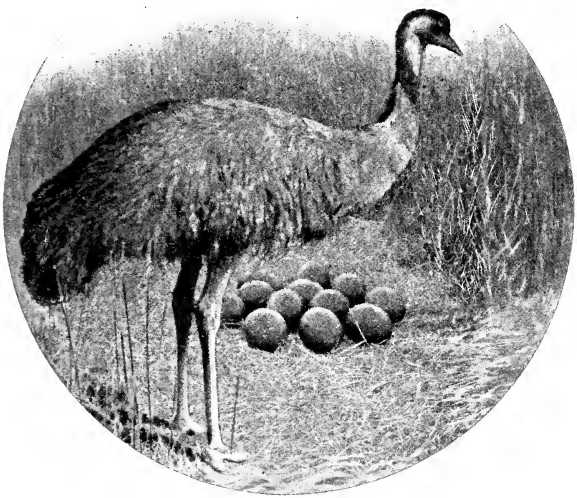

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