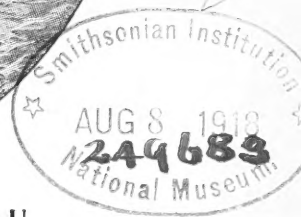




The Emu

A Quarterly Magazine to popularize the Study and Protection of Native Birds and to record Results of Scientific Research in Ornithology.

Official Organ of the ROYAL AUSTRALASIAN ORNITHOLOGISTS' UNION.



Editor: J. A. LEACH, D.Sc., C.M.B.O.U.
(“Eyrecourt,” Canterbury.)

Assistant Editor: R. H. CROLL, R.A.O.U.
(Education Department, Melbourne.)

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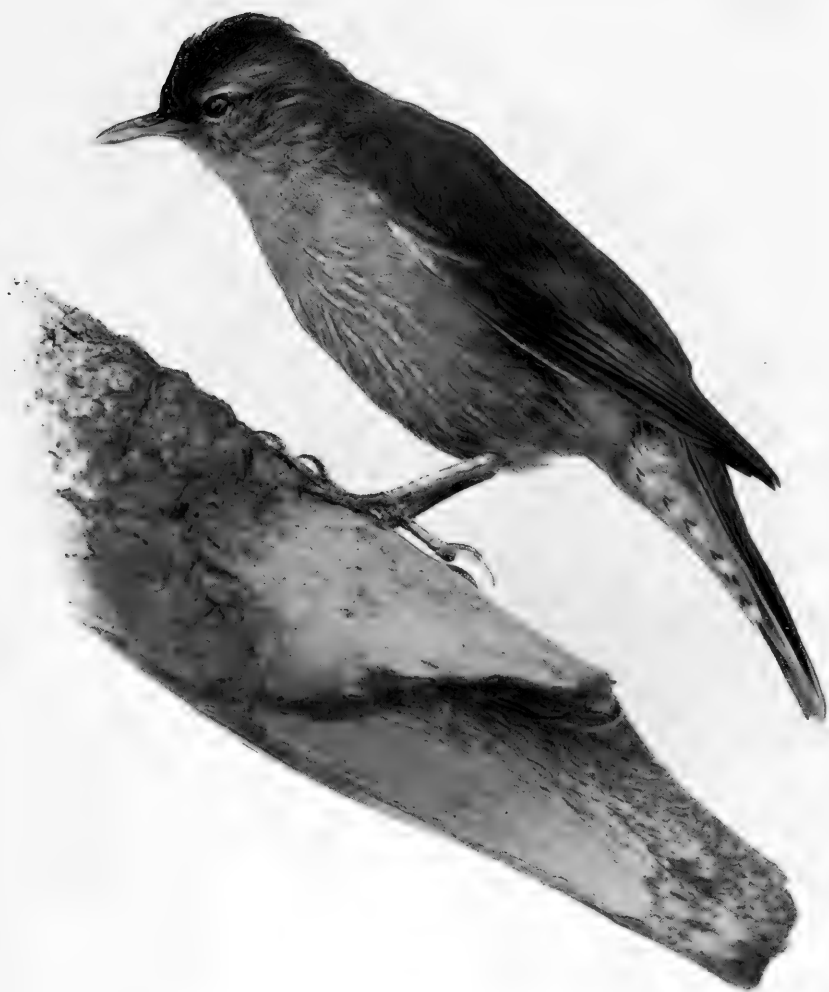
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THE COOPER'S CREEK TREE-CREEPER

Climacteris waitei.

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

VOL. XVII.]

2ND JULY, 1917.

[PART I.

Cooper's Creek Tree-creeper (*Climacteris waitei*).

(S. A. White, *Emu*, vol. xvi., part 3, January, 1917.)

BY S. A. WHITE, M.B.O.U., R.A.O.U.

THE first example of this new species was met with in the vicinity of "Burke's Tree." My attention was first drawn to it by the familiar sharp call of the genus. Directly afterwards a small family party was observed flying from one tree-trunk to another, which they circled in true *Climacteris* fashion—in short hops, and tail pressed firmly against the bark when ascending the perpendicular tree-trunk.

As soon as the first specimen was secured I felt sure that it was a new bird. After this, and during the time the Cooper was followed down, these birds were often seen, but as soon as permanent waters were left behind the Tree-creeper was lost sight of. Many immature birds were in company with the parents, and being fully fledged denoted that they were hatched in June or July.

Climacteris waitei showed a great preference for the box timber, for it was not once seen amongst the large red gum trees on the banks of the creek. These birds were observed once or twice hopping over the ground in close proximity to tree-trunks, and seemed to be in search of insects—most likely ants, for the last-named form the chief food of *C. superciliosa* in some parts of the interior. How far this new species is found along the Cooper into Queensland I had no way of ascertaining, and it may extend much further in the other direction during flood-time.

Birds of the Rockingham Bay District, North Queensland.

BY A. J. CAMPBELL AND H. G. BARNARD, MS. R.A.O.U.

IN *The Emu*, vol. x. (1910), pp. 233-245, there is a list with field annotations on the "Birds of Cardwell and Herbert River Districts," by the late Mr. Kendall Broadbent, Zoological Collector, Queensland Museum, made during a trip extending from August, 1888, to March, 1889.

Previously, in the "Proceedings Zoological Society (London)," years 1875-1877, the late Dr. E. P. Ramsay contributed articles on a "List of Birds Met With in North-Eastern Queensland, chiefly at Rockingham Bay," during a trip made in 1873. Ed. Spalding also collected for Dr. Ramsay in 1874 on the Herbert.

Messrs. A. J. Campbell, A. Gulliver, and A. and F. Coles, as a collecting and observing party, visited Cardwell in 1885. The first-named returned again in 1914; and our member, Mr. E. J. Banfield, contributes in his "Confessions" "A Census of the Birds of Dunk Island," which place guards the northern gateway of Rockingham Bay. With all this data to hand, the question may be asked, "Why the necessity of another collecting and observing excursion to the region?"

(1.) The existing data is scattered, and much merely superficial.

(2.) The region is physically rich, and the avine population numerous, therefore the locality is not likely to be exhausted during a lifetime.

(3.) And, what is more important, the classification of birds and the question, "What are species and what sub-species?" are so confused in these latter days that enthusiasts are tempted to take the field to throw as much light as possible upon these problems. Besides, there is the pardonable satisfaction, in the singleness of mind, of establishing points and passing them on, in the interests of ornithology. Moreover, as an eminent judge once said, "He who judges last judges best." Perchance it may be so in some instances of our researches.

We (A. J. Campbell, observer and photographer, and H. G. Barnard, observer and collector, acting for Mr. H. L. White, "Belltrees," N.S.W.), armed with full authority from the Government of Queensland to investigate bird-life, and to procure specimens if necessary, landed at Cardwell 31st July, 1916. The Government was also good enough to encourage us by offering to provide a cicerone to assist us in our explorations had we required one. Our best thanks are also due to Messrs. J. S. Gill (Goold Island), James Curtis and T. R. Butler (Upper Murray), and E. D. Collins (Kirrama Table-land), and others, for kind, thoughtful, and valuable assistance rendered during our explorations.

Our first day afield at Cardwell was the 1st August (the Australian Bird-lovers' "New Year's Day"—a happy omen for the success and pleasure of the trip), when, in and around the township

we made a census of 50 species of birds heard or seen that day, notably the following northern species:—Sun-Bird, *Malurus amabilis*, Yellow Fig-Bird, Helmeted Friar-Bird, *Ptilotis flava* and *gracilis*, Black Butcher-Bird, White-browed Robin, Yellow Gerygone, Yellow Flycatcher, Spectacled Flycatcher, &c.

The Cardwell district is, *par excellence*, the place for bird observing, both as regards variety and number. You have sea and shore to explore, mud-flats and mangrove patches, tea-tree tracts, grassy glades, reedy swamps, open eucalypt forest, tall timber, dense scrubs, water-courses and fern gullies, mountains, and the mysteries of a table-land—all having their quota of characteristic birds.

Here are three scenes that the camera could not record:—

- (a) Birds seen at one time in corner of scrub: Party of Lovely Blue-Wrens (*M. amabilis*), party of Blood-backed Wrens, Rusty Thrush, Carinated Flycatcher, Rufous Fantail, Yellow Gerygone. (b) Bird-observing in a mosquito-infested forest: In adjacent trees were Carinated, Northern, Leaden, and Yellow-tinted Flycatchers, Grey Shrike-Thrush, Rufous Thickhead, Dusky Honey-eater. (c) Birds in a nook of the hills at nearly 2,000 feet: Rifle-Bird, Cat-Bird, Toothbill, Grey Fantail, Lewin Honey-eater, Fly-Robin, Swainson Graucalus, Fruit-Pigeons, Strepera, and Yellow-fronted Scrub-Wren.

We concluded our three months' observations with the end of October. With the development of the season, had we remained during November, we would probably have doubled our work. As it was, we identified 200 species, secured skins of 123 kinds, and noted 52 breeding, besides obtaining innumerable notes and about five dozen successful half-plate photographs.

We are indebted to our honorary member, Mr. H. L. White, "Belltrees" (N.S.W.), for his interest manifested in our research, and for his kind assistance by the aid of his famous collection in helping to identify the bird-skins. We deemed it advisable to omit the few sea-birds, mostly of wide-spread range, noted about Rockingham Bay. To Mr. White we are also indebted for the expense of engraving six of the fine photo-blocks for the illustrations of this article.

Here follow detailed observations and criticisms: nomenclature according to the "Check-list," R.A.O.U., with G. M. Matthews's trinominal equivalents—"List, 1913":—

Casuarius australis. Cassowary.

Casuarius casuarius johnsonii.

The "big bird of the scrubs" was seen on two occasions in the luxuriant undergrowth that clothes the hollows of the hills, and Cassowary tracks were frequently noticed in the scrubs along the Upper Murray River.

At his selection, near Cardwell, Mr. W. A. Pershouse stated, a fine Cassowary used to visit the orchard when the guavas were ripe. The bird picked the fruit off the tree and bolted it whole. Mr. Brice Henry, who accompanied the Sugar Commission on a local visit, narrates

that when the party was approaching the Murray River a Cassowary on the opposite bank was posed, intently watching something in the water. Closer inspection revealed the snout of a crocodile.

Mrs. Tom Butler, "Fringford," possesses an abnormally large-sized Cassowary egg; probably it was a double-yolked specimen, measuring 6 x 4 inches, or a circumference of 16½ inches. The average dimensions of an ordinary Cassowary's egg is 5½ x 3¾ inches. Our visit to "Fringford," Upper Murray, was of historic and ornithological interest. The late Dr. E. P. Ramsay mentions (*P.Z.S.*, 1876, p. 121) that in 1875 the first nest discovered was found by some of Inspector Johnstone's black troopers, from whom Mr. Millar (not Miller), a settler on the Herbert, purchased eggs. One—a light green specimen—was presented by Mr. Millar to the Doctor, which he described. Mrs. Tom Butler is a daughter of the late Mr. Millar, and well recollects the incident.

Those persons who are champions for *exact* priority of specific names would like to know why Mr. G. M. Mathews ("1913 List") uses Mueller's name *johnsonii*, 1867, when William S. Wall, brother of Thomas Wall, of the ill-fated Kennedy expedition, previously described and named the Cassowary *australis* in the *Illustrated Sydney News*, 3rd June, 1854, p. 88, with figures.

For realistic situations of nests and haunts of the Cassowary see *Emu*, vol. xii., pls. xxi. to xxiv.

Megapodius tumulus. Scrub-Fowl.

Megapodius duperryi assimilis.

Scrub-Fowl were frequently seen, and an egg-mound surrounding the base of a dead tree in tangled scrub, when prospected, yielded five fresh eggs. Date, 24th October, 1916. We thought this an unusual position, as the egg-mounds of these birds are generally isolated and of pyramidal form. On 25th September the blacks brought in three eggs and a young one just hatched.

Masters would appear to have some reason for separating the eastern Megapode from the Northern Territory bird. The former, *M. assimilis*, is generally smaller in size, has a smaller bill and tarsus, besides different marking and coloration of the head and hind neck.

Catheturus lathami. Brush-Turkey.

Alectura lathami robinsoni.

A few Brush-Turkeys were seen near the edge of the mangroves in September, but they do not breed on the low country. Several egg-mounds were seen in the ranges at the back of Cardwell, in course of construction, at an altitude of about 1,500 feet. Other mounds were observed in the hills near the Murray River Falls.

Mr. T. Butler informs us that Brush-Turkeys come down from the ranges each year about the first week in May, go as far as the coast, and return about the end of July. If there be a late, wet season the birds may be a week or two later coming down. They do not breed or make nests in the low country. Most of the birds that came down this year (1917) were very young, some merely chickens. There were few full-grown ones. The blacks had a great time catching them in their traps. Since the majority of the blacks have been removed to the settlement on the coast, the Turkeys seem to be on the increase, their egg-mounds in the ranges not being so much interfered with. The rough and ready traps made by the blacks consist of two extended wings in the form of an obtuse angle that lead into a net. The

wings are about 18 inches high and are constructed of small boughs and twigs.

Synœcus australis. Brown Quail.

Synoicus ypsilophorus australis.

These birds were fairly common in the long grass of the Murray River flats and about the cultivation paddocks of the settlers, and their clear whistling call was frequently heard in the early morning and evening. Some birds were laying during October.

Turnix melanotus. Black-backed Quail.

Turnix maculosa melanotus.

This little Quail was seen on several occasions on the low grassy hills behind Cardwell, and pairs were several times flushed from the sweet potato patch on Mr. Tom Butler's farm on the Murray River. Two seasons previously, Black-backed Quail were numerous on the Bellenden Plains, further down the Murray. In riding across that country the birds frequently flushed from under the nose of one's horse.

The males are small birds, about $4\frac{1}{4}$ inches in length. The female is much larger, and is further distinguished by a chestnut nuchal collar.

A death adder that was severed with a scythe during reaping operations revealed one of these small Quail which the reptile had swallowed.

Turnix varia. Painted Quail.

Ortygodes varius subminutus.

These birds were nowhere numerous, and were generally observed in dry localities.

Ptilonopus swainsoni. Red-crowned Fruit-Pigeon.

Ptilonopus regina regina.

This beautiful little Fruit-Pigeon was fairly common in the scrubs about Cardwell, and their note was frequently heard. A male was observed carrying a twig into a thick clump of mangroves.

[When on a visit to Cape York in 1896 and 1897 I found these birds breeding freely in the mangroves there; they were seldom found breeding in the scrubs.—H. G. B.]

Lamprotreron superba. Purple-crowned Fruit-Pigeon.

This well-named "superb" little bird was plentiful in the scrubs of the Murray River and also in the scrubs of the Kirrama Table-land. They frequently nest in the forest country as well as in the scrub. The male birds appear to do most of the incubation, and are rather conspicuous objects when seen on their frail nests at the end of some bough. Many nests were observed near our camp at the Kirrama "yard" on the table-land, at a height of about 2,000 feet. A heavily-incubated egg was taken from a nest on the 18th October, and on the 29th a perfectly fresh egg was taken from the same nest. The pretty bird remained on the nest (which was close to the track) while a snapshot photograph was taken of the situation of the nest, which was in a small banksia.

Megaloprepia assimilis. Allied Fruit-Pigeon.

Megaloprepia magnifica kerri.

This large and handsome Pigeon was common both at Cardwell and in the scrubs of the Kirrama Range. They breed in any locality, very often over water. The dark green of the upper surface

of the bird assimilates well with the surrounding green of the scrubs, so that detection of the sitting bird is difficult. They are usually first seen as a flash of green splendour streaking over the stream or through scrub. One nest over water was reached with great difficulty. Even then the single egg had to be "ladled" with a spoon tied to the end of a long stick.

At "Fringford" (Mr. Tom Butler's) a nestling was taken to the house and reared. When able to take care of itself it went to the scrub during the day, returning for food and to roost at the house. It was an inquisitive creature, especially if visitors called. If all doors were closed "Mr. Magnificent" would get in somehow, and, bowing gracefully, with deep voice utter "Bonnet is blue" several times.

Myristicivora spilorrhoea. Nutmeg-Pigeon.

Myristicivora bicolor spilorrhoea.

Fairly common in the scrubs of the mainland, where they resort to feed on the numerous berries of the scrub trees. The birds generally breed on the islands near the coast, but odd birds breed on the mainland, and often in forest country. They lay on the Barnard and other islands in thousands. It is an inspiring sight to witness flocks of these fine black and white birds, in strings, flying between the islands and the mainland. They leave the islands in the morning and commence to return about 4 p.m.

[I have seen these Pigeons breeding in the forest country at Cape York and on the Macarthur River, Northern Territory.—H. G. B.]

Like the Magnificent Fruit-Pigeon, the Nutmeg-Pigeon can be made a pet. Mr. Isaac Henry, of Bellenden Plains, had a tame one for several years. It used to fly on to his shoulder when he was on horseback, and would follow him about the run. Mr. Henry missed the Pigeon (probably the migratory instinct became too strong, and it took a trip northward) till the following year, when the bird came out of a wild flock and again followed him some distance.

Nutmeg-Pigeons were first noticed by us (on Hinchinbrook), 15th August; but other observers in the district saw some a week earlier. These Pigeons have been observed as far south as the islands off Cape Palmerston.

All islands should be rigidly protected against the "pot-hunting sportsman," or else the fine Nutmeg-Pigeon will soon become, like the famous Passenger-Pigeon of America, extinct.

[Under the guidance of Mr. E. J. Banfield, two seasons previously, I visited one of his "Family Group." On the west side of the islet we landed on a strip of coral strand, and, diving into a thick scrub, chiefly Eugenia, nutmeg, fig-tree, Casuarina, Hibiscus, and four varieties of palms, besides Pandanus, all comprising a shade so thick as to make it dark below, we found Nutmeg-Pigeons nesting everywhere—at foot of fig-trees, on vines and palm-fronds, in "nest-ferns," and even on bushes near high water mark. The parents flushed before us and cleared off, but we secured successful photographs of nests with single eggs or young.—A. J. C.]

Lopholaimus antarcticus. Topknot-Pigeon.

Lopholaimus antarcticus minor.

The first pair of these large Pigeons observed at Cardwell was found breeding on the top of a bunch of mistletoe growing on a stringy-bark tree in the hills at the back of the township. Curiously enough,



× Nest of Topknot-Pigeon (*Lopholaimus antarcticus*).
→ Nest of Rufous Owl (*Ninox humeralis*).
(Climber, H. G. Barnard.)

these were the only ones found breeding. Flocks, however, were seen in the scrubs of the Murray River, where they feed on the fruit of the tall scrub trees—notably quandong (*Elæocarpus grandis*). Seed is the usual hard, pitted, round stone about $\frac{3}{4}$ -inch in diameter, but the thin rind is smooth and of a beautiful king's, or violaceous, blue. A fine Pigeon was obtained in the scrub near the top of the Kirrama Range, at an altitude of about 2,000 feet. The bird, with its graceful topknot of rusty red, made a perfect skin, the bill being the colour of scarlet sealing-wax. Except being slightly darker in plumage, the bird differed not from the more southern Topknot Pigeons. Moreover, notwithstanding the supposed sub-specific *minor*, there is practically no difference in the size of the eggs. The dimensions (1.67 x 1.2 inches) given by Mr. H. L. White (*Emu*, vol. xvi., p. 164) of the specimen we took are about the same as the average of three eggs taken south—viz., 1.68 x 1.17 inches.

Reference to the illustration (Plate II.) will show Mr. H. G. Barnard in the act of robbing the nest near Cardwell—a good companion picture to Mr. S. W. Jackson's (*Emu*, vol. i., pl. x.)

***Columba norfolciensis*.** White-headed Pigeon.

Leucomelæna norfolciensis.

A few birds only were seen, on the top of the Kirrama Range; they did not appear to be plentiful, but the fact that we were only a very short time in the locality may account for our seeing so few.

[In February of 1889 I observed these birds in fair numbers on the Bellenden Ker Range, at a height of 4,000 feet.—H. G. B.]

***Macropygia phasianella*.** Pheasant-tailed Pigeon.

Macropygia phasianella robinsoni.

These Pigeons were first observed in the scrubs at the head of Stony Creek, in the ranges at the rear of Cardwell. They were fairly common in the scrubs of the Murray River, and were also observed on the top of the Kirrama Range.

The bird was smaller on the wing only (by about an inch) than the Richmond River (N.S.W.) Pheasant-Pigeon.

[When exploring Bellenden Ker I came upon a Brown Pigeon's nest in a fern-tree. A carpet snake was round the bird. One egg was in the nest; the other egg was below—broken, of course.—H. G. B.]

***Geopelia humeralis*.** Barred-shouldered Dove.

Chrysauchæna humeralis humeralis.

This Dove, with its run of laughing "coos," is a common bird in most of the coastal districts of Queensland and in the Northern Territory.

[I have taken eggs from the following districts:—Dawson River, Cardwell, Cairns, Cooktown, Cape York, and Macarthur River, Northern Territory.—H. G. B.]

Like most Doves, these birds are very pugnacious. While on Gool Island, and watching a pair of Shining Flycatchers in a patch of mangroves, a pair of Barred-shouldered Doves settled on a bough close to us, and began striking at each other with their wings. One bird was hit badly, and fell to the ground. On picking it up its neck was found to be dislocated.

Pairs of these Doves were breeding in the orange trees at "Fringford," and a pair used to come daily on to the verandah to be fed on bread-crumbs.

For a prettily-situated nest *in situ* see *Emu*, vol. x., pl. xx.

Geopelia tranquilla. Ground-Dove.*Geopelia placida placida.*

Common about Cardwell. Were often seen in front of the Marine Hotel picking up seeds, or were in the yard about the horse feeding-boxes.

Regarding the sub-species, *placida* v. *tranquilla*, the former appears to be a smaller and northern race of the latter:

Chalcophaps longirostris. Long-billed Green-Pigeon.*Chalcophaps chrysochlora rogersi.*

Frequently seen in the brush near Cardwell, and was common in the scrubs of the Murray River and the Kirrama Range, usually seen feeding on the ground. Little Green-Pigeons frequently visited the gardens of the settlers, and were pretty objects when seen fossicking underneath the fruit trees.

Besides the difference in the length of the bills, this bird appears richer and more chocolate-coloured on the underneath parts than the southern Green-Pigeon.

Geophaps scripta. Partridge-Pigeon.

At one time this bird was common in most of the coastal country of Queensland, particularly in the Dawson River district; but for the last ten years it has completely disappeared from this part. We were very pleased to renew our acquaintance with a few of these interesting Pigeons on the Kirrama Table-land, behind Cardwell. Mr. E. D. Collins, of Kirrama Station, informed us that the birds had almost disappeared there for some years previous to our visit, but that lately they appeared to be increasing again. We are of opinion that the Partridge-Pigeon should be rigidly and totally protected for many years, if it is not in the immediate future to be wiped out. They are confiding creatures, which contributes to their danger. The ones we saw on the track barely got out of our way; they merely trotted aside and "squatted" on the ground, or on a fallen stick, while we passed:

Rallina tricolor. Red-necked Rail.*Rallina tricolor robinsoni.*

Heard calling at night in the scrubs of the Murray River. This Rail is very seldom seen, on account of its extreme shyness or nocturnal habits. The nesting site is merely a slight depression at the foot of a tree or stump, in which a few leaves are placed. The eggs are white.

During the season of 1915, Mr. Thos. R. Gardiner, a very observant bushman, now residing at "Fringford," was out wallaby-shooting one afternoon. On returning, about dusk, through some long grass near the river, he felt something picking at his legs, and, with thoughts of "snake," instantly looked down, and to his surprise saw a mother Red-necked Rail endeavouring to protect several jet-black, downy chicks that Mr. Gardiner was nearly treading upon.

It is now accepted that the Red-necked Rail lays uniform dull white eggs, not red-speckled or blotched as those of most other Rails:

Porphyrion melanotus. Bald-Coot.*Porphyrion melanotus neomelanotus.*

Seen about marshy places on the Murray River and also at the Kirrama Creek, on the table-land:

Podiceps gularis. Black-throated Grebe.

Tachybaptus ruficollis parryi.

Odd birds were seen on lagoons near the Murray River.

Numenius cyanopus. Curlew.

These birds were arriving (first noted 17/8/16) from their long flight from the far North towards the end of August, and were seen in small flocks and singly passing south. A specimen shot showed the feathers of the wings much abraded by the long flight.

Limosa uropygialis. Barred-rumped Godwit.

Vetola lapponica baueri.

Small flocks of this bird were seen on the sands at the mouth of Meunga Creek, near Cardwell. Like the Curlew (*Numenius cyanopus*), they were also just arriving from the far North.

Pisobia acuminata. Sharp-tailed Stint.

Limnocinclus acuminatus.

Numbers were seen on the sands at the mouth of Meunga Creek, where they appeared to be resting for a while before continuing their flight further southward.

Parra gallinacea. Comb-crested Jacana.

Ivediparra gallinacea novæ-hollandiæ.

Seen on the large leaves of the blue water-lilies growing in a swamp near Cardwell, and are fairly numerous on the lagoons of Bellenden Plains.

Œdienemus grallarius. Stone-Curlew.

Burhinus magnirostris ramsayi.

Fairly numerous in the brush about Cardwell, and their mournful calls were often heard at night, sometimes in the streets of the township. [At the same season of the year, during my visit, 1885, Stone-Plovers were numerous, in flocks of from 50 to 60 birds, reposing by day in the forest.—A. J. C.]

Esacus magnirostris. Long-billed Stone-Curlew.

Orthorhamphus magnirostris neglectus.

One of these "large-billed" birds was seen on the beach at Gool Island, prospecting over a bed of oysters, and a pair was seen near the mouth of Meunga Creek, on the mainland.

Antigone australasiana. Crane.

Mathewsia rubicunda argentea.

The Native Companion was seen near Cardwell at a swamp, also on the Murray River. We were informed that they were plentiful on Bellenden Plains, towards the Tully River.

[During a collecting trip through the Northern Territory, April, 1913, for Mr. H. L. White, of "Belltrees," I found a nest of the Native Companion (*Antigone australasiana*) containing a single egg. The nest was placed in long grass on a small plain and about 100 yards from water. I observed a Black-breasted Buzzard soaring over the plain a short distance away. I did not disturb the egg, except to hold it up to see if it were fresh. On returning next day the nest at first sight appeared empty, but on looking closer I observed small pieces of egg-shell lying in the grass of the nest; there was also a small round stone in the nest, which was certainly not there the day before. This led me to the conclusion that the stories often heard of this bird dropping a stone on Emu-eggs to get at their contents were correct.

The stone in question had evidently been brought from a short distance, there being no stones in the immediate vicinity of the nest.—H. G. B.]

Ibis molucca. White Ibis.

Threskiornis molucca strictipennis.

Frequently seen about tea-tree swamps, in small flocks, searching for food in the shallow water.

Carphibis spinipectus. Straw-necked Ibis.

In the timber it is rather startling sometimes to come suddenly upon a flock of Straw-necked Ibis prospecting a dry swamp-bed or the shallow water of a lagoon. They simultaneously rise, with whirr of wings and many grunts, and fly on to neighbouring trees, "craning" the while awkwardly with long bills.

A few of these birds were sometimes seen in company with White Ibis.

Platalea regia. Black-billed Spoonbill.

Spatherodia regia.

Odd birds only seen: would probably be more numerous about the Tully River swamps.

Xenorhynchus asiaticus. Black-necked Stork (Jabiru).

Xenorhynchus asiaticus australis.

The Jabiru was seen about tea-tree swamps and on the reaches of the Murray River. Two or three of these natural "aeroplanes" were observed flying high over Cardwell one fine day.

Ardea sumatrana. Great-billed Heron.

Typhon sumatrana mathewsæ.

This large Heron was noted on several occasions in the mangroves near Cardwell, also on the Murray River. The bird is commonly known as the "Alligator-Bird," on account of the resemblance of its call to that of an alligator.

For illustration of nest see *Emu*, vol. ix., pl. xiv.

Mesophoyx plumifera. Plumed Egret.

Mesophoyx intermedia plumifera.

: Odd birds only noted about lagoons.

Herodias syrmatorphus. Egret.

Herodias alba syrmatorphora.

Seen in a mangrove creek near Cardwell, where a specimen—a plumeless bird—was obtained.

Notophoyx novæ-hollandiæ. White-fronted Heron.

Fairly common about tea-tree swamps and about the mangroves near Cardwell.

Demiegretta sacra. Reef-Heron.

Demiegretta greyi.

Odd birds seen at Oyster Point, near Cardwell, also on the reefs of Goold Island. A specimen—a female—procured was snow-white, save a few streaks of dark colour on the upper wing coverts.

For an illustration of a Reef-Heron's nest photographed in a Pandanus tree, see *Emu*, vol. x., pl. xxi.

Nycticorax caledonicus. Nankeen Night-Heron.

Nycticorax caledonicus australasiæ.

Seen in trees in swamps and along the Murray River, and their

harsh call was frequently heard at night. Night-Herons were also noted on the table-land.

Dupetor gouldi. Yellow-necked Mangrove-Bittern.

Dupetor flavicollis olivei.

Odd birds flushed at swamps, and also on the Murray River.

Anseranas melanoleuca. Pied Goose.

Anseranas semipalmata.

We first heard the call of this bird at Cardwell, as they passed overhead during the night. A large flock was seen on the Murray River.

Anas superciliosa. Black Duck.

Anas superciliosa rogersi.

Was several times observed flying along the coast at Cardwell; also seen on swamps at the Upper Murray.

Phalacrocorax carbo. Black Cormorant.

Phalacrocorax carbo novæhollandiæ.

Fairly numerous along the reaches of the Murray, where, in two instances, it was caught in fish traps. On one occasion, as we were wading along the bed of the river, we saw a Cormorant evidently trying to swallow a fish. At our approach the bird flew away, and on examining the spot we found a freshly-captured garfish, about 18 inches long, and the partly-digested remains of another fish. Evidently, in trying to swallow the freshly caught fish the bird had disgorged the other, or perhaps to relieve its flight, as we were pressing the Cormorant by following it (unintentionally) down stream.

Phalacrocorax melanoleucus. Little Pied Cormorant.

Microcarbo melanoleucus.

Single birds seen on trees and snags about tea-tree swamps.

Plotus novæ-hollandiæ. Darter.

Anhinga novæhollandiæ.

Odd birds only noted. They do not dive like other members of the Cormorant family, but appear to sink in the water, drawing their long, snake-like necks after them.

Circus assimilis. Spotted Swamp-Hawk.

Circus assimilis assimilis.

Occasionally seen hawking over the long grass of the Murray flats, evidently in search of small birds and lizards.

Astur cinereus. Grey Goshawk.

Leucospiza clara cooktowni.

The fine Grey Goshawk was observed on several occasions soaring high in the air, and also seen in the timber along the creeks.

Astur approximans. Goshawk.

Urospiza fasciata fasciata.

Fairly common about Cardwell, where they are much shot at by the residents, owing to the Hawk's depredations among chickens of poultry.

Accipiter torquatus. Collared Sparrow-Hawk.

Accipiter cirrhocephalus cirrhocephalus.

Found breeding at Cardwell, also seen on the Murray River.

Erythrotriorchis radiatus. Red Goshawk.

This fine Hawk was seen near our camp on the Kirrama Range, where a pair had a nest in a large blood-wood (*Eucalyptus*). Unfortunately, the nest contained young. The old birds were uncommonly tame, and often watched us at close quarters from their eyry.

Uroaëtus audax. Wedge-tailed Eagle.*Uroaëtus audax audax.*

Seen on several occasions soaring over the hill near Cardwell.

Haliæetus leucogaster. White-bellied Sea-Eagle.*Cuncuma leucogaster.*

Seen on Goold Island, also on other occasions about the sea-coast.

When on the s.s. *Mourilyan*, and approaching Hinchinbrook Island, a splendid Sea-Eagle followed and flew over the vessel several times, displaying a fine expanse of pure white under-surface, which contrasted with the black bands (edgings) of the pinions.

Ramsay has observed the Sea-Eagle seize Plover and *Porphyrio* as they rose from swamps.

For illustration of a Sea-Eagle's eyry see *Emu*, vol. x., pl. xviii.

Haliastur leucosternus. White-headed Sea-Eagle.*Haliastur indus leucosternus.*

A nest of this bird was observed in a tall dead tree near Cardwell, but it contained young. This Sea-Eagle seemed partial to hawking about the mangroves.

Haliastur spheonurus. Whistling Eagle.

A very common bird in most parts of Queensland. A nest was seen in a large paper-bark (*Melaleuca*) on the Murray River.

Lopholotinia isura. Square-tailed Kite.

Odd birds were seen hawking over the tree-tops, both on the Murray River and about Cardwell. This Hawk often takes young birds from their nests.

[I once found a nest of *Ptilotis fusca* with a dead young bird in it in the nest of this Kite.—H. G. B.]

Gypocitnia melanosternum. Black-breasted Buzzard.*Gypocitnia melanosterna melanosterna.*

Single birds seen soaring high in the air. This bird has a peculiar floating flight when hawking over the tree-tops, quite different from that of any other Hawk.

[I saw evidence of the Buzzard dropping stones on eggs in the Northern Territory.—H. G. B.]

Baza suberistata. Crested Hawk.

Several Crested Hawks were seen about the Murray River.

Hieracidea orientalis. Striped Brown Hawk.*Hieracidea berigora berigora.*

Odd birds only seen. Brown Hawks, whether "striped" or not, are exceedingly puzzling. However, the younger birds generally seem the darker.

On the table-land we observed a Brown Hawk soaring to its nest with a wriggling snake in its talons:

Pandion leucocephalus. White-headed Osprey.*Pandion haliaëtus cristatus.*

A few Ospreys were seen about the sea coast, chiefly about mangroves.

There is a singular rock near Garden Island, off Goold Island, that at a distance has the appearance of a sail, hence its name, "Sail Rock," on the chart. On this rock a pair of Ospreys has an eyry, which the birds yearly repair to. When we examined the nest (20/8/16) from the boat, it apparently contained young, or eggs

nearly incubated, as the owners became very solicitous at our approach to take a photograph.

***Ninox lurida*.** Red Owl.

Spiloglaux boobook lurida.

In the Queensland Museum there is a small Owl, evidently collected by the late Kendall Broadbent, and labelled—"New *Athene* : shot it on the bank of Meunga Creek, eight miles from Cardwell, in a dark, thick scrub. Bill and cere lead colour; eyes yellowish-white; toes and bottom of feet white; claws black. May 14th, 1886." [Dimensions in inches—length, 11; wing, 8; tail, 5; tarsus, 1½.] There is also another specimen from the Musgrave marked "female" (♀), which is a trifle more reddish on the back, with round white spots on the upper wing coverts, otherwise upper surface uniform. Tail not barred like that of *boobook*.

These skins are similar, if not referable, we believe, to *Ninox lurida*, which De Vis described in 1889. However, we obtained similar skins—a female at Cardwell, and a mated pair in the Kirrama Range. The pair was obtained in a curious way. We were proceeding through the range single file, when in a scrubby gully we heard some scolding Honey-eaters. "A snake or an Owl," we thought. Investigation proved the latter, and a pair of small reddish Owls was the prize, which we judged to be a distinct species, and not a sub-species of the familiar *boobook*. It is the smallest Owl in Australia, and apparently the bird figured by Mathews in his "Birds of Australia," vol. v., pl. 262, above the name of *Spiloglaux boweri*. Locality, in the letter-press, is mentioned as Cairns. But how came such a classic as the author of "The Birds of Australia" to displace De Vis's *lurida*—the exact bird from the same region, Bellenden Ker district?

***Ninox peninsularis*.** Cape York Owl.

Hieracoglaux connivens peninsularis.

Heard a bird calling "Woop, woop" at night on Gould Island, and flushed one during day on the mainland behind Cardwell.

***Ninox (rufa) humeralis*.** Rufous Owl.

Rhabdoglaux queenlandica.

Observed along the water-courses near Cardwell; appeared to be fairly numerous. Notes on the taking of the pair of type eggs of this bird have already appeared in *The Emu* (vol. xvi., pp. 159, 160, with illustration). See also Plate II. with this article.

Ninox humeralis is a good variety, being slightly smaller and much darker in coloration than *N. rufa*, from the Northern Territory. Moreover, the Territory birds have their tails tipped with brown. The male of the Cardwell birds had a pronounced white tip to its tail, while the tip of the female's tail was light brown.

North, who examined a specimen from the Herbert Gorge, stated it could not be distinguished from typical examples of *N. humeralis* obtained in New Guinea.

***Trichoglossus septentrionalis*.** Northern Blue-bellied Lorikeet.

Trichoglossus novæhollandiæ septentrionalis.

A common bird on the coastal country and the table-land, feeding in the flowering eucalypts, chiefly the so-called "blue gum" (*E. tereticornis*) in the former locality and the poplar-leaved gum (*E. platyphylla*) in the latter. These Lorikeets were also fond of fossicking the red "bottle-brushes" of the Callistemons that flowered by streams.

It is interesting watching the birds going to "roost" at evening in the hollows of the trees. They appear to use hollows to repose in as well as to breed. Off and on during the night you can hear the birds "talking" in their hollows, where to sleep, instead of perching, as do most other birds, they lie down or coil up, resting their heads on the inside bottom of the hole. This we judged by analogy by seeing pet birds sleep on the bottom of their cages instead of on perches.

Whether about a house or in the bush wilds, the "Blue Mountain" Parrot is a great favourite. We were fortunate in observing a tame bird, in shining plumage, at "Fringford." One wing was clipped, but by the aid of bill and claws it climbed everywhere in the house, and outside to the tops of trees, where it would cackle in imitation of the fowls, and make other extraordinary calls. The bird was four years old, and was brought in by the blacks from its nest and reared by Mrs. Butler.

Regarding "Blue Mountains" in the bush, there is a remarkable picture by Mr. E. M. Cornwall in *The Emu* (vol. x., pl. xi.) showing Mrs. Innes, of Pratolina, near Mackay, surrounded by a feathered crowd of her bush pets.

Mr. T. R. Gardiner told us of a similar experience which he had when in charge of the telegraph station on the Walsh River, North Queensland, 1891-1905. The surrounding timber was chiefly "box" and blood-wood (eucalypts). At first Mr. Gardiner had a young caged bird that enticed a wild bird, which was captured. On account of its brilliant colouring it was called "Reddy," and, after being feasted on sugar and other dainties for about six months, was set at liberty again.

"Reddy," mindful of "home comforts," occasionally returned with a mate, and subsequently with young ones, all of which Mr. Gardiner continued to feed with sugar and water. Then, as if imposing upon good nature, scores of birds came, and finally hundreds at a time! Such a screeching and scolding—an awful noise—especially at early morn. If anything, the birds were thickest about 4 o'clock in the afternoon. But birds were always about, perching on wire, under the verandah, or were bathing. The birds became so common that even the cat treated them with contempt. To feed this most interesting feathered family it cost Mr. Gardiner, for seven years, the value of five bags of sugar per year.

When Mr. Gardiner was reading or reclining, numbers of his feathered friends would climb all over him, and were fond of running his hair through their bills. But, strange to say, the birds would not alight on his man or his man's wife, although they both used to feed the birds in Mr. Gardiner's absence. Often when Mr. Gardiner was returning home flocks of hungry fluttering Lorikeets would meet him at the slip-panel, 100 yards away from the house.

We took eggs on the table-land of *T. septentrionalis*, which appears to be a good northern variety of the "Blue Mountain" Parrot of southern parts. It is a pretty sight to witness these birds bathing amongst the branches that hold the rain or the copious dewdrops of night. How they flutter their wings and revel in the exercise!

Trichoglossus chlorolepidotus. Scaly-breasted Lorikeet.

Euteleipsitta chlorolepidota chlorolepidota.

Seen in numbers, frequently in company with the "Blue Mountains," in the flowering gum-trees. Eggs were taken from the hollow

spouts of gum-trees on the table-land—notably an instance in a tree by the Kirrama track. It took us half an hour to rob the nest, owing to having to chop five apertures in the hollow limb before we reached the prize pair of eggs.

[I do not agree with Mathews in separating sub-specifically this bird under the name *minor*. There is insufficient distinction in coloration, and no wing difference. Moreover, the particular habitat of *T. chlorolepidotus* is comparatively circumscribed.—A. J. C.]

Glossopsitta pusilla. Little Lorikeet.

A few Little Lorikeets were observed in the flowering trees near Cardwell, and they were fairly common on the table-land, where specimens were obtained. The tall, blossom-laden trees at Kirrama frequently contained scores of the two previous-mentioned Lorikeets as well as a sprinkling of this little bird.

Several Little Lorikeets were found dead under a flowering "yellow box" at "Belltrees," New South Wales, early last November. Could they have been imbibing too freely of the flower nectar feast? We know that Honey-eaters have been found under flowerful trees intoxicated.

Calyptorhynchus banksi. Banksian Cockatoo.

Calyptorhynchus banksi northi.

Observed both about Cardwell and on the table-land, feeding on the seed-cones of Casuarinas.

When camped at the Upper Murray Falls, the evening stillness was broken by the wailing cries of Black Cockatoos on high as they flew from the lowlands to roost on the ridges above us for the night.

Cacatua galerita. White Cockatoo.

Cacatoes galerita queenslandica.

Common everywhere, nevertheless interesting birds. We frequently disturbed White Cockatoos from trees along the track, feeding upon the seed of a semi-green, broad, flat pod of a wattle (*Acacia*).

Often during our rambles we flushed White Cockatoos from nesting hollows. In one tall tree above our camp on the table-land the pair of birds became used to us. When we tapped the tree with our tomahawk "Cocky" would merely thrust his yellow-crested poll out to see what was the matter below.

At the orchard of Mr. W. A. Pershouse flocks of White Cockatoos at times almost envelop the orange trees at the unprotected side of the orchard and play havoc with the fruit—not for the fruit's sake, but to secure the pips within the fruit.

Aprosmictus minor. Little King Parrot.

Alisterus cyanopygius minor.

This handsome Parrot was seen near Cardwell, also on the Murray River and in the scrubs of the table-land. A nest taken near the residence of Mr. T. Butler, Upper Murray, contained three young about a week old and an addled egg, which egg, the first described, has become the "type" of the Little King Parrot (*vide Emu*, vol. xvi., p. 163). The nesting-place was about 20 feet down from the entrance hole, in a large hollow eucalypt. How the birds get down and up that long distance, especially when feeding their young, is a puzzle.

A. minor is appreciably smaller than *A. cyanopygius*, while the "butterfly" wing is of a different shade.

Platyercus amathusia. Blue-cheeked Parrot.*Platyercus adscitus adscitus.*

Seen in pairs on the table-land, where specimens were obtained. This bird most resembles *P. pallidiceps*, with its pale head and bluish under surface, but the blackish feathers of the mantle have light-bluish edgings instead of yellowish. Broadbent saw a pair which he regarded as *P. pallidiceps*, while Ramsay regarded the bird, which he met "once only," as *P. cyanogenys* (i.e., *amathusia*).

We heard that *P. nigrescens* were in the neighbourhood, and were disappointed we did not see them, as one of us did on a former trip. These birds are more blood-red in coloration, especially on the rump, and much more blackish on the back, than the true southern *P. elegans*.

Podargus phalænoides. Freckled Frogmouth.*Podargus strigoides cornwalli.*

Seen near Cardwell, and also on the Murray River; their call was frequently heard at night. One sitting bird was observed near the track in a large, rough-barked wattle-tree. The male is the larger bird.

Ægotheles novæ-hollandiæ. Owlet Nightjar.*Ægotheles cristata leucogaster.*

Flushed from hollow spouts both at Cardwell and on the Murray. [Possibly Gould's *Æ. leucogaster* should be reinstated. It appears to be a recognizable northern and western sub-species. Type locality, Northern Territory (Port Essington).—A. J. C.]

Eurystomus pacificus. Roller.*Eurystomus orientalis pacificus.*

The Roller, or Dollar-Bird, is a migrant, and appeared from the north in October. (First date observed, 2nd; first seen by Broadbent, 9th.) Was breeding on the table-land during our visit there.

Alcyone pulchra. Purple Kingfisher.*Alcyone azurea mixta.*

Seen along the rivers and creeks. Eggs (including a set of six) were taken from burrows in the banks of the Murray River during October.

As its name indicates, this river Kingfisher is more purplish (or rather violet) in colour than the more southern *azurea*.

Alcyone pusilla. Little Kingfisher.*Micralcyone pusilla halli.*

Seen about the seashore near Cardwell, also about tea-tree swamps and on the Murray River.

One balmy September day a pair of these tiny Kingfishers remained perched for a considerable time in a *Calophyllum* on the strand.

[Referring to Mathews's *halli*, ornithologists can hardly expect to find two sub-species of the nature of this bird so close to each other geographically as Cairns and Cape York. Students would be more inclined to accept North's *ramsayi* for the Northern Territory bird.—A. J. C.]

Dacelo minor. Lesser Brown Kingfisher.*Dacelo gigas minor.*

Common throughout the Cardwell district and the Kirrama Table-land. Eggs were taken from a hollow drilled in a termites' nest in a large blood-wood (eucalypt) tree near our camp on the table-land. Mr. H. L. White has described the eggs in *The Emu*, vol. xvi., p. 162.

The northern "Jackass" appears to be cleaner in appearance than its familiar southern compeer. The male is a gayer-coloured bird, with blue on the lower back and upper tail coverts as well as on the wings. There is about an inch only less difference in the wing measurement.

Dacelo leachi. Leach Kingfisher.

Dacelo leachi kempi.

Common throughout the Murray and Cardwell districts. The loud "yelping" notes of the Leach Kingfisher were frequently heard in the forest at the same time as the "laughter" of the Lesser Brown Kingfisher.

[The latter bird seems to have increased in numbers since my first visit to the district, thirty years ago.—A. J. C.]

Halcyon macleayi. Forest Kingfisher.

Cyanalcyon macleayi barnardi.

Common; numbers of their pretty blue and white forms were observed sitting on the telegraph wires about Cardwell. They appeared to be typical "Macleays."

Halcyon sanctus. Sacred Kingfisher.

Sauropatis sancta confusa.

Fairly common about Cardwell; often seen about the mangroves and fishing about the beach. We have no doubt that they were the common migratory *sanctus*. We did not observe any breeding.

Halcyon sordidus. Mangrove Kingfisher.

Sauropatis sordida sordida.

Odd birds only of this fine Kingfisher were seen about mangrove creeks. One would have to endure plagues of mosquitoes and to wade knee-deep in mud to observe these birds properly, perchance to find a nest in some hollow mangrove.

Merops ornatus. Bee-eater.

Cosmærops ornatus ornatus.

Common about Cardwell in September, where they arrived from the north. They seemed to be moving southward. The first one we observed was on 11th September. Broadbent first noticed Bee-eaters on 19th August, "in little flocks." In October he saw them flying over Cardwell in thousands for days, going southward.

Bee-eaters have been observed passing to and from New Guinea during migration. How can it be possible, then, that there are two races of these birds in Australia, as Mathews infers?

Eurostopus albigularis. White-throated Nightjar.

Eurostopodus mystacalis.

A few birds were flushed from the ground in stony places. An egg of this species was discovered by Constable O'Regan, of Cardwell, while out wallaby-shooting during our visit to that locality, but, instead of handing it over to us, he gave it to his wife, who placed it under a broody hen, where it was, of course, promptly broken.

Caprimulgus (macrurus) yorki. Large-tailed Nightjar.

Generally flushed in pairs from the ground in swampy places, where their eggs were found. This Nightjar's peculiar "Chop-chop" notes were frequently heard at night, even in the township of Cardwell. The birds have a jerky, butterfly flight when flushed. One nest (really no nest, only a selected spot on the ground), which we could not help

finding, was by the track side on the way to the Murray Falls. It contained a pair of the usual elliptical-shaped eggs.

[A Large-tailed Nightjar's nest was observed on 5th October with eggs; when examined again on the 26th it contained one young, about two days old.—A. J. C.]

Collocalia francica. Grey-rumped Swiftlet.

Collocalia francica terræreginæ.

Seen hawking in numbers over the tree-tops both on the mainland and on Gould Island. There is no doubt that these fairy-like little creatures nest on several of the islands off the coast, and probably in recesses of the mainland mountains.

[A description of a visit by me to one of these Swiftlet caves is given in "Reminiscences" (*Emu*, vol. xv., p. 253). I was under the guidance of our member, Mr. E. J. Banfield, of Dunk Island. He was good enough to send samples of the little ladle-shaped nests to the Australian Museum, Sydney, which are excellently figured in the "Special Catalogue, No. 1" ("Nests and Eggs"), vol. iv., p. 440.—A. J. C.]

Chætura caudacuta. Spine-tailed Swift.

A few of these far northern nesters were observed hawking in the air, generally when rain was pending.

Cuculus pallidus. Pallid Cuckoo.

Heteroscenes pallidus.

Fairly common about the Murray River.

Cacomantis variolosus. Square-tailed Cuckoo.

Cacomantis pyrrophanus westwoodia.

Generally seen about brush, and their shrill whistling call was often heard.

Chalcococcyx plagosus. Bronze-Cuckoo.

Lamprococcyx plagosus plagosus.

Fairly common about brush and scrubs.

Chalcococcyx russatus. Rufous-throated Bronze-Cuckoo.

Neochalcites minutillus russatus (*vide Emu*, vol. xvi., p. 34).

This little lustrous Cuckoo was fairly common; often seen about water-courses.

[There has always been difficulty in the identification of the northern Little Bronze-Cuckoos, but the above identification is probably correct, although *C. russatus* and *C. minutillus* may possibly be sub-species one of the other. Cardwell skins of *C. russatus* compared with skins of *C. minutillus* from the type locality (Northern Territory) differ markedly. Besides being the larger bird, the former has more and darker rufous on the tail, throat, &c. The bronze bars on the breast are also much larger and darker than in *C. minutillus*. Comparative dimensions in inches:—

♀ *C. russatus*.—Total length, $6\frac{3}{4}$; wing, $3\frac{3}{4}$; tail, $2\frac{7}{8}$.

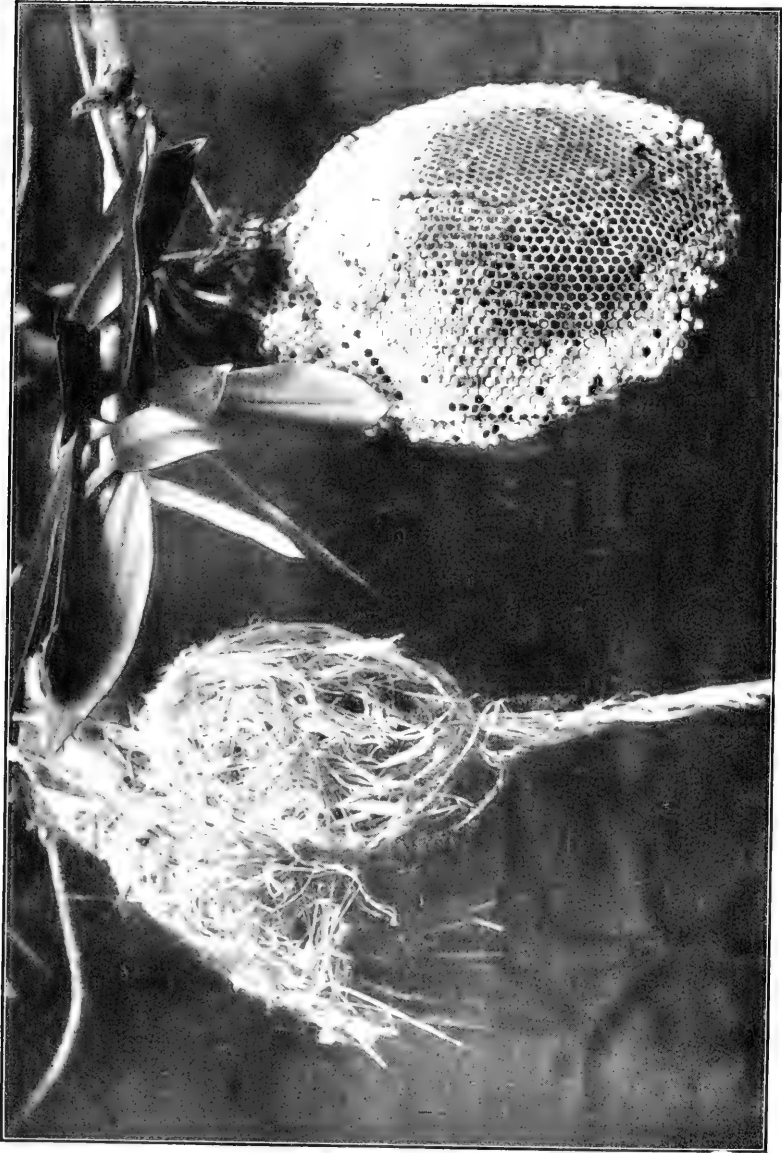
♀ *C. minutillus*.—Total length, $5\frac{3}{4}$; wing, $3\frac{1}{2}$; tail, $2\frac{1}{2}$.

In the Cardwell birds the male had a conspicuous red ring round the eye, which in the female was pale yellow. In a Northern Territory skin the collector has recorded the ring as greenish-white.—A. J. C.]

Eudynamys cyanocephala. Koel.

Eudynamys orientalis flindersii.

Common along the Murray River and at Kirrama Station, on the



Nest of Yellow Fly-eater (*Gerygone flavida*) and Wasps' Nest (as found).

FROM A PHOTO. BY A. J. CAMPBELL.

table-land. Their loud whistling call of "Koel" was frequently heard during night-time, as well as by day.

Scythrops novæ-hollandiæ. Channelbill.

Scythrops novæhollandiæ novæhollandiæ.

This great Cuckoo was observed in the scrubs of the Murray River, usually feeding in the large fig-trees. They often brush off or let figs fall, which patter loudly on the forest floor, and thus betray the presence to observers of the big birds on high.

The screech-call of the Channelbill is difficult to imitate, but when once heard is never forgotten. The first calls we heard were on 16th September.

Centropus phasianus. Pheasant-Coucal.

Polophilus phasianus phasianus.

Common about the grassy flats, and when disturbed would fly up into a neighbouring tree. One nest was observed in a patch of grass about 2 feet above the ground, with the tops of the grass pulled over in the form of a hood. It was in a good position for a photograph, but the clutch of eggs was not complete.

The call of the Coucal is very curious. It is continuous, and resembles the noise made in the neck of a demijohn when liquid is being poured out.

A good figure from a photograph of the Coucal may be seen in *The Emu*, vol. ix., pl. xii.

Pitta simillima. Lesser Pitta.

Coloburis versicolor intermedia.

Common in the scrubs of the Murray River and the scrubs of the table-land.

P. simillima is supposed to be a northern race of *P. strepitans*. If, as Mathews states, he has an *intermedia* form, then the birds may possibly be linked as one. Two males that we procured were variable in size.

The beautiful *P. mackloti* is stated by Broadbent to have been observed at Rockingham Bay. It was high up the Herbert, in a hill scrub. The bird may have overshoot its mark in migrating from New Guinea, from which country *P. simillima* has also been seen coming.

Hirundo neoxena. Welcome Swallow.

Hirundo neoxena neoxena.

This homely little bird was seen about Cardwell, hawking over the grass.

Petrochelidon nigricans. Tree-Martin.

Hylochelidon nigricans rogersi.

Seen on the Murray River and hawking low over the grassy flats.

Micræca fascinans. Brown Flycatcher.

Micræca fascinans pallida.

Seen on the Kirrama Table-land, where they were observed breeding. There is no question that it was the common variety, and not *pallida*, which De Vis described from the drier "Gulf" country, and which is exceedingly pale-coloured.

Micræca flavigaster. Yellow-breasted Flycatcher.

Kempia flavigaster terræreginæ.

Common about Cardwell, and a few seen about the Murray River. It is essentially a coastal bird, in the Rockingham Bay region, at all

events. This bird must have increased since Ramsay's day; he only found it after diligent search.

Its miniature nest (the smallest, probably, of Australian nests), with single egg, was found. A photograph of a nest and egg (natural size) appears in *The Emu*, vol. xv., pl. xxix.

Regarding Mathews's *M. terraereginae*, one would expect to find, in heavy forest country, this species greener above and brighter yellow on the under surface than, say, the birds from the type locality—Northern Territory. It is a scientific fact that all life is affected by its environment.

Smicrornis flavescens. Yellow-tinted Tree-Tit.

Smicrornis brevirostris pallescens.

This tiny Tit was detected on the table-land, where it was feeding in company with other small birds in the tree-tops. We procured a pair.

For phases of colouring this appears to be a perplexing little bird. We are satisfied with its identity as per first name above. *S. flavescens* may be taken as a northern representative of *S. brevirostris*.

Gerygone albogularis. White-throated Fly-eater.

Gerygone olivacea queenslandica.

Found on the table-land only; nowhere plentiful. It was not observed by Broadbent, but Ramsay noted it.

Gerygone magnirostris. Large-billed Fly-eater.

Ethelornis magnirostris cairnsensis.

Common about tea-tree swamps and the Murray River, where their long, flood-drift-like nests were often observed.

The nests were invariably within reach, and some were picturesquely placed overhanging the water of lily lagoons. Sometimes the nest would be suspended from the end of a slender branchlet, which was swayed by the lightest wind that blew. One was seen suspended from a "button" orchid. These tiny birds apparently give themselves an unlimited amount of labour in constructing their nests. First they construct about a foot in length of vegetable and other matter resembling flood *débris*, to the bottom of which is attached a roundish, cosy, and covered nest. The birds are often fond of building their nests in the sheds or verandahs of settlers' homes, suspending the nest to some chance bit of wire, rope, &c. It takes about three weeks to construct a nest. These nests are the favourite receptacles of the olive-coloured egg of a small Cuckoo, presumably the Little Bronze-Cuckoo (*Chalcococcyx minutillus*).

Gerygone pallida. Pale Brown Fly-eater.

Wilsonavis fusca pallida.

Supposed skins of this bird were obtained in the table-land scrubs, near the ranges, and a nest was observed swaying from a "lawyer" palm. The birds, which were not scarce, seemed to approach North's *G. pallida*, from the Cairns district ("Nests and Eggs, &c.," vol. i., p. 196). They are smaller and much lighter-coloured than *fusca*, especially on the under surface, which is almost white, and, if a sub-species at all, show more affinity to *levigaster* than to *fusca*. More material is required.

The total length of the Kirrama bird is very small— $3\frac{1}{2}$ inches, with wing $1\frac{3}{4}$ inches.



Ashy-fronted Robin's (*Heteromyias cinereifrons*) Nest (*in situ*).

FROM A PHOTO BY A. J. CAMPBELL.

Gerygone flavida. Yellow Fly-eater.*Pseudogerygone personata flavida.*

This chaste and æsthetic-coloured little Gerygone, with its sulphur-yellow under parts, was of great interest to us, and we closely observed it whenever we could.

Some of our best authorities entertain the opinion that *G. flavida* is the female of *G. personata*, which is found from the Endeavour River northwards to Cape York, the male of which possesses the dark throat and forehead. From our field observations we agree with Mr. C. W. De Vis, formerly Curator of the Queensland Museum, that *G. flavida* is distinct. We found several nests, and procured a mated pair of birds which were both yellow. It is also significant that when Broadbent was collecting at Cardwell he got several, but no masked birds, and regarded his find as "new." Ramsay did not observe the bird.

The first nest of the Yellow Fly-eater found by us was suspended to a branchlet of a broad-leaved acacia, just at the rear of the Cardwell township. Both birds were building. Unfortunately, we had to remove to the Upper Murray River before the eggs were laid. A second nest was found suspended from a *Melaleuca* near a creek of the Murray. The bird was flushed from a single egg. Two other nests were subsequently found, but eggs were not laid. In these two instances the nests were close to wasps' nests. One nest was suspended to a tree overhanging the river, and for photographic purposes we had to smoke out the wasps (or hornets) in order to take a picture (see Plate III.)

The nest of the Yellow Gerygone is comparatively a small structure (not bulky, like *G. magnirostris*), 9 inches long by 3 inches broad. The side entrance is $\frac{3}{4}$ -inch across, the hood extending 3 inches from the body of the nest. The nest is delicately constructed of fine reddish bark intermixed with web, cocoons, and insect droppings, and is lined with grass and very fine bark. In another example the lining was thistle-like seed-down. An egg—the usual type—measured .66 x .48 inch.

Heteromyias cinereifrons. Ashy-fronted Robin.

This unique "Robin" is one of the peculiarities of the densely-timbered ranges, and was observed nowhere else. It is shy, and frequents the dark gullies. Although early, several nests, with their single eggs, were observed. The nests were made of green moss and lined with dark rootlets, &c., and usually placed low down in a "lawyer" palm (*Calamus*) or similar situation. For nest *in situ* see Plate IV. The call of this Robin is plaintive, and not unlike that of the *Eopsaltria*.

Pœcilodryas superciliosa. White-browed Shrike-Robin.*Pœcilodryas superciliosa superciliosa.*

This bird was seen in the scrub of the sand-ridges near Cardwell; but was not common.

Pœcilodryas pulverulentus. White-tailed Shrike-Robin.*Quoyornis leucurus leucurus.*

The White-tailed Robin frequents the mangroves. They are confiding little birds, but it is hard work observing them, as these places are badly infested with mosquitoes and sand-flies; besides, you have to wade knee-deep through mud. Several of their pretty nests,

placed in a forked mangrove branch, were found (see Plate V., top figure).

During the nesting season their loud whistling call is frequently heard in the mangroves, and, upon imitating it, the birds will come close to you. A nest containing a pair of eggs was taken on the 27th August; a second nest was found being built a few days later, and a third nest was observed on 6th September with a pair of young birds.

Pœcilodryas nana. Little Shrike-Robin.

Tregellasia capito nana.

A true "slyph of the scrubs," and seen usually in pairs in the flat country. They have the same habit of clinging to tree-stems, &c., as the *Eopsaltria*, when "observing" your observing.

The nests were small, neat, made of moss, and lined with dead leaves, usually of "lawyer" canes, upon which the bird builds (see Plate V., bottom figure).

Several nests were found, each containing a pair of eggs.

Pachycephala queenslandica. Queensland Whistler.

For remarks see next issue of *Emu*.

Pachycephala rufiventris. Rufous-breasted Whistler.

Lewinornis rufiventris pallidus.

This Thickhead made music wherever we went, whether on the lowland or on the table-land, and eggs were secured.

The male is slightly smaller and richer-coloured, and with a more silvery sheen on the upper surface, compared with a typical *rufiventris*. Whatever the race be, it is not Ramsay's *pallidus*, as indicated by Mathews. The song and well-known "E-chow" note are similar to those uttered by the bird in its southern or summer habitat.

A male of this species was observed "fighting" its own reflection on a window of the Herbarium, Botanic Gardens, Brisbane, 29/6/16

In the Cardwell scrubs on two occasions two females were observed "displaying" to the one male. The females were very excited, assumed many pretty attitudes, and occasionally chased each other

Pachycephala peninsulæ. Grey Whistler.

Mattingleya griseiceps inornata.

This Thickhead was of peculiar interest to us, and was fairly plentiful in the coastal scrubs; and we had the opportunity of proving that Ramsay's *Eopsaltria inornata* and Hartert's *Pachycephala peninsulæ* (both shown on the Union's "Check-list," p. 65) are the same species.

Mathews gave two names for the Cardwell bird—first, *Pachycephala enidæ*; second, *Mattingleya inornata*. Should the new genus stand, then the latter name would be acceptable; but if the genus does not stand (field observation, especially nidification, shows the bird to be a *Pachycephala*), the "Check-list" name, No. 427, *Pachycephala peninsulæ*, should remain. Cardwell and Cape York skins are similar, while the name *Pachycephala inornata* is apparently pre-occupied by Gould (*P.Z.S.*, 1840, p. 164). Broadbent identified the bird at Cape York.

We found three nests—one with fledgelings (rufous-coloured, like those of *Pachycephala gutturalis*), and two with each a pair of eggs resembling at first sight miniature Shrike-Thrushes'. The nest and eggs (with illustration, pl. xxxv.) are described by Mr. H. L. White in *The Emu*, vol. xvi., page 163. The nest figured was found near



(Upper) Nest of Mangrove Robin (*Pacilodryas pulverulentus*).
(Lower) Nest of Little Robin (*P. nana*).

the edge of a dense scrub on a stump of a tree that had been cut off near the ground, and from which suckers had sprung. The nest rested on the stump, and was concealed by the suckers, and was only found by the bird flushing. Adverting to the nest found with young, we went the following day to photograph the family, but some "evil beast" had anticipated us—the nest was empty.

In its quest of food this bird resembles all the *Pachycephala* tribe; it is often found in the company of other small birds during feeding-time.

Eopsaltria magnirostris. Large-billed Shrike-Robin:

Eopsaltria australis magnirostris.

As the Little Shrike-Robin (*Pæcilodryas nana*) appeared to love the recesses of the scrub, so the Large-billed Yellow Robin loved the more open forest parts, lowland or table-land, where its figures, with bright yellow breast and lower back, were often seen.* Many of its characteristic nests (ornamented outwardly with long shields of bark and lined with dead leaves) were found. One in particular was fairly high-placed in a *Casuarina*.

This is no doubt the variety seen by Broadbent, which he records as *E. australis*, and which he states "is more beautiful than the Melbourne bird." He also met it on Bellenden Ker up to 4,000 feet.

Falcunculus frontatus. Yellow-bellied Shrike-Tit.

Falcunculus frontatus herbertoni.

We did not observe this bird till we arrived on the Kirrama table-land, where its plaintive whistle was occasionally heard. But a part of its call-note was unlike that of its more southern form. In comparing skins, the birds had less wing ($\frac{1}{8}$ inch), and more intensely coloured yellow than the southern Shrike-Tit. These differences would probably warrant Mathew's sub-specific title *herbertoni*.

Oreoica cristata. Crested Bell-Bird.

Oreoica cristata cristata.

When on the table-land of Kirrama it was a pleasant surprise to hear and to see these familiar inland birds.

Rhipidura albiscapa. White-shafted Fantail.

Rhipidura flabellifera frerei.

This familiar form of Fantail was another puzzle to us, because the coastal bird seemed to differ from the bird of the ranges. Yet there could not, ornithologically, be two forms (or sub-species) of the same species in the one locality not many miles apart. The coastal bird appeared to be a typical *albiscapa*, while its representative in the ranges was darker. Specimens of each kind were procured for reference.

Rhipidura intermedia. Allied Fantail.

Howeavis rufifrons intermedia.

The Rufous Fantail was occasionally seen and heard in secluded situations in the scrub and hills alike.

Rhipidura isura. Northern Fantail.

Setosura setosa superciliosa.

The Northern Fantail is found across the northern part of the continent. When the late Dr. E. P. Ramsay collected the Rockingham Bay bird he called it *superciliosa*. But in his subsequent

* See coloured figures of similar birds, *Emu*, vol. ix., pl. iii.

"Tabular List" he dropped the name in favour of Gould's *isura*, because he found the birds "are identical." In this we concur.

We had many opportunities of observing this active and attractive little bird, which, in habits and mode of nidification, much resembles the familiar White-shafted Fantail (*R. albiscapa*). Their "tailed" nest was usually placed on a naked twig in a low situation in open forest.

Rhipidura motacilloides. Black-and-White Fantail.

Leucocirca tricolor utingu.

This ubiquitous yet ever pleasing bird was noted, but was not numerous. We are not prepared to say it differed from the familiar Black-and-White Fantail in other parts.

One prettily situated nest seen, with young, was protected by a over-arching branch of a dead fallen tree in a shallow swamp of weeds. The parent birds were very trustful.

Myiagra plumbea. Leaden Flycatcher.

Myiagra rubecula yorki.

So far as the Rockingham Bay bird is concerned, we found no difference between it and the species found in the neighbourhood of Brisbane, which is *rubecula* (or *plumbea*). They were always in evidence, or were heard calling.

Machæirhynchus flaviventer. Boat-billed Flycatcher.

Machæirhynchus flaviventer secundus.

These yellow-breasted, broad-billed birds were very fascinating to observe. It would be difficult to believe that a bird with such a comparatively restricted habitat really has a second or sub-species, as indicated by Mr. Mathews.

Arses kaupi. Pied Flycatcher.

Ophryzone kaupi.

We observed Pied Flycatchers in various phases of plumage—a reason why northern collectors have somewhat confused the species.

These are very lively and showy little creatures, and were sometimes seen hunting a tree-bole for food, after the manner of Tree-creepers, only it did not trouble the Flycatcher whether it went up or down.

Piezorhynchus wardelli. Long-billed Shining Flycatcher.

Piezorhynchus alecto wardelli.

The male, in satiny black, and the female, in satiny brown, are well called Shining Flycatchers, and are ever attractive birds. They were usually observed about rivers or creeks, and a beautifully-built nest was seen on a tea-tree branch overhanging water where some blue water-lilies were growing.

Monarcha gouldi. Spectacled Flycatcher.

Symphysiachus trivirgatus albiventris.

This interesting Flycatcher was always in evidence. It does not appear to be the *albiventris* of more northern habitat. Possibly it may be Sharpe's *medius* from Port Molle, which Mathews states is synonymous with *albiventris*. Port Molle is a little below Bowen.

The moss-made nests of the Spectacled Flycatcher are among the most beautiful of bird architecture, being outwardly constructed of green mosses decorated with silky insect cocoons, yellowish, whitish, sometimes greenish. The nest was usually placed in the



Nest and Eggs of Spectacled Flycatcher (*Monarcha solida*).

FROM A PHOTO BY A. J. CAMPBELL.

upright fork of a low sapling, within reach of the ground, in an avenue of scrub (see Plate VI.)

Monarcha leucotis. White-eared Flycatcher.

Carterornis leucotis.

This black and white Flycatcher was of great interest to us, as its nest and eggs were, and are still, ornithological *desiderata*. We observed individual birds in several places in the scrub on the mainland and on Goold Island, but were not successful in tracing a nest. These birds probably breed during October, when we took most of the other Flycatchers' nests. In habit these birds mostly resemble *M. carinata* in their manner of flitting about the topmost branches of the trees.

Monarcha carinata. Black-faced Flycatcher.

Monarcha melanopsis canescens.

These Black-faced Flycatchers were not so frequently observed as their Spectacled brethren. They were smaller ($\frac{1}{4}$ of an inch) in the wing and slightly richer in colouring than, say, New South Wales birds, otherwise not different. We do not think that they are the Cape York bird (*canescens*), with plumage of pearly appearance.

These fine Flycatchers at first appeared singly, but a little later were seen in flocks of eight or ten, evidently migrating from northward. They afterwards appeared to scatter, and were observed building in October on the table-land.

Graucalus melanops. Black-faced Cuckoo-Shrike.

Coracina novæhollandiæ connectens.

Cuckoo-Shrikes were common, and were often seen in small flocks. There is no appreciable difference (save in size) between the Cardwell bird and the familiar southern Black-faced species.

These birds were not observed at first at Cardwell, but were noted later in small flocks, as were seen at Mackay during July. An immature skin was obtained near Cardwell out of a small flock of birds.

Graucalus hypoleuca. White-bellied Cuckoo-Shrike.

Coracina hypoleuca stalkerii.

The smaller Cuckoo-Shrike seen was not *G. mentalis*, as Broadbent indicates, although that species may possibly be found at other periods of the year. It is a variety of *hypoleuca*, and agrees with the sub-species *stalkerii* of Mathews.

Graucalus lineatus. Barred Cuckoo-Shrike.

Paragraucalus lineatus.

As a general rule, northern scrub species are smaller in size or are brighter in plumage than southern birds of the same kind. So it is with the Barred Cuckoo-Shrike, which, in the Murray district, is cleaner (brighter) in appearance and has the under-surface more distinctly barred. For the northern form Mathews recently applied the name *austini*.

These birds were not observed till we reached the Murray River, when they were noticed passing in small flocks from the north, evidently going further south, though some of them remained during our visit. If there be a difference between the skins secured and the southern form, then the southern bird is either a stationary species or migrates further south in the spring, while the northern bird takes its place in the centre. Mathews omits the range of this bird to New South Wales.

Edoliisoma jardinii. Great Caterpillar-eater.*Metagraucalus tenuirostris obscurus.*

As in the case of the Barred Cuckoo-Shrike, this bird was slightly smaller and of cleaner appearance than specimens obtained in southern localities. Can this migratory species be scientifically subdivided? If so, what are the respective bounds of the so-called sub-species of Mathews? If *jardinii* (or *tenuirostris*) of South Queensland migrates to New South Wales or to Victoria to breed, where does *obscurus* of North Queensland migrate to to nest? As in the case of the Barred Cuckoo-Shrike, the same thing applies to this bird. It does not remain in Central Queensland during the winter, but arrives from the north in October.

Campephaga humeralis. White-shouldered Caterpillar-eater.*Lalage tricolor tricolor.*

Noted on the table-land of Kirrama. During the winter season the male birds assume the sombre garb of the female. In Central Queensland these birds arrive from the north during September, and shortly afterwards the males change from the sombre hue to the black and white of adults. The transition is very rapid, taking only two or three weeks. As soon as they assume the adult plumage they begin to build.

Campephaga leucomela. Pied Caterpillar-eater.*Karua leucomela yorki.*

Pied Caterpillar-eaters were frequently observed silently moving about the scrubs. There is no appreciable difference between a specimen procured and specimens from New South Wales, which locality is not mentioned by Mathews for this species.

Orthonyx spaldingi. Black-headed Log-runner.*Macrorhynchus spaldingi.*

Bird-lovers will be heartily entertained who hear this scrub chatterer for the first time. It is most noisy during early morning, when one or more birds may be seen upon the ground with bowed necks, jerking their heads frantically while jabbering a string of their "Chow-chilla-chow-chow-chilla" notes.

The Log-runners were confined to the ranges. One of our specimens procured was in immature plumage.

For situation of a nest see *Emu*, vol. viii., pl. xxv.

Psophodes lateralis. Lesser Coachwhip-Bird.*Psophodes olivaceus lateralis.*

This bird varies from the southern form by its lighter green plumage and larger bill. Its loud whip-crack-like note was frequently heard in thickets of scrub on the Upper Murray, as well as in the ranges.

Aerocephalus australis. Reed-Warbler.*Aerocephalus australis inexpectatus.*

A few birds were observed in the long grass and reeds of Kirrama Creek, close to Kirrama homestead, on the table-land. Time, about end of October. Dr. Ramsay noted these Warblers in tall reeds while he was Wild Goose shooting.

Further south, near Mackay, during July, Reed-Warblers were heard in the sugar-cane and among lantana (introduced) scrub.

Cisticola (exilis) lineocapilla. Grass-Warbler.*Cisticola exilis mixta.*

This puzzling little species was observed on the flats, and a speci-

men procured appeared referable to Gould's *lineocapilla*. [On a former visit, 1914, this species was common in grassy situations, Bellenden Plains, where it was breeding.—A. J. C.]

Megalurus galactotes. Tawny Grass-Bird.

Dulciornis alisteri dulcei.

One specimen was secured in some rank grass country near Cardwell, and it resembles skins collected in other northern parts of Australia.

By the dulcet music of a new and trinomial name, *Dulciornis alisteri dulcei*, for this "tolerably abundant" northern bird, Mr. Mathews endeavours to allure students away from an old and familiar name. Mr. Mathews's only excuse for abandoning the old name is given in his "Reference-list to the Birds of Australia" (1912). In a note he states:—"The name hitherto used for this bird has been *M. galactotes*, Temminck. Reference to the original figure and description shows this to be inapplicable. The figure (*Plan. Color. d'Ois*, vol. i., 11e livr., pl. lxx., fig. 1, 1823) gives a bird disagreeing entirely in general coloration with the Australian bird. . . . The locality given by Temminck (New Holland) must therefore be erroneous, and I find that Temminck's figure is almost certainly that of an African species of *Cisticola*, and, moreover, agrees well with the bird at present known as *C. erythrogenys*, Rüppell."

Granted that Mr. Mathews's note is correct, and that an older drawing is doubtful, why has he passed over Gould's superb and truthfully-coloured plate ("Birds of Australia," vol. iii., pl. 35) and letterpress description, both of which have stood for 70 years? It is incidents of this kind that shake students' faith in Mr. Mathews's new names which he proposes for so many old and well-known names of Australian birds. Changes like these create confusion.

Sericornis citreigularis. Yellow-throated Scrub-Wren.

Neosericornis lathamii cairnsi.

These bright and active little birds were always seen about the ground or threading scrub near thereto. They are smaller birds and richer-coloured than their more southern brethren.

Sericornis lævigaster. Buff-breasted Scrub-Wren.

Sericornis longirostris lævigaster.

This northern Scrub-Wren was only seen on the table-land, chiefly along the Kirrama Creek, where families fossicked for food, after the fashion of *frontalis*.

Sericornis (magnirostris) viridior. Large-billed Scrub-Wren.

Sericornis magnirostris viridior.

This large-billed Scrub-Wren was occasionally met with, especially in dense scrub where "lawyer" canes grew. Nests were also taken. When seen in the open for the first time the bird reminds one more of an *Acanthiza* than a *Sericornis*, but its comparatively powerful legs "put it away." The male has a slightly more yellowish tone of plumage than the female.

Oreoscopus gutturalis. Fern-Wren.

Figure—*Emu*, vol. viii., pl. A.

This species is one of the novelties of the northern scrubs. It spends almost its whole time on the ground, and resembles the *Sericornes*. It builds a bulky nest, almost entirely of moss, and as

large as a football, which is suspended to a fern or low bush near the ground. The entrance is at the side. We were unfortunate in not taking eggs. One nest we had under surveillance was rifled by some enemy (beast)

Malurus amabilis. Lovely Wren-Warbler.

Leggeornis amabilis barroni.

These "beauties of the bush" were first observed at the rear of the township of Cardwell, and afterwards pairs or small families were seen amongst the rushes of dry lagoons or in the undergrowth of forest country. There is little or no difference between the Cardwell birds and Gould's species, *amabilis*, from Cape York—in the males, at all events; but in specimens compared the Cape female appears a little bluer in colour, perhaps accounted for by the different time of season when taken.

On the edge of the scrub on the Upper Murray River a nest with a fresh set of three eggs was discovered on 12th October.

Malurus (cruentatus) pyrrhonota. Blood-backed Wren-Warbler.

Ryania melanocephala pyrrhonota.

The males of this Wren-Warbler were always pretty objects, with their black and red colour, as they flew before the observer. The constancy of their dark red (blood-coloured) backs separates them from the southern form, with more orange-coloured back—*melanocephala*.

Blood-backed Wrens were observed both on the lowlands and on the table-land, and several nests were secured.

Artamus leucogaster. White-rumped Wood-Swallow.

Artamus leucorhynchus leucopygialis.

This familiar and graceful bird was observed in the coastal country only.

Artamus sordidus. Wood-Swallow.

Pseudartamus cyanopterus.

A few of the Common Wood-Swallows were observed on the table-land.

Artamus minor. Little Wood-Swallow.

Micrartamus minor minor.

The Little Wood-Swallow was observed near Cardwell, where it was sometimes seen perched on telegraph wires.

Colluricincla harmonica. Grey Shrike-Thrush.

Colluricincla harmonica pallescens.

The Grey Thrushes were a trifle puzzling, although frequently in evidence. Local birds are lighter in tint and more uniform-coloured on the back than southern specimens.

Colluricincla parvissima. Allied Rufous Shrike-Thrush.

Caleyia megarhyncha gouldi.

This little Thrush was one of the sweet songsters of the scrub, and several nests were seen.

Ramsay, in his account of the birds of Rockingham Bay, evidently inadvertently wrote *parvula* for *parvissima* for this species.

Colluricincla boweri. Bower Shrike-Thrush.

Bowyeria boweri.

The Bower Thrush is a fine species, and, although reddish (rusty), like the last-mentioned Thrush, is larger and has its breast more

striped. It was mostly seen in the ranges. As Broadbent points out, it is a true mountain bird. It has a loud and distinctive call.

Grallina picata. Magpie-Lark.

Grallina cyanoleuca cyanoleuca.

This ubiquitous-bird was, of course, seen, but was not numerous. They frequently came about dwellings.

Local observers state that the Magpie-Lark migrates, or moves away during summer, from some northern localities. Where to?

Neositta striata. Striated Tree-runner.

Neositta striata rothschildi.

The female has the black head; the male is striated. With the black-headed female, these birds, by field observation only, were a bit perplexing at first, but when skins were handled there is no doubt that the species is referable to Gould's *striata* of northern localities.

Broadbent shows *N. leucoptera* for the district. Except he took specimens, he would observe the large whitish patches on the wings of *N. striata* as they flew from tree to tree. Hence his error, probably, in identification.

Strange to say, Ramsay also records *N. leucoptera* from Rockingham Bay. "I received only two specimens, which I suppose to be females. They have the whole of the head, neck, and throat black; chest and remainder of the upper surface silky white, with a black stripe down the centre of each feather" (*P.Z.S.*, 1868, p. 387).

Climacteris melanonota. Black Tree-creeper.

Whitlocka melanota.

Broadbent states that a few specimens of the Brown Tree-creeper (*C. scandens*) were seen by him between Gowrie Creek and Coldwater Station, on the Herbert River, in the open forest. This would be on the table-land. The species we obtained on the Kirrama table-land was *C. melanota*, which has similar cries and habits to those of *C. scandens*. Ramsay also refers to the bird as *C. scandens*.

Climacteris minor. Lesser White-throated Tree-creeper.

Climacteris leucophæa minor.

There is so much difference between the northern White-throated Tree-creeper and its southern representative that the difference appears more specific than merely sub-specific. *C. minor* differs from *C. leucophæa* not only in its smaller size and much darker coloration, but by having the throat grey instead of white, and by the light stripes on the under-surface being buffy instead of white. The light patch on the wing is also darker (yellowish-buff). Comparative dimensions in inches:—

<i>leucophæa</i> , ♂	—length,	6	;	wing,	$3\frac{1}{2}$	;	tarsus,	$\frac{7}{8}$	;	culmen,	$\frac{5}{8}$.
<i>minor</i> , ♂	—	"	"	"	5	;	"	$3\frac{1}{8}$	;	"	$\frac{5}{8}$.
"	♂	—	"	"	5	;	"	$3\frac{1}{8}$	;	"	$\frac{5}{8}$.
<i>leucophæa</i> , ♀	—	"	"	"	6	;	"	$3\frac{1}{8}$	;	"	$\frac{5}{8}$.
<i>minor</i> , ♀	—	"	"	"	5	;	"	$2\frac{7}{8}$	;	"	$\frac{1}{2}$.

(Northern eggs average .83 x .62; southern average .85 x .64 inches.)

The nest we found was a hollow part of a green tree by a stream, in the depth of the scrub, Kirrama Range.

See description of type nest and eggs by H. L. White, *Emu*, vol. xvi., p. 164.

Zosterops tephroleura. Grey-breasted White-eye.*Zosterops lateralis tephroleura.*

Whether the Rockingham Bay bird be a sub-species of *lateralis* (i.e., *dorsalis*), as Mathews contends, or not, it is the same kind of *Zosterops* that was obtained on the Capricorn Group by the Union's expedition, 1909, and provisionally named *Z. chlorocephalus* (vide *Emu*, vol. x., p. 196).

These little birds were fairly plentiful in the coastal country, and their chirping songs were always heard at dawn, provided noises caused by wind, &c., did not drown the birds' voices.

Dicæum hirundinaceum. Mistletoe-Bird.*Austrodicæum hirundinaceum hirundinaceum.*

The cheery chirps of the *Dicæum* often betrayed its presence. One of its purse-like nests was found a few feet from the ground suspended in a small sapling or sucker of a Moreton Bay ash (eucalypt).

Pardalotus (punctatus) millitaris. Northern Spotted Pardalote.*Pardalotus punctatus millitaris.*

We were greatly surprised to hear the dulcet notes of this pretty Pardalote in the tall timber (eucalypts) about our camp on the Kirrama Table-land. Ramsay regarded it as rare here. Not far from our tent a pair of birds had enlarged a hole in a hollow part of a green gum-tree bole, and therein had made a nest. The nest was completely composed of fine dry grass, and measured in circumference 12 inches; the side entrance was 1½ inches across. There was a full set of four eggs. Date, 28/10/16. The birds answer to Mathews's sub-species *millitaris*, from the Cairns district.

Pardalotus melanocephalus. Black-headed Pardalote.*Pardalotus melanocephalus barroni.*

These familiar birds were everywhere. In the sides of water-courses (dry or otherwise) in some localities their burrows were almost every few yards, but did not always contain eggs. Some of the burrows had the appearance of having been rifled by reptiles. Further south, at Mackay, these Pardalotes were nesting during July.

Cyrtostomus frenatus. Sun-Bird.*Cyrtostomus frenatus australis.*

The gaily-dressed (male, rich lemon chrome under parts and metallic navy blue throat) Sun-Birds, of Humming-Bird appearance, are indeed tangible evidence of the tropics. They were noticed only in the coastal region, sipping nectar from various flowers. They were often observed about dwellings, fossicking the flowers of pa-paw, citrus, and other trees of gardens; and they love sometimes to build their nests in verandahs or near houses.

One nest observed in the bush was prettily situated underneath a bunch of ferns, and suspended to a dead frond.

When the little bird flits from flower to flower it utters a Tit-like "Chip" or "Chip, chip." The song is *Malurus*-like—a pretty, rattling warble.

Melithreptus lunulatus. White-naped Honey-eater.*Melithreptus lunatus lunatus.*

It was refreshing to meet this well-known Honey-eater so far north. We first met it about our camp in the forest of the Kirrama Table-land. As expected, the bird is slightly smaller than southern birds of the same kind. Its well-known lisping notes are exactly similar.

A fledgeling * that had fallen from a tree was picked up for examination, when the old birds perched on the hand of the observer and commenced to feed the young. When, however, the young one was released and placed on a bush, a big Brown Kingfisher (Jackass) sailed past and snapped the little one before it could be rescued.

Of course, we understand that it sometimes takes several sub-species to make one species. But, as field observers of this bird from the north to the south of its habitat, we venture to believe that an important error has been made in classing the following species—*M. albogularis*—a sub-species of *M. lunulatus*. We found these two birds a few miles only apart as "the Crow flies." And is it not an axiom, even among sub-specificists, that two sub-species of the same species cannot exist in same locality?

This Honey-eater is plentiful in Central Queensland, on the Dawson River, among the hills and gorges of the Expedition Range.

Melithreptus albogularis. White-throated Honey-eater.

Melithreptus lunatus vinitinctus.

These birds were in numbers feasting upon the abundant flowers of the blue gums (*Eucalyptus tereticornis*), and making a chorus with their high-pitched "T-tee, t-tee, t-tee" notes. It was a pleasure to recline under a tree and watch their active movements, while left alone; but they were often put to flight by the arrival of larger birds—Leatherheads, &c.

As pointed out in the preceding species, *M. albogularis* is distinct from *M. lunulatus*. Amongst other specific distinctions, the naked space above and behind the eye is scarlet or orange in the latter bird, and in the former greenish-blue. These colours are constant in the respective species. In Central Queensland *M. lunulatus* is found in the ranges only, while *M. albogularis* is found on the lower forest country.

[Regarding *M. albogularis* found in Central Queensland and the Northern one, the former appears larger, brighter in colour, and more robust generally; also its note is much stronger and clearer.—H. G. B.]

Plectorhyncha lanceolata. Striped Honey-eater.

Plectorhyncha lanceolata lanceolata.

The occurrence of one or two of this usually inland species on Gold Island, near Hinchinbrook Island and about 10 miles from the mainland, surprised us. We secured a specimen for identification, and saw it nowhere else. However, Ramsay stated it was to be found 60 miles inland.

There had been a drought the previous season, and these birds may have been driven from their usual habitat, and, finding existence on the island congenial, had there remained.

Myzomela sanguinolenta. Sanguineous Honey-eater.

Myzomela sanguinolenta stephensi.

Whether for appearance or pleasing song, † these little Honey-eaters are gems, and the rich red portion of their uniform brightens the picture wherever they fly for nectar—whether on to cylindrical, greenish tea-tree flowers, or golden bunches of gum-blossom, or are "drowned" in their own colour in the red bottle-brush of *Callistemon*.

* Rough description:—Under surface yellowish, especially throat; nape-mark dull yellow; edges of primaries, &c., yellowish-green.

† Like the sound produced by a person rubbing a damp cork on a window-pane, only not so harsh.

We could not separate it from the southern form, the reasons for separation given by Mathews being the extension of red further down the abdomen. This trivial reason was not convincing.

Myzomela pectoralis. Banded Honey-eater.

Cissomela pectoralis incerta.

This truly northern bird was noted on the table-land. Ramsay also saw one specimen.

It evidently extends right across to the Northern Territory, as it is a common bird on the Macarthur River, where it was found breeding in the latter end of 1913.

Myzomela obscura. Dusky Honey-eater

Melomyza obscura harterti.

This dark-plumaged Honey-eater was always in evidence, and lively. It occasionally visited the gardens of our lodging at Cardwell, and dipped into the bluish bells of a Tecoma-like creeper

Mathews's *munna* (which = *harterti*) is too near the type locality of *obscura* for scientific separation.

The Dusky Honey-eater is amongst the many birds that feign lameness or a broken wing when the vicinity of its young is invaded.

Acanthorhynchus cairnsensis. Cairns Spinebill.

Acanthorhynchus tenuirostris cairnsensis.

The Spinebill was observed on the table-land. It, in general, is a smaller bird than the southern species, and the throat markings are nearly obsolete, but our specimen was not paler-coloured on the under-surface, as mentioned by Mathews.

Glyciphila modesta. Brown-backed Honey-eater.

Ramsayornis modestus ramsayi.

This modest-coloured Honey-eater was a common bird, and many of their elongated, covered-in nests were seen, suspended chiefly in tea-trees overhanging water or creek beds.

We believe this Honey-eater to be a *true modesta*. If Mathews thinks it is sub-specifically distinct, and should bear another name, he should have used Ramsay's *sub-fasciata* (*P.Z.S.*, 1868, p. 385), and not his own *ramsayi*. *Sub-fasciata* was from Rockingham Bay, not Cape York, as indicated in Mathews's "1913 List," page 267. However, Ramsay, in his "Tabular List" (1888) states that "*G. sub-fasciata* = *G. modesta*." Broadbent, in his "List," mistook it for the other species—*G. fasciata*.

A nest of *Glyciphila modesta*, taken in a wattle-tree, was composed chiefly of shreds and pieces of paper (*Melaleuca*) bark, with an admixture of spiders' web and cocoons. The structure was partially hooded, with side entrance. Dimensions:—Length over all, 7 inches; body of the nest, $3\frac{1}{2}$ x 3 inches; entrance, 2 x $\frac{1}{2}$ inches. (See illustration of same, Plate VII.)

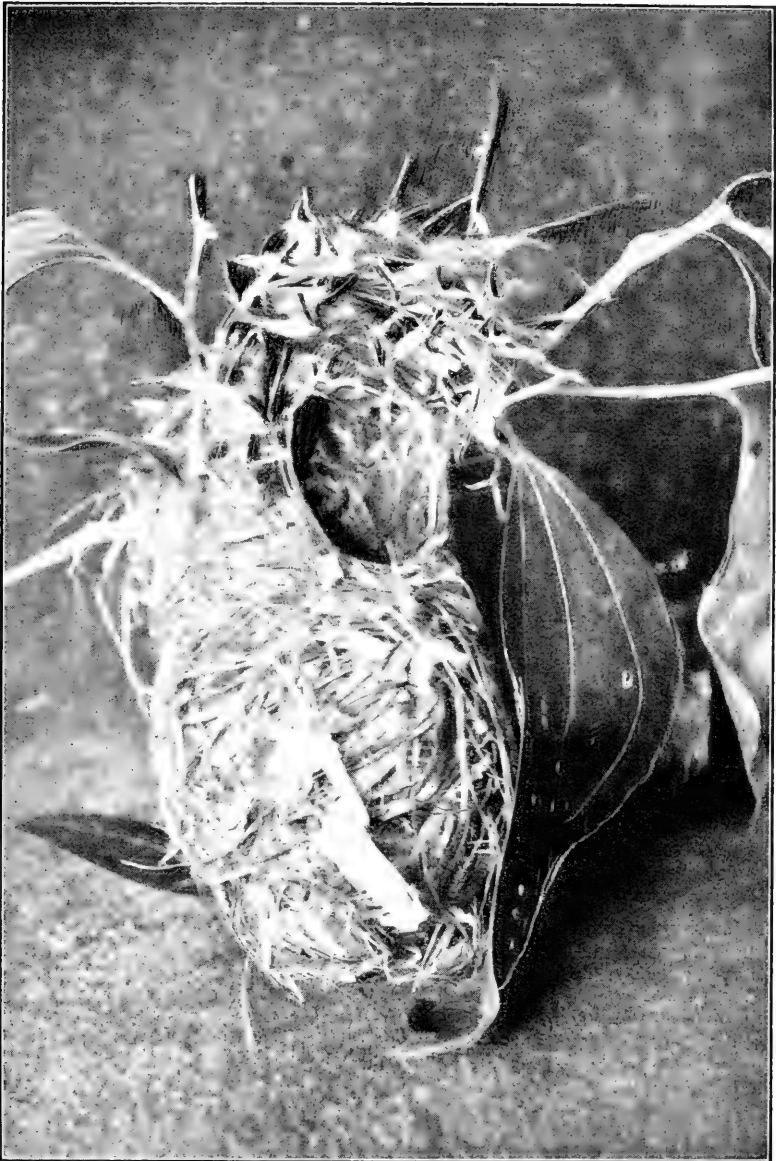
It is remarkable that only two species of all the Honey-eaters construct covered nests—this and *Glyciphila fasciata*. A photograph of the latter may be seen in *The Emu*, vol. xv., pl. xxx.

Mr. Mathews is probably correct in separating these two singular nest-builders from the true *Glyciphilæ*, which construct open nests, usually in low situations.

Stigmatops ocellaris. Brown Honey-eater.

Stigmatops indistincta ovida.

The various races of this plain-coloured but sweet songster have



Nest of Brown-backed Honey-eater (*Glyciphila modesta*).



(Right) Nest of Yellow-spotted Honey-eater (*Ptilotis notata*).
(Left) Nest of Lesser Yellow-spotted Honey-eater (*P. gracilis*).

FROM A PHOTO, BY A. J. CAMPBELL.

perplexed ornithologists much. There was even a difference in two males which we collected in the same locality, but they were smaller than southern males. Again, the males are the larger of the two sexes, and possess more greyish heads than the females.

A characteristic nest, lined with a downy substance and containing a pair of almost spotless eggs, was taken in a *Callistemon* overhanging Kirrama Creek.

Ptilotis gracilis. Lesser Yellow-spotted Honey-eater.

Microptilotis gracilis imitatrix.

The smaller Yellow-spotted Honey-eater was frequently noticed. It sometimes came into gardens after the flowering orange-trees, and was generally amongst the honey-eating birds that gathered about the flowering trees of the scrub. A nest was secured at the edge of a scrub, in a low tree. It contained a pair of fresh eggs, and was lined with a snow-white downy material (? from seed of the *Lyonsia*, climber), the same as that used for the same purpose by the larger Yellow-eared Honey-eater (*Ptilotis chrysolis*).

We witnessed one of these Honey-eaters attacking a large spider upon its web. The bird made several attempts to take the spider, which always fenced with its legs and kept the bird at bay. After several more attempts at capture by the bird while on the wing, without success, the doubtful morsel was abandoned.

For nest see Plate VIII., left-hand figure.

Ptilotis fusca. Fuscous Honey-eater.

Paraptilotis fusca dawsoni.

These birds were always observed in forest country, and frequented the tall trees. Although not typical, this bird most resembles *P. fusca*, with its dark-coloured bill and breast, while its habits and call are identical with that bird's. Possibly it is the bird that Mathews has recorded from Cairns as *Ptilotula flavescens subgermana*, which is another species.

Ptilotis notata. Yellow-spotted Honey-eater.

For remarks see next issue of *Emu*.

Ptilotis macleayana. Yellow-streaked Honey-eater.

Caloptilotis macleayana.

This rare and fine Honey-eater was of especial interest to us, as it was first collected here by Broadbent, and Gould described one of the specimens from Rockingham Bay in 1875 as *P. flavostriata*—a very descriptive name; but Ramsay anticipated him earlier in the year by a specimen from Cooktown with the name *P. macleayana*.

It was interesting watching these birds feeding on the large, wreath-like, whitish flowers of *Darlingia* and among the honey-laden flowers of a climbing *Pisonia*.

Ptilotis versicolor. Varied Honey-eater.

Meliphaga versicolor.

This equally interesting large and yellowish *Ptilotis* we found in the mangroves, particularly near the mouth of the Meunga Creek. This bird has a loud and rather melodious call, and was seen feeding on the flowering mangroves.

[These birds also frequent the mangroves of Charo Bay, Cape York, where they were breeding in 1910.—H. G. B.]

Ptilotis barroni. Lesser Yellow-faced Honey-eater.

Paraptilotis chrysops barroni.

Although we heard the familiar "*chrysops*" calls along the Kir-

rama Creek, on the table-land, when we procured skins we found that they were smaller, decidedly darker, and had longer bills than the southern forms. The eggs were also smaller, but characteristic.

A nest found suspended in a *Casuarina* (27/10/16) was outwardly composed of green moss and portions of insect cocoons and web, and was well lined with fine rootlets and a few *Casuarina* needles. Dimensions over all, 3 inches across by 2 inches in depth.

Ptilotis flava. Yellow Honey-eater.

Broadbentia flava flava.

The *flava*, with its merry "Whee-a, whee-a" notes, is a favourite. It is found throughout scrubs, and always frequents the orchards and gardens when flowers are out. Its pretty nest, composed of brownish shreds of bark, was also taken and photographed.

Ptilotis frenata. Bridled Honey-eater.

Meliphaga frenata.

This dark-coloured Honey-eater is another of the fine feathered "citizens" of Cardwell, and one of the Broadbent discoveries. The discoverer states it "is a mountain bird."

We observed it at the creek courses in the hills, at the rear of Cardwell. Small parties used to come to the rocky pools to bathe. Sometimes a bird would peer inquisitively from behind a branch at the intruder before it would momentarily splash into the clear water.

[I first saw this fine species in Dalrymple's Gap, 1885, where numerous birds were feasting on the long, branching, dark red flowering spikes of a graceful umbrella-tree (*Brassaia*)—A.J.C.]

Meliornis herbertoni. Herberton Honey-eater.

Meliornis niger herbertoni.

This showy species, with golden-splashed wings, was one of the surprises of the table-land. It was fairly common amongst the red-flowering bottle-brush trees (*Callistemon*) that embowered Kirrama Creek. A nest was observed building down in the centre of a tuft of reeds surrounded by water, but the bird had not laid when we left the district.

The Herberton variety differs from the southern White-cheeked Honey-eater by its smaller size and brighter colouring.

It is strange Broadbent neglected to record the bird for this district, because there are several skins of his collecting in the Queensland Museum.

Myzantha garrula. Noisy Miner.

Myzantha melanocephala crassirostris.

This particularly common bird was seen, but not in numbers, on the table-land. As expected, it was slightly smaller in size.

Tropidorhynchus buceroides. Helmeted Friar-Bird.

Neophilemon buceroides buceroides.

At first, from field observation, we thought this large species was *argenteiceps*, because of its silvery crown, but on procuring a skin it was undoubtedly *buceroides*. Several of their large nests and handsome red-marked eggs were subsequently taken.

These big birds were always about the flowering trees, notably gums, and were very pugnacious towards smaller birds that came to the same tree.

Among the curious calls of this large Friar-Bird is one that resembles the words, "Poor devil, poor devil," repeated many times.

For fine photographs of the Helmeted Friar-Bird see *Emu*, vol. xv., pls. xlv. and xlvi.

Tropidorhynchus corniculatus. Friar-Bird.

Tropidorhynchus corniculatus ellioti.

This common kind was observed, and specimens secured, on the table-land. They are smaller birds (half an inch shorter on the wing), otherwise there is no appreciable difference of colouring, save perhaps a paler tint than the familiar southern Friar-Bird.

Pheilemon citreogularis. Yellow-throated Friar-Bird.

Micropheilemon orientalis johnstoni.

As in the case of the former Friar-Bird, this was smaller in size and slightly lighter-coloured in appearance; was observed only on the table-land, feeding on the flowers of the poplar gum trees.

Stagonopleura guttata. Spotted-sided Finch.

Stagonopleura guttata guttata.

Noted on the table-land—a new record for the district.

Munia castaneothorax. Chestnut-breasted Grass-Finch.

Lonchura castaneothorax castaneothorax.

A few of these Finches were seen in the rank-grassed places.

[During a previous trip—November, 1914—these birds were numerous in flocks on the Bellenden Plains, near the Upper Murray River.—A. J. C.]

For a group of these Finches at water, see *Emu*, vol. xv., pl. xliii.

Ægitha minor. Lesser Red-browed Finch.

Ægitha temporalis minor.

The well-known "Waxbill" was fairly common. It is more yellowish on the upper surface than the southern bird.

Neochmia phaeton. Crimson Finch.

Neochmia phaeton iredalei.

The choice-coloured Crimson Finches, although not numerous, were often seen, and were building at "Fringford" a farm on the Upper Murray.

Oriolus affinis. Northern Oriole.

Mimeta sagittatus subaffinis.

The well-known tremulous call of this Oriole was occasionally heard, and skins were secured for reference.

Oriolus flavicinctus. Yellow Oriole.

Mimeta flavocincta kingi.

The scrubs, especially by the streams, appeared to be the home of this handsome Oriole. The birds were so numerous in parts that at the early morn "babel of bird voices" the chorus of the loud bubbling-like notes of the Yellow Orioles drowned all others.

The birds frequently visited the orchards after cultivated fruit. They were pretty figures in the pa-paw trees. They were laying during October.

The Cardwell bird is larger and much brighter (more yellowish) in colour compared with birds from the Northern Territory—the type locality of *flavicinctus*; therefore Mathews's *kingi* would be an acceptable name to distinguish the southern and more handsome race.

Sphecotheres flaviventris. Yellow-bellied Fig-Bird.

Sphecotheres flaviventris flaviventris.

These beautiful yellow-breasted birds, with scarlet "facings," are

as common as Canaries. They love the precincts of dwellings, and frequently breed in the trees of gardens.

[When I was at the homestead of Mr. Isaac Henry, Bellenden Plains, November, 1914, Yellow Fig-Birds had nests in almost every orange-tree.—A. J. C.]

The birds are very noisy at times, and their chicken-like chirpings are a bit monotonous, especially at daybreak.

Chiblia bracteata. Spangled Drongo.

Dicruropis bracteatus bracteatus.

The Drongo was often seen, and might be sometimes mistaken for a Black Butcher-Bird as it darts through the timber.

If this bird migrates from New Guinea (one of us has observed it doing so), why does Mathews make two sub-species of the Drongo—one for Queensland and the other for Northern Territory?

Calornis metallica. Shining Starling.

Metallopsar metallicus purpurascens.

These socialistic birds with Starling-like activity arrived shortly after our appearance in the district, and subsequently a breeding-tree here and there in the scrubs was observed, notably at Deep Creek crossing and on "Crescent Lagoon" Farm, on the Upper Murray. The first young were hatched 10th October.

[During a collecting trip to Cape York Peninsula, in 1896, these birds were observed flying from a northerly direction in large and small flocks during September. They came across the open sea, and landed in the scrubs of the extreme end of the peninsula.—H. G. B.]

According to the statement of Mr. E. M. Cornwall, the *Calornis* breeds as far south as some of the islands in the Whitsunday Passage and on the mainland near St. Helens (Port Newry).

For a fine example of a *Calornis* nesting-tree see *Emu*, vol. viii., pl. xxvi.

Scenopæetes dentiostriis. Tooth-billed Bower-Bird.

Figures—*Emu*, vol. viii., pls. xxi. and xxii.

This remarkable bird was first observed in the hills behind Cardwell, and was found numerous in the Kirrama Range, where their playing-places were observed every hundred yards or so in the dense scrubs. By stealthily moving through "lawyers" and tangled scrub you come upon a chattering "Tooth-bill" perched a few feet above his play-ground. One play-ground we measured was a cleared oval place, 5 feet 7 inches long by 4 feet 4 inches broad. The cleared place contained 103 large, freshly-plucked green leaves, placed, without exception, the under side uppermost. We could not ascertain their botanical names, but there were evidently two kinds—a dark green and a lighter-coloured one—averaging from 7 to 9 inches in length by 3 or 4 inches in breadth.

Excellent pictures of play-grounds appear in *The Emu*, vol. iii., pl. xi., and vol. viii., pl. xxiii.; and of nests and nesting-sites; vol. viii., pls. xxxii. to xxxiv.

Ailurædus maculosus. Spotted Cat-Bird.

Ailurædus melanotus maculosus.

We observed Cat-Birds in the scrub by the sea, as well as in the mountains, where they were more numerous. They were laying during October. For illustration of nest see *Emu*, vol. viii., pl. xxiv.

Chlamydera orientalis. Queensland Bower-Bird.*Rogersornis nuchalis nuchalis.*

Only one bird made its presence known. It used to frequent a thick tree in the street near the post-office, Cardwell, where it sometimes mimicked cries of the Whistling-Eagle.

For illustration of play-bower see *Emu*, vol. viii., pl. xxxix.

Ptiloris victoriæ. Victoria Rifle-Bird.*Ptiloris paradisea victoriæ.*

The Victoria Rifle-Bird holds its own in fastnesses of the mountains, while one or two were heard or seen in lower localities, but always in dense scrub. A goodly percentage of the glorious full-plumaged males was observed.

GoULD, who was a keen observer of species, wrote:—"This Rifle-Bird is smaller in all its admeasurements than *P. paradisea*, and may be distinguished by the purple of the breast presenting the appearance of a broad pectoral band, bounded above by the scale-like feathers of the throat, and below by the abdominal band of deep oil-green, and by the broad and much more lengthened flank feathers, which show very conspicuously." Yet Mathews states the two birds are only sub-specifically different. The questions, then, are, what constitutes a species and what a sub-species? The Check-list Committee of the R.A.O.U. would do well to settle these questions before attempting to wade into the technicalities of nomenclature.

For a perfect picture of a nest of this Rifle-Bird, see *Emu*, vol. viii., pl. xxxv.

Corvus coronoides. Crow.*Corvus cecile queenslandica.*

Crows were not numerous. A few were noted on the table-land.

Strepera graculina. Pied Bell-Magpie.*Strepera graculina robinsoni.*

The Pied Bell-Magpie appeared to be confined to the ranges, where it was feeding upon native figs and other wild fruits. Ramsay probably made an error in recording *S. anaphonensis (cuneicaudata)* for this region.

Cracticus rufescens. Black (or Brown) Butcher-Bird.*Melloria quoyi rufescens.*

Although we were in the region of the Brown birds, those that came under our observation were invariably black, except in one instance. It is remarkable that there is a central belt of Brown birds in the Cairns and Tully River district, while on either side—at Cape York to the north and at Mackay to the south—the birds are always black.

The Black Butcher-Bird is a melodious songster. Its notes are rich and flute-like. One of its songs has three distinct notes interposed with softer ones. When sufficiently far enough away from the singer so as to lose the softer sounds, the three dominant notes remind you of the trivial round, "Three blind mice."

Several handsome sets of eggs were secured.

For nests *in situ* of the Black Butcher-Bird, see *Emu*, vol. iv., pls. vii. and viii.

Cracticus picatus. Pied Butcher-Bird.*Cracticus nigrogularis inkermani.*

This Butcher-Bird was noted on the table-land. Broadbent does

not record it. However, one (a female) in a state of semi-captivity at Cardwell interested us much. It was brought some years ago, when young, from the table-land, and reared by Miss Cook, of the Marine Hotel, who afterwards gave the bird its freedom. But it rarely left the precincts of the place. If hunting abroad by day, it usually returned to its cage at night. However, like the aborigines, the bird is tempted to "go bush" at times, and absents itself for several days. Once it travelled as far as the Upper Murray school, over 20 miles away, where some scholars recognized "Miss Cook's pet 'Butcher.'"

About the time of our visit to Cardwell the Pied bird attracted a Black Butcher-Bird, which used also to come into the house (*i.e.*, the kitchen) after meat. One day we were able to get a photo-snap of the black and white bird. This was fortunate, because she afterwards decamped for a period to the scrub with her bright black mate—most probably to nest. (See Plate IX.)

The mating of the Black species with the Pied one might throw some light on the proneness of the former to sometimes possess brown mates. In any case, it is not evidence in favour of Mathews's division of the genus *Cracticus* and his new name, *Melloria*, for the Black Butcher-Bird.

The distinctive duet of a mated pair of Pied Butcher-Birds is among the sweetest music of bush-birds. While performing, the pair courtesy to each other, and at the same time are answering other songful pairs, so that the woodland resounds, as it were, with a round of music.

Cracticus destructor. Collared Butcher-Bird.

Bulestes torquatus torquatus.

This common Butcher-Bird was found breeding on the table-land. Broadbent appeared to have missed it, while Ramsay stated it was the same as the New South Wales species. The song of this Butcher-Bird is five or six flute-like notes in distinct polka time.

Gymnorhina tibicen. Black-backed Magpie:

Gymnorhina tibicen terværeginæ.

Broadbent obtained the Black-backed Magpie, and, although we did not get a skin, we agree with him that it appeared to be the *tibicen*. Ramsay also identified the species, but stated they appeared smaller birds. Pairs were breeding near the Kirrama homestead, on the table-land.

Penguin Eggs.—Mr. Gaze, who has lately returned from the Antarctic, where he has been on the s.s. *Aurora*, states that the eggs of the Adelie Penguin were a welcome source of food supply to the explorers in those inhospitable and cold regions. He states that by taking the first clutch of two eggs the birds generally laid again, so that in some cases one pair of birds produced as many as seven eggs, but each clutch was smaller than those laid previously. There was only a few days' interval between the laying of the additional clutches. The birds themselves were also an additional meat supply, but were not quite as tender as seal-meat. Seal blubber was never eaten, but was used exclusively for burning, its smoke generally blackening the tent inside.—D. LE SOUËF. Melbourne.



Black Butcher-Bird (*C. v. n. n.*)



Pied Butcher-Bird (*C. v. n. p.*)



Description of Nest and Eggs of the Rufous-crowned Emu-Wren (*Stipiturus ruficeps*, Campbell).

BY H. L. WHITE, M.B.O.U., R.A.O.U.

Types.—Two eggs, swollen or rounded oval in shape; surface of shell fine and slightly glossy. Ground colour white (possessing a very slight trace of pinkish-buff), well marked all over, particularly at the larger ends, with spots and specks of reddish-brown, while intermingled here and there are a few of light umber.

Specimen A is heavily marked at the larger end, while the zone in specimen B is more irregular and broken and the markings smaller.

The eggs appear to be intermediate in size between those of *Stipiturus westernensis* and *S. mallee*.

(a) .60 x .47, (b) .61 x .47.

Nest an oval structure, with entrance at the side like the nest of *Malurus*. Composed of fine bark, grass, and spiders' webs, lined with feathers and flowers of shrubs. It was situated about 120 yards from the beach, and placed a foot from the ground in the middle of a small bush. When the bird got off the nest it fluttered through the undergrowth, and appeared again about 15 yards away on the top of another shrub. Two eggs were in the nest, with incubation about five or six days old, judging by their appearance when blown.

Taken for Mr. Rowland Archer by Mr. Jim Box at North-West Cape, Western Australia, on 13th October, 1916.

Description of the Eggs and Nesting-place of *Strix candida*, Tickell (*Tyto longimembris walleri*, Mathews), Australian Grass-Owl.

BY A. CHAS. STONE, R.A.O.U., SOUTH YARRA, VICTORIA.

THE rarity of the eggs of this bird must be my apology for the following extended description of them and the nesting-site.

Gould refers to them as being rare birds, but gives no information relating to either nest or eggs, whilst both Campbell and Mathews refer to Mr. J. A. Boyd as having found, on 1st June, 1884, in the Herbert District, Queensland, two nests of this bird, each of which contained three young ones and one egg, and that it was a curious fact that, though this bird always lays four eggs, he had never found more than three young ones in a nest, one egg always being addled.

On 9th May, 1917, Mr. Fredk. L. Berney wrote me to the effect that he had recently found a nest of *Strix candida* containing the unusual number of six eggs, and, as they were "not common," he was sending them down to me. Owing to his kind thoughtful-

ness they reached me in perfect condition on 21st May, 1917, and are now in my collection. The particulars are as follows:—

Set of six eggs found by Mr. Fredk. L. Berney at Torilla, 80 miles north-west of Rockhampton, Queensland; date, 19th March, 1917. Incubation, $\frac{2}{10}$. Colour, pure white. Surface, slightly glossy. Texture.—Finely pitted, with limy nodules irregularly distributed, being much thicker over the basal and zonal portions. Shape, slightly ovate.

Measurements in millimetres:—(1) 32 x 44, (2) 32 x 43, (3) 31 x 44, (4) 33 x 43, (5) 32 x 42, (6) 33 x 44, averaging $32\frac{1}{8}$ x $43\frac{1}{2}$.

No. 4 has the fewest limy nodules, and under the lens shows several scratches in the apical portion. No. 5 is the most spherical. No. 6 is somewhat nest-stained, and has several slight longitudinal creases up to 25 mm. in length.

Mr. Berney states:—"The eggs were laid on such grass as was trodden down by the Owls moving about under a clump of big, coarse grass about 4 feet high, situated on half an acre of dry land surrounded by swamp and marsh. Under this grass the Owls had trodden between the tussocks of grass a labyrinth of winding passages or runs, at the end of one of which were placed the six eggs. There is no doubt about the identification. The two old birds were at the nest when it was found."

Procellariiformes in Western Australia.

BY W. B. ALEXANDER, M.A., R.A.O.U.

ON 13th May, 1916, four days after a strong westerly storm, I found on the beach at Cottesloe a specimen of the Fleishy-footed Petrel (*Hemipuffinus c. carneipes*, Gld.) This bird had previously only been recorded from the south coast of Western Australia, between the Recherche Archipelago and Cape Leeuwin, so that the present record extends the range of the species some 200 miles northwards on the west coast. The specimen was too far gone for preservation, but the skull is now in the Western Australian Museum.

On a voyage from Fremantle to Melbourne in July, 1916, I made the following observations on birds of this group:—On the 15th we were off Cape Leeuwin, coming eastward, at about 8 a.m.; by 10 o'clock we were already being followed by about 30 individuals of *Thalassarche melanophrys*, amongst which were a few *Nealbatrus chlororhynchus*. At 11 the former were even more numerous, while the latter had completely disappeared. At 12.30 the first *Diomedea exulans* made its appearance, together with a pair of *Phaebetria fusca*. At 3.45 p.m. a single *Nealbatrus chlororhynchus* was observed, and this was the last seen on the voyage. All the way across the Bight *Thalassarche melanophrys* was the predominant species. Usually one or two *Diomedea exulans* were in sight, and in the western part of the Bight

Phœbetria fusca was seen at intervals. On 16th July *Daption capense* made its appearance, but by this time we were too far from the Western Australian coast to be able to count this as a Western Australian record. On the following day I saw a pair of black Petrels, which I think must have been *Procellaria parkinsoni*; but, though I watched them for a long time, they did not come very near the ship, and it is possible that they may have been *P. conspicillata*, and that the distance was too great for me to distinguish the white markings on the head.

The foregoing observations would hardly be worth recording except that they coincide so closely with Dr. Ferguson's notes in *The Emu* (vol. xv., p. 261), founded on observations made by him in January and August. They thus serve to strengthen the view maintained by Mr. G. M. Mathews that the birds of this order are not great wanderers, as has been generally supposed, but that most of the species, at any rate, occur in definite areas quite as sharply defined as those occupied by land-birds.

This is most strikingly exemplified by the Yellow-nosed Albatross (*Nealbatrus chlororhynchus*), which is evidently the common form on the west coast from the Leeuwin to north of Perth, a single straggler (the type of *Diomedea carteri*) having been obtained as far north as Point Cloates. Eastward of the Leeuwin, on the south coast, its numbers decrease very rapidly, and it has not yet been noted as far east as Albany. On this part of the coast it is replaced by the Black-browed Albatross (*Thalassarche melanophrys*), which extends from the Leeuwin eastwards along the coast and right across the Bight.

The Mutton-Birds appear to furnish a similar instance, as the Wedge-tailed Petrel (*Thyellodroma pacifica*) ranges from North-West Australia down to the islands off Fremantle, whilst the Flesh-footed Petrel (*Hemipuffinus carneipes*) is found along the south coast as noted above, and my record at the beginning of this paper shows that it straggles far enough north to overlap the range of the other species.

If other travellers will record their observations in *The Emu* we may be able to map out the distribution of some of the other species.*

In a previous article (*The Emu*, vol. xv., p. 182) I gave a list

* Since writing the foregoing I have crossed the Bight between Adelaide and Fremantle twice more—at the beginning of April and in the middle of May, 1917. On both occasions *Diomedea exulans* was observed right across the Bight, but at the latter date it was much more numerous, and was seen also off the south coast of Western Australia. On the former trip *Thalassarche melanophrys* was seen off the coast of South Australia and the south coast of Western Australia, but not on the voyage across the Bight; on the latter it was very plentiful right across the Bight. On the earlier voyage *Thalassogeron chlororhynchus* was seen between Albany and Cape Leeuwin; on the later one only one bird was seen, close to Port Adelaide. *Phœbetria fusca* was seen across the Bight on both voyages, but was much more plentiful on the later one, whilst on the latter *Phœbetria palpebrata* was also met with, one being seen in the western part of the Bight and several in the eastern part. No Cape Pigeons (*Daption capense*) were seen in April, but one was observed in the western part of the Bight on 19th May.—W. B. A.

of the Procellariiformes which had been recorded in various works as occurring in Western Australia, and stated that I thought a number of them must have been placed on the list hypothetically, and not because of any actual specimen or definite record being forthcoming. I there gave a list of the species of which there were actual specimens in the Western Australian Museum, and admitted also *Daption capense* and *Diomedea exulans*, though stating that I considered these required confirmation. That confirmation has now been obtained by the observations of Dr. Ferguson and myself, and we have both also recorded two species which I then rejected—*Thalassarche melanophrys* and *Phaebetria fusca*. Since I wrote that article I have discovered that in Grey's "Travels in North-West and Western Australia," published in 1841, there is an appendix containing a list of Western Australian birds, prefaced by the statement that "the following is an enumeration of the species which have come under the notice of Mr. Gould as inhabiting the Western coast." Among the "Natatores" are seven species of Procellariiformes—viz., *Diomedea exulans*; *D. melanophrys*, *D. chlororhynchus*, *D. fuliginosa*, *Procellaria gigantea*, *Puffinus brevicaudus*, and *P. chlororhynchus*. The only name in this list which calls for comment is *Puffinus brevicaudus*, which was at that time a *nomen nudum*, as no species was described under this name until 1847, when the bird was figured and described in Gould's "Birds of Australia." Gould refers to his own mention of the name in the *Ann. Mag. Nat. Hist.*, vol. xiii., p. 365, 1844. On the same page as this second reference to *P. brevicaudus* there is a description of *P. carneipes*, a new species from "the small islands of Cape Leeuwin." I think, therefore, that in 1841 Gould was under the impression that the Western Australian bird was the same as that from Bass Strait, and that the reference to *P. brevicaudus* in the list should be taken as referring to *P. carneipes*.

In 1847, in his preface to "The Birds of Australia," Gould gave a list of all the species, with crosses showing in which States they were found, and in this list no less than 23 species of Procellariiformes are marked as occurring in Western Australia. As Gould had not visited Australia in the interval, I think we must assume that most of the 16 species which he then added to the list of birds he had given six years previously were added for the reasons I have already suggested, and not because he had received specimens from Western Australia. The subsequent authors to whose lists I referred in my previous article evidently followed Gould's lead.

A PAIR of White-naped Honey-eaters (*Melithreptus lunulatus*) have built a nest near the top of a eucalyptus tree in the flight aviary in the Melbourne Zoo. The nest is about 30 feet from the ground. The hen bird is now sitting on her eggs.—W. H. D. LE SOUËF. Melbourne.

Description of a New Sub-species of *Platycercus elegans* (Gmelin).

BY EDWIN ASHBY, M.B.O.U., R.A.O.U., "WITTUNGA," BLACKWOOD, S.A.

Colour.—As compared with *P. elegans*, the adult birds of the form under review are scarlet rather than crimson; head, nape, rump, and lower back bright scarlet; hind neck, mantle, scapulars, and most of the greater wing coverts black edged with bright orange-red; patch on shoulder black; median and lesser wing coverts light blue; outer webs of primaries, secondaries, and some of the wing coverts, basal part of exposed portions of outer web, dark blue; central tail feathers dull green on the inner web, other portions of tail feathers blue, the outer four feathers broadly tipped with pale blue; chin or lower cheek blue; under side, including under tail coverts, uniformly bright scarlet; under side of tail feathers, with the exception of the broadly-tipped portions of the four outer feathers, deep black; under side of wing black, with the exception of the large shoulder patch, which is blue.

In less developed specimens, in the mantles and scapulars the edgings show more or less green, also some of the feathers on the nape and rump have pale edges. This race is distinguished from all other forms of *P. elegans* (with the exception of *P. adelaidæ*) by the scarlet colour replacing the crimson, and from the latter in the generally more brilliant scarlet plumage, and in the case of old specimens the green feathers on rump and back are entirely replaced by scarlet.

Habitat.—The Fleurieu Peninsula, South Australia, the extremity of which is familiar under the name of Cape Jervis. The peninsula was thus named at the time of Flinders and Baudin's exploration of St. Vincent Gulf; but later the name was dropped, until, in 1911, at the request of Count Fleurieu, the grandson of the famous French Minister, the name was replaced on the South Australian maps.

While we have recognized for a long time that a highly-coloured strain of the Adelaide Rosella was frequently seen in the neighbourhood of Myponga, and even extending as far as the Meadows, along the same range, it has fallen to the lot of Mr. Frank E. Parsons, R.A.O.U., and myself to locate the true home of these highly-coloured birds on the occasion of a rather hurried motor trip to Cape Jervis last Easter. I am indebted to Mr. Parsons both for specimens and help in attempting to elucidate the problem of this highly-coloured form.

We consider that their headquarters are between Normanville and Cape Jervis. Between Normanville and Second Valley every flock had its quota of highly-coloured birds. They were met with in numbers in the gums along the water-courses.

If it be decided to distinguish these geographical races by

trinomial designations, I suggest the name of *Platycercus elegans fleurieuensis*, or the Fleurieu Peninsula Rosella, for this form. On the other hand, should it be decided to make *P. adelaidæ* a dominant species, then this form under review and *P. flaveolus* would be sub-species of *P. adelaidæ*.

SUPPLEMENTARY NOTES ON THE FLEURIEU PENINSULA ROSELLA.
AND COMMENTS ON THE AFFINITIES OF *Platycercus adelaidæ*
(GOULD) AND *P. flaveolus* (GOULD).

I have collected specimens of *Platycercus elegans* from the western portion of Kangaroo Island and the Mount Gambier district of South Australia, Victoria, New South Wales, and Southern Queensland, and have specimens from Cape York, Northern Queensland. In Mr. Mathews's 1913 "List" the western form is called *melanopterus* (North), and the northern *nigrescens* (Ramsay), both sub-species of the intermediate or dominant form, *elegans*.

A comparison of these skins shows that the rich crimson coloration, subject to some divergence of shade, is persistent throughout the whole series.

Now, the Fleurieu bird, in the case of the adult specimen described, at first glance appears to have closer affinities with *P. elegans* than with *P. adelaidæ*, in that the whole of the green coloration is replaced with red; but on closer study it is evident that the character of the red links it up with *P. adelaidæ*, and suggests the possibility that *adelaidæ* is more nearly related to *flaveolus* than to *elegans*, of which it is made a sub-species in Mr. Mathews's 1913 "List."

On comparing the Fleurieu skins with those in Capt. White's, the South Australian Museum, and Mr. Parsons' collections, I find that, while no skins of *adelaidæ* show nearly as much red as the highly-coloured skin described, several skins exhibit nearly as much as the less brightly-coloured skins from Second Valley. Two of these highly-coloured skins in Capt. White's collection came from Mount Compass, a place distinctly within the range assigned to the new bird. The examination of a large number of skins establishes the fact that exceptionally bright *P. adelaidæ*, although rarely, do occur throughout the Adelaide Hills, that could not be specifically separated from the second class skins of the Fleurieu birds; but in the best the latter stands out as very distinct in the brilliancy and extent of the scarlet coloration.

We therefore establish the fact that skins exist that, when carefully selected and placed together, will show a gradual transition from the brilliantly scarlet bird of Second Valley to the more sombre green-backed and more or less green-rumped form so common in the Adelaide Hills.

But on carrying this investigation further I find that intermediate forms between *P. adelaidæ* and *P. flaveolus* are not only not rare, but there is every reason to believe that the substitution of pale yellowish-green on the back and almost yellow on

the under side, as occurs in typical *P. flavcolus*, for the scarlet and more sombre green of *P. adelaidæ*, largely corresponds with the decreasing rainfall.

My investigations lead me to the conclusion that *P. fleuricuensis*, *P. adelaidæ*, and *P. flavcolus* are all one species. The types of each race are certainly widely different, but undoubtedly intermediates exist, making one doubt the advisability of referring to any of them as other than varieties of the one dominant form.

The following notes on some of the skins examined should be of interest:—

Platycercus flavcolus (Gould).—Of two adult birds shot out of the same flock at Wirrabara, September, 1916—(1) shows red above beak, slight red wash over crown, upper side pale yellowish-green, and a considerable amount of red distributed over the general yellowish ground-colour of the under side. (2) Also red forehead, but the reddish-orange extends over the crown; upper tail coverts, outer ones broadly fringed with red, and some of the scapulars showing red; under side, breast and tail coverts bright red, with some yellow distributed throughout. Both were adult males. (3) Skin from Melrose, also in the Flinders Range, shows still more red both in upper tail coverts and scapulars. (4) Skin obtained at Watervale, April, 1914, by Mr. Parsons, has on the under side the general yellowish ground-colour of *P. flavcolus*, but the forehead and crown are bright red; the upper tail coverts have a considerable number of red feathers distributed throughout, and the general tone of the upper side is deeper than is usual in this species; some of the scapulars are brightly tipped with red, and the secondaries red-fringed; the breast and under tail coverts bright red and yellow; bright red distributed throughout the under side. (5) Skin taken by myself on River Murray, 12 miles above Mannum, is fully as red as any of the preceding, but has the mantle and shoulders almost black.

P. adelaidæ (Gould).—(6) Shot by myself at Kangarilla, in the Adelaide Hills, on 10th November, 1914, is almost identical with the foregoing, except that the pale yellowish-green fringe to the feathers of the mantle and scapulars is more marked.

Bird Notes from Tasmania.

BY H. STUART DOVE, F.Z.S., R.A.O.U., WEST DEVONPORT (TAS.)

The Black Strepera on the "Roof of Tasmania."—A friend who spends a great deal of time on the mountain plateaux of our island tells me that in a certain valley at high altitude it is the custom of the large "Black Jay" (*Strepera arguta*) to flock in the spring of the year in order to feed upon the native berries (*Astroloma pinifolium* and others) which are there in profusion. At this time the usually noisy *Strepera* is very silent, and one does

not know the birds are there until right in amongst them. Even then they do not care about moving far, and when forced to fly often do so in silence, although at other times the famous "klings-klang" notes (from which the species derived its name) are very much in evidence. My friend has the idea that the assembly is partly for the purpose of choosing mates for the ensuing season, but I think this is not so; the probability is that this fine bird, once mated, retains his partner for life. It has struck me that there may be some narcotic quality in the berries consumed at this period, which may account for the comparative sluggishness of this usually very alert species.

An Unusual Visitor.—A loud, clear, oft-repeated double whistle attracted my attention early in the morning of the 11th November, and, on going out to inspect, I found a Caterpillar-eater (*Lalage tricolor*) in one of the gum trees. He was very shy, and flew on my appearing, but next morning was there again; failing, however, to find a mate, to my regret he made a permanent departure. During a long residence on the coast, this is the first time I have encountered the bird.

Is the "Summer-Bird" a Migrant?—Some months ago a correspondent found fault with me (in a genial way) for referring in some notes which appeared in *The Emu* to our Summer-Bird or Small-billed Cuckoo-Shrike (*Graucalus parvirostris*) as a migrant. I was referred to Campbell's "Nests and Eggs of Australian Birds," p. 97, in which the author mentions having received the skin of a bird shot at Burnie in July, also that numerous observers testified to having seen the species in mid-winter. I admit the possibility of obtaining skins at that period. Exactly the same may be said of the Fan-tailed Cuckoo (*Cacomantis flabelliformis*), yet no one will, I think, deny that at least 90 per cent. of the latter recross Bass Strait to winter on the Australian mainland. My reasons for regarding our *Graucalus* as non-resident are briefly these:—(1) In springtime (September) I usually notice small parties coming across Devonport from a N.W. direction and passing away to S.E. or inland; (2) in autumn (March and April) small companies pass along this coast, flitting in a leisurely way from one group of gums to the next, but all coming from a general easterly direction and making west to north-west; (3) the very name by which the species is universally known here indicates that the early settlers regarded its advent as a sign of the approach of the warm season.

Some Birds in the Bush.—In October Mr. L. A. Thruston and myself had a run to the Gawler, on the North-West Coast, and, while my friend tried his lures on the elusive trout, I went off over hill and dale to find the Gawler Falls. After breasting a long hill with wooded bank on one side and deep timbered gully on the other, I reached more open country, and saw a nice lot of Firetails (*Zonaginthus bellus*), whose delicately-pencilled

plumage was finely contrasted by the brilliant red at the base of tail feathers. After ascending and descending a few more hills, the stream was again reached, and, turning sharp to the left along a narrow foot-track, the roar of the falls was soon heard. In the bush through which the track presently passed the persistent call of the Olive Thickhead (*Pachycephala olivacea*) struck upon the ear; those strange notes—"I'll-whit'-yu, I'll-whit'-yu," the first syllable somewhat drawled, the second clear and incisive—seemed in harmony with the voice of the waters.

During the present month of November, Mr. and Mrs. Thruston took me for a pleasant day's outing to the Mersey, above the shale mine, where the river is very charming. Some Robins' nests in hollows of charred stringy-bark trees were found, probably those of the Flame-breast (*Petroica phænicea*), as these were the only Robins seen in the vicinity. The young had left the nests, which were about 4 feet from the ground, and formed of strips of stringy-bark interwoven, the lining being of fine bark from the same species (*Eucalyptus obliquus*). The mud nest of the Welcome Swallow (*Hirundo neoxena*) was also found, about 9 feet from the ground, in a hollow, burnt-out gum tree. We boiled the billy on a shingle-bank adjacent to the stream, and while there noticed a Pipit (*Anthus australis*) very busily picking insects from among the shingle-pebbles. A Wood-Swallow (*Artamus sordidus*) was coursing up and down over the water, taking insects as the common Swallow does, but at a much higher elevation (15 to 30 feet), and in a more leisurely fashion, while the Welcome Swallow beat swiftly backwards and forwards just over the surface, and the Tree-Martin (*Petrochelidon nigricans*) generally kept a few feet higher. Seemingly they were in different strata of insect life. A pair of Flame-breasted Robins—the male in fine plumage—perched on snags projecting from the water, while a male *Malurus* of almost black coloration flew into a sapling near by. The sweet calls of the Grey-tailed Thickhead (*Pachycephala glaucura*) fell frequently upon the ear, much difference being observed in the call-note of individual birds; none of its congener, the Olive Thickhead, was observed in this locality. The charming notes of the Yellow-throated Honey-eater (*Ptilotis flavigula*) were much admired in the belt of saplings close to where Mr. Thruston's car was left while we explored the bush.

MR. E. J. Banfield, of Dunk Island, Queensland, is troubled with brown snakes. His dog killed one lately about 6 feet long, and through the wound a hen's egg was extruded, which shows that these reptiles are not above eating eggs when they get the chance.
—W. H. D. LE SOUËF. Melbourne.

Queensland Notes.

FROM A. H. CHISHOLM, R.A.O.U., BRISBANE.

Bird-Life in Far North.—Since the Gould League of Bird-Lovers has become firmly established throughout Queensland, many interesting notes on birds have been written by children and teachers in various parts of the State. A case in point is a letter I have from the head teacher of a small school beyond Cairns. Extracts follow:—

“I have been trying recently to find out particulars of a migratory bird which has been puzzling me for many years. It has, however, again departed, leaving me but little the wiser for my observations. The bird is small and brown, with a buff-coloured breast, and may be a Honey-eater. It has a beautiful song, quite out of the common, and absolutely different to any other bird I have ever heard. I am enclosing herewith an attempt at the song for piano. The local aborigines call the sprite the ‘Jan-da-berry’ bird, from the notes—‘Jan-da-berry, pe-ta, pe-ta’—which are repeated over and over in a high-pitched whistle. I have lived at this place for 25 years, and have noticed this little bird every year, and always wait for its song. It arrives with the first general rains about the end of December, and stays until about the middle of April. The nest is suspended, and generally built in *débris* left on branches by the floods. I spent 12 months on the islands in Torres Strait, and visited several parts of Papua, but saw no trace of the ‘Jan-da-berry’* in those places.

“The children here, as well as myself, have often noticed an act of the Apostle-Bird (better known in this district as the ‘Squawker’) which I have not seen it credited with in any of the bird books. We have seen a company of these birds bear down in full force on the nest of a Pee-wee (Mud-Lark), chase the rightful owners away, and take possession of the nest. In the books they are credited with building mud nests, but we have never seen them do so; always, relying on numbers, they take the nests of the Pee-wees. At one nest here one of the school-boys had to interfere to save the lives of young Pee-wees. To its own species, however, the Apostle-Bird is most faithful. I have seen men here shoot one and break its wing, and, when it squawked, the whole flock, numbering nearly 100, flew around, some even settling on the man. Shooting some will not drive the others away on such an occasion.

“The Cuckoo-Shrike (or ‘Blue Jay’) never leaves this district, and must live to a considerable age. There is a big tree close to my house, and in this two of these Shrikes have built their nest for the past 14 years. The nest is very small and difficult to see. One wonders how such a big bird can sit in it.

“The Black-and-White Fantail builds a pretty nest of very

* Probably *Gerygone levigaster*.—A. H. C.

fine tea-tree bark. We watched a certain pair of these birds build a nest and rear their young, and afterwards saw a Dove take possession of the nest. The Dove has since returned and reared a second family *in the old nest of the Fantail*.

"The Channelbill, also the Black and Speckled Cuckoos,* visit this district always before the rain, about October. Our notes, extending from 1915, give their arrival dates as about 5th October, and not, as Leach says, with the floods. These birds never come with the floods; they arrive well before that period, and depart when the floods are over. The Black Cuckoo is a noisy gentleman, and howls his 'Coo-ee' all night long. Miners who work night-shift often vow vengeance on him for keeping them awake. The Speckled Cuckoo lays her eggs in nests of the Leatherhead, and I have often seen keen battles for the privilege. The Australian Roller always comes here after the first rains and stays until the Cuckoos depart. He seems very fond of sitting high on a dead tree.

"The Sanguineous Honey-eater visits this district about the same time as the 'Jan-da-berry,' and I often see the little 'Red-head,' as the children call it, flitting among the trees. Then, when the tea-trees are in blossom, the Blue Mountain Lorikeets come here in millions, followed about a week later by the Friar-Bird (Leatherhead). The Lorikeet is much the quicker flier of these two birds.

"In regard to late nesting, I noticed only recently a nest built of long grass-seeds woven neatly together and suspended on a low bush. Two fairly large mottled eggs were in it at the time, and yesterday (29th April) there were two young ones. This nest belonged to birds we know as 'Australian Canaries.'

"I am pleased to say that, since the certificates of the Gould League of Bird-Lovers were distributed here, fewer birds have been destroyed. The chief offender was always the 'new chum.'"

Ways of Emu.—In a recent discussion in the Brisbane press on events of 50 years ago, an old colonist contributes the following interesting notes on Emu:—

"Before I was 20 years old I had charge of the Emu Holes cattle station, Mookii River (pronounced Mukhi). Emus were fairly plentiful on those plains, and I have now and then run one down. No ordinary horse could run down an Emu in a long chase the same as he would a dingo or a kangaroo, if you did not bustle along at first. After going about a mile the Emu would put up his head and go steadily for a few hundred yards, and seem to take a second wind, then stretch out his neck and lay himself out to go; and he would, too, and keep it up. The horse would be run down before the Emu. The way to catch an Emu is to lay up your horse's neck so that the Emu cannot tell what sort of an 'animal' it is. I have often got within a hundred yards of them by walking straight towards them, so that they did

* Probably male and female of *Eudynamys cyanocephala*.—A. H. C.

not get a side view. As soon as they started to run we went for the one intended to be caught as fast as the horses could carry us, and yelled and made as much noise as possible. The Emu, instead of running steadily, then staggered along. When near enough the stockwhip was swung overhead in circles, and the lash continually dropped on him, when he went head over heels from fright. The Emu's heels are his only weapon. I have been kicked twice with Emus, and it is no joke. When an Emu is being run fairly close, if there is any cover under which he can hide his head he will often do it, for he seems under the impression that if he cannot see you you cannot see him. On Liverpool Plains there is a bushy weed called 'roly-poly.' It breaks off near the ground, and is blown about by the wind into large balls. I have on several occasions seen an Emu, when frightened and tired, run up and push his head under a clump of roly-poly, and stand so still that on two occasions I tied his legs together with my stockwhip. Of course, I took care not to get behind him, for fear he should kick. I never saw an Emu strike to the side—he always kicked straight back. I seldom bothered to run them; when I did I always picked a half-grown one, for it is bad enough to get kicked by a half-grown one, and a young one may be a bigger fool than an old one. I think Emus do not learn from experience, as the following will show:—There was a tame Emu at the head station at Wolhollow. A screen was put about half-way up the kitchen window to prevent him putting his head in and snatching from the table anything that took his fancy. He could get his head over the top of the screen, but could not reach down to the table. When the meat was being cooked in the old long-handled bush fryingpan I used to take a piece of it on a fork hot from the pan and give it to him over the screen. He always grabbed it, but as soon as it burnt his mouth he seemed in a hurry to swallow it, and if it was a big piece he used to get it down his neck about a foot, at the time walking round with his mouth wide open, saying 'Wheep' in a most disconsolate manner. He never seemed to learn that it burnt his mouth and neck, and was always ready for another piece. Meat treated with black pepper was also given to him, but he always swallowed it. I did not do this for cruelty, but just to find out if it was possible for an Emu to learn by experience. When I was satisfied that he could not learn I often fed him, and burnt his mouth no more. He had his little joke, too, for when a strange dog came on the station he would run round, passing close to the dog, trying to coax the animal to chase him. If successful the Emu would slow down, and the dog got a kick that astonished him. I do not recollect any dog trying to catch that Emu a second time. I had cattle dogs that would heel cattle and horses, but I never saw one of them try to heel an Emu.

“Captain Francis had a tame Emu at Folkstone, Breakfast Creek-road. I was very intimate with the captain, and one day when I was at Folkstone the Emu was squatting down and did not seem

to want to get up. I said, 'Captain, your Emu is a bit seedy.' He then told me that his man had been going to do some painting, and had left a large pot of green paint for a little while. The Emu had eaten all the paint, the colour having apparently taken his fancy. It did him no harm, however."

Another old observer, writing of the blacks and Emus, says:—"If a red-coloured blanket is hung out the Emu will not leave until he has come close enough to see what it is. I once did this, and brought nine Emus close to the house, and then got the gun to shoot one. But it seemed a cruel sin to fire on the beautiful birds, and I could not. We had a black man on our station, however, who could imitate an Emu to perfection. The evening suited exactly. Light clouds partly hid the moon, and we had a surprise for the young people. The black only had his grey blanket and a stick for the neck of the Emu, his hand inside the blanket for the head; and thus equipped he personified the Emu so well that at ten yards distant no one could have known but that it was one."

Ourselves.

THE first re-union of members of the Union took place on the evening of Thursday, 24th May, 1917. A dinner was held first at Nissen's Exchange Hotel, at which 21 members were present, and an adjournment was then made to the room at No. 2 Temple Court, where seven more members joined.

Mr. D. Le Souëf was voted to the chair.

Details as to the proposed future re-unions were discussed.

Mr. J. A. Kershaw stated that as soon as the "H. L. White collection" of skins had been received by the National Museum he would inform the Council; also that the skins could be seen there at any time during the day when the Museum was open, as well as on one evening a month by members of the R.A.O.U. only. The room in which they would be kept was well lighted and had seating accommodation.

A hearty vote of thanks was unanimously passed to Mr. H. L. White for his generous gift of Gould's "Birds of Australia" to the library of the Union.

The bird skins, eggs, books, and other property of the Union were inspected.

LEGAL POSITION OF THE R.A.O.U.

At a meeting of the Executive Council of the State of Victoria on 29th May, 1917, His Excellency the Governor of Victoria consented to the use of the word "Royal" in the name of the company known as the "Royal Australasian Ornithologists' Union."

All legal preliminaries being now in order, registration of the Union as a no-profit company will soon be completed.

IMPORTANT NOTICE.

The monthly re-union of members in the R.A.O.U. room at 2 Temple Court, Collins-street, Melbourne, has been fixed for the first Wednesday in each month, at 8 p.m. The subject for the August meeting will be "Penguins," illustrated by lantern slides, specimens, &c. The subject in September will be "Honey-eaters," and that for October "Crows and Crow-Shrikes." Members are requested to bring or send any specimens, lantern slides, or photos. they may have of these birds.

The Council welcomes suggestions from members as to subjects for future meetings. They would also strongly impress on members the value of keeping a record of the arrival and departure of migratory birds, and any details they may note regarding the same.

The Greatest Victory for the Birds of America.

BY W. T. HORNADAY.

WITH record-breaking celerity the international treaty between Canada and the United States for the federal protection of all the migratory birds of North America north of Mexico has been ratified by Congress, and is now a law. It was initiated over two years ago by Senator George P. M'Lean, of Connecticut, in a Senate resolution. At that time President Wilson wrote a letter to Secretary Bryan, approving the idea, and requesting its advancement.

After a great amount of labour in Canada, in which Dr. G. Gordon Hewitt, of the Canadian Department of Agriculture, played a very important part, the treaty was finally sent down from Ottawa early in August for ratification by this country. On 16th August it was signed by Secretary Lansing and Sir Cecil Arthur Spring-Rice, British Ambassador.

By the President it was transmitted to the Senate on 22nd August. It went to and through the Committee on Foreign Relations in a few hours; and Senator James A. O'Gorman, fully resolved to secure action at this session, was designated to take charge of it on the floor of the Senate. For several months past Senator M'Lean has been hard at work paving a broad and smooth road for its passage.

On 29th August it was brought before the Senate, and quickly ratified by a two-thirds majority. The swiftness with which Congress did its part in the matter amazed and delighted the defenders of the birds. That quick action is the Senate's answer to the very bitter and abusive attacks that have been made on the federal migratory bird law and its defenders by Senator James A. Reed, of Missouri, and a few of his duck-shooting constituents who vehemently demand duck-shooting in spring as a special privilege.



White-shafted Fantail on nest after a shower of rain, Vasse River, W.A.

Once more the United States Senate has added to its fine and quite unbroken record in the enactment of sane and reasonable wild-life protection laws. The ratification of that treaty is the most important and far-reaching step in the protection and increase of birds that ever yet has been taken in any country! It extends the strong arm of federal protection over about 1,022 species and sub-species of the most valuable and interesting birds of North America.

The news of the event of 29th August will be read with thrills of pleasure by the millions of farmers, forest owners, bird-lovers, and sportsmen who are interested in the increase and perpetuation of the birds of North America.

Except to Senator Reed, the people of the United States owe to the President, the entire Senate, and above all to Senator M'Lean, a profound and lasting gratitude.

Camera Craft Notes.

White-shafted Fantail on Nest.—Owing to its tameness, the White-shafted Fantail is one of the easiest subjects for bird-photographers, yet the accompanying illustration, taken by Mr. P. D. Montague, will not easily be beaten. The nest, with its characteristic tail beneath, was situated in a bush overhanging the Vasse River, near Busselton, Western Australia, and the water forms a background to the picture. The photograph was taken during a shower of rain, and drops of water cover the back and tail of the Fantail and hang from the twigs of the bush. The Western White-shafted Fantail was named *Rhipidura preissi* by Cabanis in 1850, but there can be little doubt that Mathews is correct in regarding it as merely a sub-species of the bird found all over Australia. Its nest and its habits, at all events, are similar on both sides of the continent.—W. B. ALEXANDER.

* * *

Nesting of the Yellow-throated Honey-eater (*Plilotis flavigula*) in Northern Tasmania.—During the month of October, 1916, I had the pleasure of accompanying Mr. H. C. Thompson to a gum-tree hill which is used by several pairs of "Yellow-throats" as a breeding-ground. The bush thereabouts looked very beautiful with white clematis and blue *Comesperma* twining among the scrub, while maidenhair fern grew in profusion over the moist soil. The nests of the Honey-eaters were placed in large *Lepidosperma* tussocks, and were of the open cup pattern. A pair of adults fed their young on the ground close to us; the latter were lately fledged, and had yellow throats and ear-tufts, were of a yellowish tint on the upper surface, the head darker than in the adult, but a tuft or two of nesting-down still remained there. The parents were in beautiful golden plumage. The

female almost alighted on us when my friend took one of the youngsters in his hand, and the melodious call-notes of this species resounded through the grove. One of the nests found was suspended between the base of a white gum sapling and a bracken fern, being bound to a frond of the latter; it was of a coarse native grass, with finer kind within, and lined with sheep's wool. Some spider cocoons had been placed upon the outside of the nest, which practice is adopted also by the White-eye (*Zosterops caerulea*). This structure was nearly a foot from the ground, and measured 4 inches across top over all, $2\frac{1}{2}$ inches across top inside; the depth outside was $5\frac{1}{2}$ inches, the egg cavity being 2 inches deep. Another, placed in the centre of a large *Lepido-*



Yellow-throated Honey-eater (*Ptilotis flavigula*) in tussock, just after leaving nest, N. Tasmania.

PHOTO. BY H. G. THOMPSON. R.A.O.U.

sperma tussock, was of the same material as the first, but had a fine wool lining to the rim, with tussock-blades interwoven, these blades extending 4 feet above the nest. Measurements:— $3\frac{1}{2}$ inches across top over all, $2\frac{1}{4}$ inches across top inside, $3\frac{1}{4}$ inches depth outside, 2 inches depth of cavity. A third was lined almost entirely with fine grass, just a tuft or two of wool, one or two spider cocoons on the outside; two or three blades of the tussock were woven into the sides. This nest was quite open to the sky, except for the slight protection afforded by small gum branches overhead. Measurements:— $3\frac{1}{4}$ inches across top over all, $2\frac{3}{4}$ inches across top inside, $2\frac{1}{2}$ inches egg cavity. The distance from the ground to the top of the nest was only 9 inches. The

last one found was 1 foot 7 inches from the ground to the top of nest; the material dry native grass, as in the others, with a wool lining. There were three eggs reposing upon the wool, of a creamy-white ground, with burnt sienna spots at the larger end. These eggs measured, approximately, 1 inch in length by $\frac{3}{4}$ inch in diameter. The measurements of nest were:— $3\frac{1}{4}$ inches across top over all, $2\frac{1}{4}$ inches across top inside one way by 2 inches the other, $4\frac{1}{2}$ inches depth outside, $2\frac{1}{4}$ inches depth egg cavity. Part of the rim was bound to *Lepidosperma* blades with strands of sheep's wool.—H. STUART DOVE, F.Z.S., R.A.O.U.

Correspondence.

To the Editors of "The Emu."

SIRS,—The Executive Committee of the Advisory Council of Science and Industry have had brought to their notice the desirability of further knowledge as to the food of Australian birds. It has been suggested that if the stomachs of all wild birds shot were preserved and their contents identified by experts great additions to our knowledge would be made.

Mr. A. M. Lea, F.E.S., Entomologist of the South Australian Museum, is at present engaged on a research on this subject, with the assistance of other specialists in the identification of seeds, molluscs, &c. The committee consider that members of the Royal Australasian Ornithologists' Union will no doubt be glad to assist Mr. Lea in this valuable work by forwarding him the stomachs of any birds they may shoot; all such assistance will be acknowledged by Mr. Lea when publishing his results.

After skinning a bird the stomach should be removed and placed in methylated spirit, together with a label giving the following particulars:—Name of bird (scientific name, if known), collector's name, locality, month and year. If several stomachs are placed in the same jar or tube of spirits, each stomach with its label should be wrapped and tied separately in a piece of muslin or cloth.

Birds whose stomachs are specially wanted by Mr. Lea are the Emu, Bustard or Wild Turkey, Native Companion, and Crows, but Mr. Lea desires it to be emphasized that he does not wish birds to be specially shot for the purpose of securing their stomachs.—Yours, &c.,

GERALD LIGHTFOOT,

Secretary Executive Committee Advisory Council of
Science and Industry.

314 Albert-street, East Melbourne,
29th June, 1917.

[It is expected that R.A.O.U. members will heartily co-operate by providing material for this important scientific research.—EDS.]

FOOD OF AUSTRALIAN BIRDS.

To the Editors of "The Emu."

DEAR SIRs,—Many details of a fragmentary nature have been published on the food of Australian birds, but at the present time a systematic examination of the contents of as many stomachs as possible is being made by Mr. A. M. Lea, F.E.S., the Adelaide Museum Entomologist, who has already listed the contents of about a thousand stomachs. He would be glad to receive bird stomachs from all parts of Australia. They could be sent to the Adelaide Museum in spirits, or in tins with rags saturated in spirits (so as to arrive in Adelaide in a damp condition). When sending the stomachs the following particulars are desired:—Name of bird (technical, if possible), month when obtained, locality, and collector's name. If the birds have been poisoned, it is also desirable to mention that fact. In particular, he would be glad to receive stomachs of large birds, but especially desires to state that he does not wish any birds to be specially killed for the purpose of this investigation.

Due credit will be given to all those who send stomachs when the results are published, and will be acknowledged as received.—
Yours, &c.,

S. A. WHITE.

Wetunga, S.A., 14/5/17.

To the Editors of "The Emu."

DEAR SIRs,—On page 175, vol. xvi., when referring to *Milligania robustirostris*, I gave Mr. Milligan credit for discovering this bird. Mr. Milligan described the bird, and gave credit to Mr. F. Lawson Whitlock for unearthing it.

In a recent letter Mr. Whitlock says:—"Possibly you did not know that the *Acanthiza* are quite absent from the Pilbarra Goldfields. I did not see a single example of any species on the Coongan, Nullagine, or De Grey Rivers. The same at Port Hedland and Condon on the coast." A little farther on Mr. Whitlock adds:—"Acanthiza tenuirostris is a bit of a puzzle in its distribution. In this State it seems to be confined to the interior, and only to haunt the samphire flats at the big salt lakes."—
Yours, &c.,

F. E. HOWE.

Canterbury, 14/4/17.

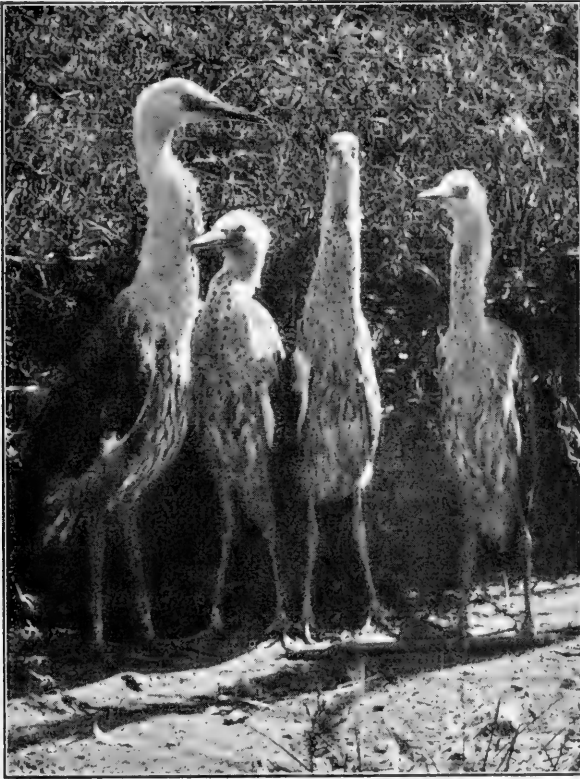
Stray Feathers.

Taronga Park Notes.—A white Emu received seven years ago has very gradually been turning brown, and has never developed the dark grey colour of the ordinary bird. One eye is white and the other is brown.

White Eagle-Hawk.—This bird, which was received about six months ago, had two or three brown feathers on it, but since then

a fair number of brown feathers have appeared on the wings and back. The irides are light colour.

It is very interesting to note how soon birds become used to blasting. During the erection of Taronga Park a good deal of blasting has been done, but the wild birds soon learnt that it did not do them any harm, and the Shrike-Thrush, Blue Wrens,



Adult and three young of Pacific Heron (*Notophoxyx pacifica*),
captured at Narrandera, N.S.W.

PHOTO BY D. LE SOUËF, C.M.Z.S., R.A.O.U., TAKEN AT
TARONGA ZOOLOGICAL PARK, SYDNEY.

"Jackie Winters," Flycatchers, Shrike-Robins, Shrike-Tits, Honey-eaters, and several other species have nested in the grounds, often very close to where the men are working.

It was also very interesting to note the other day a "Willie Wagtail" picking flies off a lion's back. The lion was lying very contentedly, and paid no attention whatever to the bird.—A. S. LE SOUËF. Zoological Gardens, Sydney, 15/1/17.

Extended Distribution of *Phaëthon rubricauda*.—A specimen of the Red-tailed Tropic-Bird was found dead upon the South Arm beach of the estuary of the Derwent River, Tasmania, on 25th February, 1917, the specimen being passed on to me by Mr. Geo. Griffiths while still in a fresh condition. Apparently it is a new record for Tasmania, and its most southerly recorded range to date. It was an adult female, in perfect plumage, but in poor fleshy condition, there being no fat between the skin and the trunk. I should say it was a prey to the easterly gale blowing about the time of its death. Buller has reported that specimens have been washed ashore on the North Cape of New Zealand as the result of easterly gales. It is only an occasional visitant to the North Island of New Zealand, while southern Tasmania is in a much higher latitude, and quite beyond the range of the normal habitat of the species.—ROBERT HALL.

* * *

***Myzantha garrula*.**—The writer has been but one month in this glorious north-west of New South Wales. Bird-life is remarkably plentiful, and, whether from the abnormally prolific season or not the writer does not claim to know, many young broods are still to be found. On the 18th inst. he witnessed a stirring example of the strong parental love of the Noisy Miner (*Myzantha garrula*) for its young. One of the parent birds had just fed the young brood when a fine specimen of the Brown Hawk (*Hieracidea orientalis*) swooped down, and, seizing a young one, flew off with the plump young bird. The unfortunate parents vigorously attacked, daring to even light on the back of the rapidly-flying Hawk, from whose suspended legs hung the intended victim. As the trio disappeared through the timber the shrieking parent was on the back of the Hawk, fiercely but unavailingly pecking the feathers of the bird of prey, who was hotly pursued by scores of other noisy birds, but chiefly Miners and Grallinas.—S. A. HANSCOMBE. "Gleness," Warialda Railway Station, 19/2/17.

* * *

The Allied Harrier.—While on a driving trip along the north-west of Tasmania in December, 1916, and January of the present year, in company with Mr. W. G. Buck, we were greatly struck with the large number of Harriers (*Circus gouldi*, Bp.) which were visible during our journey. Almost every large paddock appeared to have its individual or pair of these fine Hawks hunting over it for prey. This increase in numbers we attribute to two reasons—(1) owing to the heavy rainfall of spring and early summer, there was a great growth of green feed and a heavy yield of grain, and a proportionate increase in the rabbits and rats which form the chief prey of the Harrier; some of the stacks we saw had the sides and thatch riddled with holes made by the bush rats. (2) A great many of the farmers' sons, who carry guns and have a

bang at the Hawks as a matter of course, not knowing they are destroying good friends, are away from the Commonwealth just now, so that the Raptorees have a chance to increase. The Harrier, on clear, warm afternoons in summer, has a habit of mounting high in the air and circling in a leisurely fashion at this altitude, as if for pure enjoyment.—H. STUART DOVE, F.Z.S., R.A.O.U. W. Devonport, Tasmania, 10/2/17.

From Magazines, &c.

The Value of Sub-species.—In *The Ibis*, January, 1917, p. 120, Mr. Gregory M. Mathews has contributed a most important letter. It speaks for itself, and terminates thus:—"I have concluded that the value of sub-species is almost negligible in Australian ornithology. In the Palæarctic Region they may be useful, but even here I think that they have been much over-rated; while if large series are examined from Australia, very many sub-specific forms can be differentiated, but larger series always link most extreme cases up very quickly. Consequently, in my 'Birds of Australia' I have depreciated sub-species. . . . This course was adopted nearly two years ago."

Mr. Mathews is to be congratulated on the frankness of this admission. Many of his best friends in Australia were getting bewildered in the mazes of his sub-species and consequent nomenclature, while he will win many who were flatly opposed to his system. But, in fairness to both supporters and opponents, Mr. Mathews, likewise in justice to himself, not to mention *the science*, should have made known the purport of his letter, considering that he changed his attitude regarding sub-species "nearly two years ago." No people are more interested than Australians in Mr. Mathews's work.—A. J. C.

Obituary Notice.

NORTH.—On the 6th May, 1917, at his residence, "Hillcrest," Darling-street, Chatswood, Sydney, Alfred John, the beloved husband of Clara R. North, and second son of the late Henry and Mary T. North, Moonee Ponds, Victoria, Ornithologist to the Australian Museum, Sydney, aged 61 years.

THE friends of the late Mr. A. J. North, C.M.B.O.U., will greatly regret his demise, which occurred somewhat suddenly from heart failure on Sunday, 6th May. His remains were buried at the Gore Hill Cemetery, Sydney.

The late ornithologist was born 11th June, 1855, at North Melbourne, and was educated at the Public School, and subsequently at the Grammar School, South Melbourne. He was apprenticed to the jeweller's trade, and worked assiduously at his

calling many years for Mr. Henry Young, then in Little Collins-street, Melbourne. He joined the Australian Museum, Sydney, in December, 1886, when he was engaged temporarily to write a "Catalogue" of Australian eggs (No. 12 of the Australian Museum), which appeared in 1889. In August, 1891, Mr. North was permanently appointed Assistant in Ornithology, a position he held till his death.

Mr. North contributed to various scientific periodicals, including the "Records" of his own institution, but his greatest work was the "Special Catalogue No. 1," being the second edition of "Catalogue No. 12," entirely rewritten, with additions, and styled "Nests and Eggs of Birds Found Breeding in Australia and Tasmania," in four volumes, quarto size, and published by the trustees, under Mr. R. Etheridge, J.P., curator. The work was adorned with excellent type-blocks of many birds, while the egg illustrations were by process photography, a small edition being hand-coloured. Although an inordinate length of time was taken in the publication of the work, it reflected much laborious toil of a painstaking kind by the author, and was wonderfully accurate. It was what was omitted that disappointed students. Mr. North had a dread of amateur contemporary writers, and, rather than incorporate anything that he deemed doubtful, ignored the authors altogether. This, however, did not detract from his personal work, which was much, in the interests of Australian ornithology.

For his ornithological attainments Mr. North was elected a Colonial Member of the British Ornithologists' Union—an honour which can only be held by ten persons at one time in the British Overseas Dominions. He was also a Corresponding Fellow of the American Ornithologists' Union. Mr. North did not associate himself with the Australasian Union, probably because for many years his health was extremely delicate, and he had not strength to attend regularly at his Museum, or to do much work.

Mr. North was an original member of the Field Naturalists' Club of Victoria, and remained a member for over 30 years. In boyhood's days his first field outings were along the foreshore of the bay between Sandridge (now Port Melbourne) and St. Kilda, where Red-capped Dottrels used to nest on the sand and "Tangs" (*Ephthianura*) bred in the short *Ricinocarpus* bushes, while many first bird-observing lessons were gained among the manna gums and by the rush-covered natural lagoon which teemed with waterfowl in Albert Park.

Mr. North, in his day, was a swift athlete, and one occasion, with a few yards handicap, he beat L. L. Mount, the Canadian champion. Mr. North was younger brother to Bendigo's successful citizen, Mr. H. Y. North.

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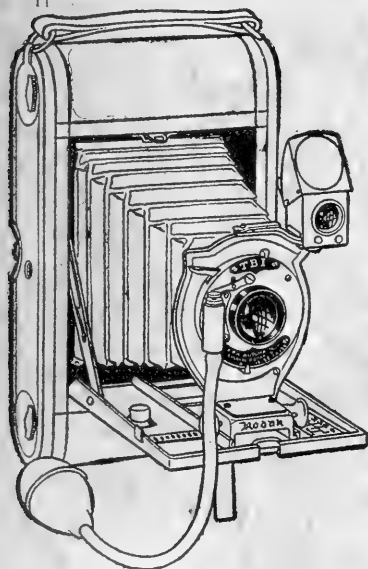
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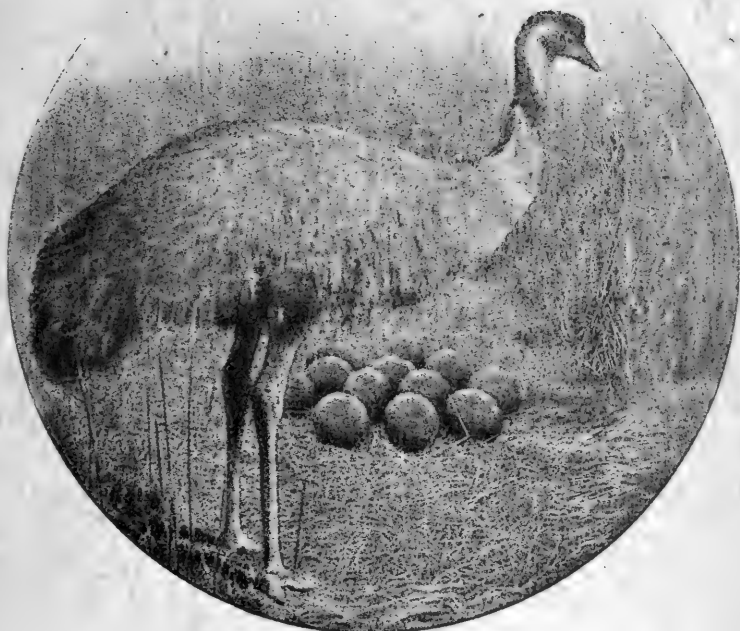
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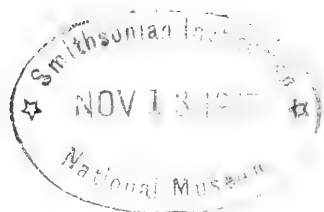
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THE YELLOW-BREADED BUSH-CHAT.

Ephthiamura crocea

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

VOL. XVII.]

1ST OCTOBER, 1917.

[PART 2.

The Yellow-breasted Bush-Chat (*Ephthianura crocea*).

BY A. J. CAMPBELL, C.M.B.O.U.

THIS rarely-seen and extremely beautiful little species was discovered by Mr. T. A. Gulliver, of Townsville, when he was in charge of the telegraph station at Normanton, in the Gulf of Carpentaria district, and was described by Count F. de Castelnau and Dr. E. P. Ramsay in the *Proc. Linn. Soc. N.S.W.* in 1876 (vol. i., p. 380).

The original of the illustration (Plate XI.) was taken by Mr. Chas. A. Barnard and Trooper F. L. Berney, Ms.R.A.O.U., last March, at Torilla, about 90 miles from Rockhampton, Queensland.

As the late Mr. A. J. North has pointed out ("Nests and Eggs," vol. i., p. 352), *Ephthianura crocea* differs from *E. aurifrons* in its smaller size and brighter-coloured under surface, while the male adult of the former has the chin and throat rich yellow, and has a conspicuous crescentic black mark on the fore-neck.

Mr. North has taken his carefully-worded descriptions of both sexes of *Ephthianura crocea* from skins obtained near Derby, North-West Australia, which variety Mr. Gregory M. Mathews, F.R.S.E., desires us to differentiate by the trinomial appellation, *Aurephthianura crocea tunneyi* (see "List of the Birds of Australia," 1913, page 208).

Regarding the bird's habits, Mr. G. A. Keartland, in a communication to Mr. North, states:—"Whilst camped beside a lagoon, about four miles from the Fitzroy River, North-Western Australia, and nearly opposite Noonkoombah Station, I saw a great many examples of *Ephthianura crocea*. Their yellow

plumage and black band at once attracted attention, but the mode of life was very different from that of *E. aurifrons*. Whilst the latter delights in searching for its insect food amongst salt-bush, or on the ground, *E. crocea* is more at home in the branches of trees about 15 or 20 feet high, where it hops about searching for insects, either in the bark or on the foliage. Occasionally the birds may be seen on the ground. They do not appear to associate in flocks, like any of the other species of the genus, but each works on its own account. Their nests are built in the usual cup-shaped form, and the one from which my set of eggs was taken was placed in a thistle about four feet high." On the other hand, the late Mr. Price Fletcher ("Bush Naturalist") stated that in the neighbourhood of the Gulf of Carpentaria he usually observed these birds frequenting marshy and long grassy swamps instead of the dry plains, as do the other *Ephthianuras* or Bush-Chats.

The range of *Ephthianura crocea*, at present known, is North-West Australia, Northern Territory, and Queensland.

Traffic in Wild Birds' Feathers.—Notwithstanding that feathers and down are prohibited articles, at present, in the United Kingdom, quantities of wild birds' plumages are still arriving there, and, it is stated, chiefly through enemy-alien agents in British oversea dominions. If this be true, it is scandalous. The ever-watchful and indefatigable Mr. James Buckland has addressed a circular letter on the subject to members of Parliament and to the leading newspapers in the United Kingdom. The following strong reference to the matter appeared in *The Humanitarian* for May last:—"It is a matter for great satisfaction that among the articles of which the importation was forbidden (under an order issued on 23rd February, 1917) are included 'ornamental feathers and down.' It is sincerely to be hoped that this prohibition will not be removed when the war is over. The importation of hundreds of thousands of pounds weight of wild birds' feathers annually, at a time when there is a shortage of food, has long been a public scandal of the first magnitude; the more so as this trade in the plumage—that is, in the destruction of birds—is in every way cruel and wasteful. It is to Mr. James Buckland, whose unceasing labours in this matter are well known, that the thanks of all humanitarians and lovers of bird-life are primarily due for the suspension of this hideous traffic."

Ornithologists in North Queensland.

By CAPTAIN (DR.) W. MACGILLIVRAY, PRESIDENT OF THE R.A.O.U.

PART I.

WHEN Mr. M'Lennan was on a visit to me in the early part of 1913, he persuaded me to allow him to go back in quest of a Parrot that prospectors, sandalwood-getters, and others had spoken to him about as frequenting the scrubs on the Pascoe River, on the east coast of the Cape York Peninsula, and which, from descriptions supplied, he believed to be an *Eclectus*.

He left Thursday Island on the 26th June of that year in a three-ton cutter, with two prospectors, and, after visiting and making observations on the bird-life of several islands on his way down the coast, entered the mouth of the Pascoe River on the 10th July. This river rises further south from the eastern slope of the main Sir William Thompson Range, at a point opposite Lloyd's Bay, and, pursues a northerly course between this range and the two smaller Tozer and Nelson Ranges, which shut it off from the coast at Lloyd's Bay, until it reaches lat. 12° 30". It then turns almost at right angles, and runs down to empty itself into the sea in Weymouth Bay. It is here a very considerable stream of from 80 to 100 yards in width, its banks clothed for the first two miles with a dense growth of mangroves, and beyond this limit with open forest or tropical scrub, the latter growing right down to the water's edge. In places also the banks are lined with a palisade formed of the great fronds of the Nipa palm; this palm has no stem proper, its fronds growing from a base in the mud and shooting up to a height of from 30 to 40 feet. The river is a difficult one to navigate, owing to the sand-bars, and, further up, logs and snags, the large trees growing on the river's edge falling into the stream as the banks are undermined by the frequent floods of the wet season.

On his way up the river Mr. M'Lennan's attention was attracted by a Parrot which flew across, whose cry and manner of flight were both unfamiliar to him. This afterwards proved to be *Geoffroyus geoffroyi*, a bird which had been known for over a century from the Malay Archipelago, but not previously known to occur in Australia.

On the 17th July what appeared to be a Black Cockatoo flew screeching past his camp, but it was not until many days of watching—waiting for hours at a time in the tops of the tallest trees—that the feeding-places were located, the birds stalked, and specimens procured. This proved to be the bird he had come in search of—*Eclectus pectoralis*—a species that had been known from Papua for nearly a century and a half. It is only just to our Australian bird to say that it is a bigger and much finer bird.

A shortage of stores made a trip to Lloyd's Island necessary. A sail was rigged on the dinghy (the cutter having returned to Thursday Island), and M'Lennan and a mate left the Pascoe River on the 27th July, and by dint of much hard pulling and

some sailing managed to reach Lloyd's Island before dark on the 29th, a distance of over 40 miles.

Lloyd's Island is a large island in the bay of the same name, and on it Mr. Hugh Giblett, a gentleman engaged in the *bêche-de-mer* and sandalwood industries, has his home and keeps supplies—the only place on that part of the coast where such can be obtained.

Mr. M'Lennan returned to his camp on the Pascoe on the 31st July, and resumed his quest for *Eclectus* and other birds. After about a month spent in searching the scrubs and open forest country along the river, he elected to walk overland to Lloyd's Island. This he did, arriving there on the 29th August, after a rough trip.

Owing to the difficulty of procuring supplies on the Pascoe River, and acting on Mr. Giblett's advice, he decided to shift camp to the Claudie River, a small stream which takes its origin from the Nelson Range, whose highest peaks, Mount Dobson (1,820 feet) and Mount Nelson (1,587 feet), are densely clothed with timber and form the angle round which the Pascoe makes its turn to the sea. The Claudie runs from here in a south-easterly direction, and empties itself into Lloyd's Bay, about six miles south of Mr. Giblett's island home, and directly behind Mount Tozer (1,953 feet), the highest point of the Tozer Range. Like all or most of the rivers on the peninsula, the Claudie is lined for about two miles from the mouth with mangrove swamps, which extend along the coast for about the same distance in one direction. These swamps are filled and emptied by the rise and fall of the tides. Behind these are tea-tree swamps or shallows, more open than the mangrove swamps, and mostly dry, or nearly so, in the winter and spring months, and well filled during the rainy season. The country behind these again is low-lying, sandy, lightly timbered with eucalypts, banksia, melaleuca, and other trees, with a stunted undergrowth of tea-tree and other shrubs and herbaceous plants. The flats further up the river are covered with tropical forest—great trees of various kinds, whose stems rise to a height of 60 or 70 feet before branching and forming, with climbing plants of many kinds, a dense canopy overhead, through which the sun's rays rarely penetrate. Many of these plants flower profusely, and there is an abundance of fruit of every size, shape, and colour, affording a plentiful food supply for numberless fruit-eating birds.

The roof of this jungle is a world in itself, out of sight and reach of the man who walks below, except where, at the edges or along the river banks, it slopes down to earth or water's edge, festooned by climbers whose foliage and inflorescence show infinite variation. There is a bird-life of this roof; some birds keep under it in the shade of the scrub, and others, again, keep to the floor, which is usually carpeted with a thick layer of fallen leaves. Growth and decay are alike very rapid, and fallen trees, limbs, and other *débris* soon disappear, and the gaps

so caused soon fall. Trees fall frequently in the wet season, and often drag a lot of others with them. This is due to the fact that dry rot, proceeding apace, with the depredations of insects, in some great tree during the dry time has so weakened the stem that when the wet season sets in the rush of sap to the topmost branches, and the renewed growth and activity in the climbers borne by it, with the superadded weight when every part is saturated with moisture, adds so enormously to the weight borne by it that it gives way.

What is known as the open forest consists of a fairly open growth of large trees—eucalypts, melaleuca, and others—with no under-scrub, the ground being covered with coarse grasses and herbage, with a few small shrubs and trailers. It was to a knoll in a patch of open forest overlooking the Claudie, with tropical scrub to the right and left and all along the opposite bank, that Mr. M'Lennan, now with only one companion, Alfred Mohr, moved his camp early in September. It was here also that I joined him, together with Mr. Kershaw, of the National Museum, Melbourne; and my son Ian, on the 5th November, and spent the rest of the month very profitably in exploring the neighbourhood under his able guidance. This camp was our main base; another camp, 7 miles further up stream, being occupied for a few days at a time, as the scrubs and forest were of particular interest there. The sandalwood landing three miles downstream, and on the opposite bank, was a convenient spot from which we could search the mangroves and tea-tree swamps and the heathy country at the back of them.

During this early part of our stay the dry season had lasted later than usual. The coarse grass of the forest lands was dry, the scrubs were wilted and droopy, and one walked through the more open ones on a carpet of dry and crackling leaves. The Claudie ran a diminished stream to the sea, and the salt tide was making its influence felt up to and beyond our camp, so that we had to row and pole our way further up stream in order to replenish our supplies of fresh water.

We had previously arranged with Mr. Giblett to take us out to the islands along the coast and along the Barrier Reef as far as Raine Island, in order that we might investigate the bird-life on them. Consequently, we left Lloyd's Island on the 30th November in the lugger *Keats*, fitted for *bêche-de-mer* fishing, and manned by a crew of thirteen aboriginals and commanded by a half-caste captain. These blacks are recruited from the coastal tribes, who for generations have found their living along the shore and on the islands off the coast, and are all expert swimmers and divers.

After passing Cape Restoration we bore out towards the Reef, our objective being Quoin Island, a rocky island about a quarter of a mile in length and of half that width, rising at its highest point about 50 feet above the sea-level. Numbers of birds were hovering over it and settling at one end, mostly *Sterna anæsthetæ*

and *S. bergii*. The island is clothed with a dense growth of a succulent stunted tree covering the greater part of its top, coarse grass and herbage on the slopes and lower part, the south end being rocky, with many boulders round the water's edge and a small beach of coral sand at the north end. A Grey Reef-Heron was flushed from a nest amid the rocks; two small land birds, *Myiagra concinna* and *Zosterops albiventer*, were noted. Terns hovered constantly overhead, with a few Frigate-Birds floating above all. After a thorough search of the island we rejoined our boat and set sail for the Forbes Group, lying in a north-westerly direction. There was little wind, however, and our passage was very slow, as the trade winds were dying away, and the monsoons, which bring the rainy season along with them, had not set in. It soon became dark, but we enjoyed every minute of the lovely tropic night, with its clear sky and rippling, phosphorescent sea, as we sat in the stern and listened to the soft musical voices of our aboriginal crew as one after the other they sang or chanted their native songs, all joining at times in the choruses, keeping time with a rhythmical beating of their hands or a stick, according to the effect they wished to produce.

We made the main island of the group late, and anchored off the shore opposite one of Mr. Giblett's depots for curing the *bêche-de-mer*. All our crew went ashore, and we to bed on deck. Next morning we were awake early to explore the island, which is the largest of the group. It rises to about 200 feet above the sea, is rocky, covered with coarse grass and herbage, with a thick growth of trees and shrubs in the sheltered valleys. There is a fine fresh-water spring near the house. Sun-Birds, *Zosterops albiventer*, and *Myiagra concinna* were the only birds noted.

We started early, but made only slow progress, anchoring at night in the open sea in 20 fathoms of water, and next day made the Ashmore Banks late in the afternoon, anchoring off No. 2 after dark. Next morning we made for No. 3 Bank, over which a great crowd of birds was hovering; these proved to be mostly *Sterna bergii* and *Sula leucogaster*, both nesting. After spending some time on the bank taking photographs and making notes, we went on board the lugger and set sail for the Great Barrier Reef. As there was very little wind progress was slow, and we did not anchor till sunset. We were sheltered by the Reef, upon whose outer ramparts the Pacific was breaking with a continuous dull roar, which soothed all to sleep except Mr. M'Lennan, who, having contracted dengue fever after we started, found the hard planks of the deck far from restful to his aching bones. We awoke to admire a lovely sunrise over the Reef, and got ready to move, when a killer whale came to inspect us, blowing first but 200 yards away on our port side, then down and up till within 20 feet of our boat, when, after a final inspection, and much to our relief, he dived under our keel, making a great swirl in the water, and disappeared. A few Brown Gannets visited us at intervals as we went through the Raine Island Entrance, and we noted

Noddies (*Anous stolidus*), Lesser Crested Terns (*Sterna media*), and a Frigate-Bird (*Tachypetes ariel*) perched on some dark coral rocks on our starboard side. We progressed very slowly, and did not sight the Raine Island tower till after mid-day, and did not land till just before sunset, when the multitude of birds on the island and in the air above it were making a babel of noises. About thirty turtles were crawling up the beach near where we landed, and the shallow water contained hundreds of them. Whilst coming slowly up to our anchorage these reptiles passed closely by our boat every minute at varying depths, and our black crew, clustered on the bow of the vessel, amused themselves by watching for them and diving down upon them to see which one would be able to grasp the animal by its shoulders, and, by tilting it up, make it swim to the surface, when it would be let go, the frightened animal making off at a terrific rate, whilst the boys, amidst much laughter, would swim to the boat, clamber up, and wait for the next one. When we landed they amused themselves by jumping on the backs of the turtles and riding them down into the water until their mounts gained a swimming depth. We remained on the islet for eight days, absorbingly interested in its wonderful bird-life during the day and tormented at night by the nesting turtles, who would persist in trying to walk over or under our sleeping shelter.

The lugger returned, and we went on board and steered a course to the north till we passed through the Great Barrier again. Several small sand-banks were passed, at one of which we anchored and went ashore. This is mostly used by turtles for breeding purposes. The bank is a quarter of a mile long and about half as broad, and the whole surface is ploughed up by the tracks and pits of the reptiles, and the air is redolent with the odour of the dead. A small colony of about twenty Masked Gannets had large young, and a few Brown Gannets had either young or eggs. At one end a considerable colony of *Sterna bergii* were nesting, all having eggs, mostly fresh. Many of the eggs must be broken by turtles; it is really wonderful that any escape. We returned to the boat, and were interested for the rest of the day in watching our native crew fishing for *bêche-de-mer*, and afterwards the process of turning the sea-slugs into a marketable commodity. In the moonlight we noticed thousands of turtles climbing the sand-bank, their wet backs gleaming with phosphorescence as they leave the water. Next day, the 13th December, our departure was delayed by an absence of wind. Our crew did some fishing for slugs. We then sailed slowly southward along the Reef for some time, and anchored at a small sand-bank whilst some of the crew went over to the Barrier for *bêche-de-mer*. They returned at dark with their load.

On the following day we sailed along till we emerged from the reef on the Pacific side, and coasted along it till we came to a narrow opening through which the water races. On passing through we could see the corals of the reef on either side of us.

When we emerged a more westerly course was taken, and we went on, hoping to reach the Ashmore Banks before dusk. The wind had dropped, and our progress was very slow; however, sea-snakes at intervals, Medusæ of every size, shape, and colour, with the animal life parasitic or commensal on them, served to interest us and fill many of Mr. Kershaw's specimen jars. Every cupful of water contained living forms, and we could see fish of many shapes and colours at all depths. Night fell and hid all, and we sailed on in the moonlight until we gained the anchorage off the banks. At dawn we started for the Sir Charles Hardy Islands. Progress was very slow; still, the teeming animal life in the sea kept our interest from flagging, and when we reached shallower water the boys gave us an exhibition of their wonderful diving powers till the alarm of "Shark" was given and all were soon aboard. We noted the passing of the sharks, with their attendant pilot-fish in front, like a team of horses harnessed and driven by invisible bonds. The boat hardly moved, and, in despair of ever reaching the Hardys, we took to the boats, rowed the last three miles, and landed at last where Dr. Dobbyn and I landed three years previously. After some time on the island we sailed for Piper Island. As we could not reach it, we made Haggerstone Island, going round the south end and anchoring opposite a sandy beach where there was a deserted tenement. Opposite this side of the island, and slightly to the north, is Cape Grenville, with the outlying Sir Everard Home Islands. For some days we had noticed dark, thundery clouds over the mainland, which, from here to the Pascoe River, is low-lying, sandy, and barren, making a decided barrier between the upper part of Cape York and the mountainous country at the back of Lloyd's Bay and to the north and south of it. Haggerstone is a high, rocky island about $1\frac{1}{2}$ miles in length by 1 mile in width, rising about 500 feet above sea-level. It is clothed with scrub, in which are many large trees with interlacing climbers. Mangroves and tea-tree border its foot for three-parts of the way round. Birds were numerous on the island, and we spent an interesting day amongst them, getting away to our boat before dark to escape the attentions of the sand-flies, which were very troublesome.

Next day, with a favourable wind, we made a good run to Lloyd's Bay, which we reached after dark, after grounding on a reef, from which we were freed by the native crew diving and shouldering the vessel off. We slept on board, and were awakened towards morning by a fall of rain. We rigged a sail shelter, and watched the day breaking in the tail end of a storm. The sun, rising behind Lloyd's Island, produced, with the stormy sky, a very beautiful effect, a fine double rainbow showing up well against the dark clouds obscuring the western sky. After breakfast our chattels were transferred to a cutter, and, with the favouring monsoonal wind, we soon reached the mouth of the Claudie. There was not sufficient wind to take us far up this river, so we took to the two rowing boats—two natives in one

with Mr. M'Lennan and most of the heavier luggage, and three with the rest of the party and less baggage. The air was hot and oppressive, and rain threatened, but the incoming tide helped our oarsmen. The varied calls of the land-birds and wonderful vegetation bordering the river were very pleasant to our ears after our three weeks on the sea. Many Whimbrels were flushed along the mangrove portion of the river, and when we came to where it was bordered with tropical scrub many *Gerygone* nests were noted overhanging the water, from which the birds flushed as we passed by. M'Lennan fired at a pair of Crimson-winged Parrots. We saw the Great Palm Cockatoo, several *Eclectus*, Brush-Turkeys, Scrub-Fowl, Bee-eaters, and other commoner species, and when we came to a lily-covered backwater, known to us as the Lily Pool—a haunt of the crocodile—we found a flock of Magpie Geese in the trees bordering it, several of which were secured for the pot. As we rearranged our camp and stowed away our baggage our ears were assailed by the notes of the Rifle-Bird, Scrub-Fowl, Manucode, *Geoffroyus*, Pittas, and other birds from the adjacent scrubs. Rain fell heavily, and we dug gutters to keep our camp dry, and it was evening by the time we finished. Afterwards mosquitoes got busy, and sandalwood fires were lighted to keep them off whilst we wrote up notes and went over butterflies and beetles collected by our cook during our absence.

On the following day we recommenced our searchings of the scrubs and open forest country for specimens. The wet season had commenced, and insect life became more abundant. Many flying termites flocked in the air, and were caught on the wing by several species of birds, such as *Myzomela obscura*, *Myiagra concinna*, and *Ptilotis gracilis*. Mosquitoes were very troublesome, and made bird-observing in the scrub at any time a very difficult matter. In the evening we heard the voices of numerous frogs, many of which frequented the trees round our camp. The "Chop-chopping" note of *Caprimulgus macrurus* is a crepuscular one, and is soon followed after dark by the calls of *Ninox rufa*, *Podargus marmoratus*, the raucous scolding of the Scrub-Fowl, and the occasional voice of the Koel. Before breakfast next morning my boy and I went out at the back of our camp and watched several species busily engaged in finding their morning meal from amongst the branches of the trees or young eucalypts and other undergrowth. Amongst these were Friar-Birds, Brush and Bronze-Cuckoos, *Melithreptus albogularis*, *Myzomela obscura*, *Ptilotis gracilis*, *Pinarolestes rufigaster*, *Geopelia humeralis*, and others. The rest of the forenoon we spent in the scrub below the camp until compelled to beat a retreat by the mosquitoes. In the afternoon we crossed the river and had a long walk in scrub and open forest towards the ranges and back. In the evening the old crocodile that frequented the reach below our camp was barking frequently. The night was close and sultry and thunder constant in the ranges at the back, which were overhung by dark and gloomy clouds. Later on again rain started, and continued

more or less heavily during the night. The next morning birds were plentiful amongst the wet trees and undergrowth. One of us chased a flock of Babblers, but failed to secure a specimen. In the afternoon rain threatened, and we stayed in and noted a large flock of Australian Swifts soaring overhead. Rain came on later, and we obtained a few specimens near by, and occupied our time skinning. Numbers of burying and carrion beetles came to the lamp under our palm-leaf shelter at night, and any bird-body thrown out would be immediately attacked by these and rapidly cleansed of all fleshy matter. We obtained many beautifully-prepared skeletons in this way.

On the 23rd December we were astir early. A lovely fresh morning; the grass and shrubs were beginning to respond to the continued falls of rain, and were all starting to sprout. We took the boat and went up-stream between banks overhung with tropical trees, shrubs, and climbers. M'Lennan speared two fish on the way, and we landed and tied the boat up and went on to examine an *Eclectus* tree; then more scrub. Tried to stalk a Bustard in open grass country. Admired the view of the valley, with the mountains in the background, which still hold many secrets to be solved by the field men of the future in bird, plant, and insect life. We paused to admire the wonderful growth and beauty of a climbing plant which covered three forest trees; this is the one on which the matchbox-bean is borne (*Entada scandens*). A flowering umbrella tree attracted a host of birds to its honey-laden blooms—*Xanthotis filigera*, *Tropidorhynchus buceroides*, and *Myzomela obscura* amongst Honey-eaters. A Manucode also exposed himself amongst the crowd for a short time, and plunged into the leafage again. Rifle-Birds and Pittas were heard in the recesses of the scrub. *Geoffroyus macleannani* flew from one *Alpinia* tree to another, shrieking noisily as he went, to crack and split more of the hard nuts of this tree for his favourite kernel. A Drongo was busily engaged constructing his cradle-like nest in a forest tree in which a Fig-Bird already had her nest. Many *Calornis* were outside the edge of the now dark and damp scrub, feeding on the host of flying termites, together with *Arses lorealis* and *Monarcha albiventer* and others who had gathered to the feast. *Macropus agilis*, disturbed from the long grass, rushed off into the scrub; it was with difficulty that we got a glimpse of this wallaby, as he kept low in the grass. The evening was spent in the usual way—bottling insects that came to the lamp, skinning, writing notes, and listening to the Red-necked Rails and Moor-Hens that flew overhead at intervals, and to the constant call of *Ninox rufa*, the Pittas, night-wandering Koel, or *Podargus marmoratus*.

Many successive days were spent in this way, excursions being made in varying directions, with more or less success, but always absorbingly interesting and all too short, every day returning wet, changing, sluicing with a bucket of water at our staging, erected out of reach of the wily crocodiles, and a meal that was

always done full justice to, whether of tinned meat or Brush-Turkey, Scrub-Fowl or Nutmeg-Pigeon.

A very large spider's hole had frequently attracted our attention; so, when one was found near the camp, the shovel was brought into requisition, and the creature found in a roomy chamber at the end of 6 feet of a passage. It measured, after cyanidation, 6 inches from the tips of the fore legs to the tips of the hind ones, $2\frac{1}{2}$ inches from mouth to end of abdomen, and $\frac{7}{8}$ inch across the thorax.

On the 29th December M'Lennan and I, with two blacks, crossed the creek to investigate some scrub on the opposite side. We were following up a dry creek which divided grass land from scrub, and at times ran through scrub; it had a sandy bed and occasional pools of water left by the recent rains. We had got ahead of the blacks by cutting across a bend through scrub, when one came running up to tell us that there was a "big fellow snake" down the creek, and explained that it could not move, as it had eaten something big. On returning with him we found a large carpet snake, 11 feet in length, with a large bulging in the middle of its body. The normal part of his body measured 9 inches, whereas it was 24 inches round the swelling. After transfixing the head with the black's spear, we opened the snake, and found that the cause of the swelling was a wallaby, measuring 3 feet from tip of its nose to tip of its tail. It did not smell too sweetly, and several small carrion beetles were on the wallaby and seemed quite lively and at home. It had been swallowed head first, the fore limbs being alongside the body and hinder limbs extended.

Early in January it was still raining, and the general dampness was having its effect on our belongings. All our baggage, especially anything of leather, was covered with mould; one's hat, if put down in the evening, would be mouldy by morning, also one's boots, which never became really dry, and all clothing felt damp at all times. The leather covering our cameras became detached, and also from our field glasses. Insects became more numerous. Stinging flies of several varieties, varying in colour and size; the most numerous and most persistent was a small brown one, about half an inch in length. They had to be constantly kept off one's face and hands, and did their best to sting through clothing if one's hands were occupied for a few seconds; for instance, when a butterfly was caught by net, and had to be transferred to cyanide pot, one's face, hands, and any exposed part of the body would be covered with these flies, each one stinging so soon as it alighted.

The grass was growing tall and rank in the open country, and there was an abundant growth of wild grape vines and other trailers and herbage in the open forest. We had noted so far three terrestrial orchids, and, whilst admiring the many beautiful plants, regretted that we had no botanist with us. Small green or yellow frogs are found upon the grass blades, larger ones in

the branches of the forest trees, some in the hollows of trees. One of these has a crying voice; it rather alarms one when uttered at one's elbow when passing a small tree. A lizard has a similar voice, like the cry of a child, and is found also in the hollow interior of small trees. One of our niggers captured a bandicoot in its grass nest by putting his foot on it and then forcing its head back and breaking its neck with his hand. Flowers were coming out everywhere, on shrubs, herbage, and climbers. One shrub has fine, large, white, star-like flowers of great beauty. This was afterwards submitted to the late Mr. Bailey, at Brisbane, and proved to be a new *Gardenia*.

On the 4th January we removed everything from the top camp, 7 miles up the river, to the main camp, in heavy rain. The river at the main camp was in high flood, and two days later, when it subsided, we left for the sandalwood landing, three miles down stream, on the opposite side. Here the soil is sandy, and we were near the tea-tree and mangrove swamps. The open forest of eucalypts, tea-tree, and several other varieties had an under-brush of tea-tree and other small heathy plants. Cockerell's Honey-eater was common here, and there was an old bower of the Fawn-breasted Bower-Bird beside the camp.

On the following day, when another boat-load of baggage was being brought down from the main camp, three crocodiles were disturbed from sand or mud banks. Our new camp was soon fixed up, and in getting the tent poles a new bower of *Chlamydera cerviniventris* was discovered quite near by. Round about this camp were several burrows with a heap of sand at the entrance; they were about two inches in diameter at the entrance, and went down about two feet. At the bottom was a chamber full of leaves, and a female elephant beetle cheeped vigorously on being disturbed. In one of the nests were three eggs of the beetle; all had the nests of leaves in the chamber and a female beetle in possession.

On the 8th we all went down the southern bank of the river, following the lightly-timbered bank for some distance, then into dense scrub, emerging from it into tall-growing mangroves, in which there was very little bird-life, then into swamp with thickly-growing fan-palms. We occasionally halted and lit a smouldering fire of leaves to make a smoke, in which we stood to give ourselves a rest from the mosquitoes. We turned back soon after, and struggled through thickly-interlaced scrub which opened out into a tea-tree swamp — shallows with large and small paper-barks, bordered with a thickly-growing *Lomaria*-like fern, coarse grass, and *Pandanus*. We followed this up till near the camp, where we got our cameras and went back to the swamp for views.

The following day we went up the river in the boat, and soon noted where a large crocodile had slid off a sand-bank. There were many beautiful climbers festooning the trees along the banks; one especially, with lavender flowers in large trusses, made a great display. Another, with *Tecoma*-like foliage, had orange

berries covering it. Many of the deciduous trees were now coming into leaf or flower. Some of these lose their leaves early, and remain quiescent during the dry season; others retain their leaves until the commencement of the rainy season, and shed them immediately before regaining the new dress. One of these, growing occasionally along the banks or on the edges of the scrub, has leaves which turn to a brilliant scarlet before falling, and do this just as the tree is bursting into flower. We landed and found a nest of the Boat-billed Flycatcher in a bushy scrub tree. We shot a grizzly flying-fox with a young one clinging to it; then a Scrub-Turkey and several Nutmeg-Pigeons for the pot. We came upon a small creek in the scrub, and noted where a large crocodile had recently crossed a small isthmus separating one water-hole from another.

After lunch M'Lennan and I followed the two blacks, who had borrowed an axe to cut out two "sugar bags," otherwise native bee nests. The first was about 20 feet up in a living tree, and contained a good lot of bees but only a small amount of honey. The second was high up in a dry tree which took quite a long time to fell. When this was done we found it to contain quite a lot of honey, old and new wax-comb, bee bread, and new cells. We ate some, and brought about a quart home; it is very sweet and sickly. After we had taken our share from the tree the two blacks had a competition to see who would get most of what remained. They would cram their mouths full of wax, honey, and bees till they were too full to masticate. The honey was trickling down their chins and over their chests, and bees crawling about their mouths. It is necessary to explain that these bees do not sting. Near here we found a fine new bower of *Chlamydera cerviniventris*.

On the 10th we prepared to leave for Lloyd's Island in order to catch the steamer south. The cutter had come up for us, and we first went out and shifted the nearer of the two bowers of *C. cerviniventris*; this we did quite easily, as the floor was firmly woven together, and we placed it on a flat sheet of bark and put it on the deck of the cutter with the rest of our baggage, and made Lloyd's Island late in the evening. Next day we explored the mangroves, then the island behind them. A track ran along here, with two beautiful pools of fresh water beside it. It was here that we got the Finch *Erythrura trichroa*.

On the afternoon of the 12th we started for Restoration Island, where it had been arranged that we should be picked up by the s.s. *Suva* at 9 next morning. However, a mistake had been made, and we woke in the morning to find the *Suva* steaming away south. No other boat calls for a month, so we made our way back to Lloyd's Island and made up our minds for another stay on the mainland. We left our heavier luggage at the island, and sailed for the mouth of the river. The wind dropped, and we anchored off the shore for the night, and made the mouth of the river next morning; but the wind was so light that we had to take to the dinghys again and row up to the sandalwood landing,

arriving early. This night we noticed several fire-flies about the camp; they appeared as brilliant points of pure white light moving slowly about amongst the trees. We succeeded in capturing several; they proved to be small beetles, each about a quarter of an inch long, the head and thorax reddish, the elytra black, with a white luminous patch on the under surface of the abdomen at its termination. Next evening, at our main camp, the fire-flies are all around in numbers; they seem to congregate about the tops of certain trees, flying slowly in and out and round the trees, like so many brilliant, pure white stars. We captured several, and they retained their light for some time after death in cyanide. We kept several alive. The light seems to pulsate, and any agitation seems to brighten it up. Both male and female have the light, and no doubt the purpose is sexual attraction, and the flight round the tree-tops a nuptial flight.

M'Lennan and I went down stream for the rest of our baggage. The vegetation along the banks has improved wonderfully since the rain set in. Everything is so fresh and green, and many plants flowering, or on the point of doing so. There is a *Smilax*, stronger-growing and with far better foliage than the commonly cultivated "bridal creeper." Another climber, and a freely-growing one, has a very pretty mimosa-like leaf, but is not flowering as yet. Another has large trusses of sweetly-scented yellow flowers; another, again, is covered with white, star-like flowers; after the style of a jasmine; some are thorny and others not unlike a passion-vine in growth. We went leisurely down, packed up, and started back with the returning tide, examining nests and plants on the way, and arrived before lunch.

Insects were getting more plentiful now that the vegetation was responding to the continued falls of rain. March flies were increasing in numbers, and persecuted us in an unmerciful manner, so that the attentions of the mosquitoes, which were numerous enough, almost passed unnoticed. My boy and Mr. Kershaw were successful in capturing numbers of butterflies and moths, many of which have proved to be sub-specifically new, and the papering and labelling of these occupied their time in the evenings at our table under the palm-leaf shelter. Every day we made long marches in scrub which is either open or dense, or out in open forest or grass lands. The grass had grown rapidly, and all the lower lands were getting under water, and we had to wade in many flats that were quite dry when we first arrived.

The night of the 18th January was a very wet and uncomfortable one, the heavy rain beating through the fly that sheltered our bunks and wetting them. Two Kingfishers were now noted. *Tanyiptera sylvia* was getting numerous in the scrub, and busily engaged drilling its burrows in the termite nests. *Syma flavirostris* was not so common nor so conspicuous. There were many *Cisticola* in the grass lands, most of them building their nests, which are not easily found, so artfully are they concealed.

On the 20th January, in a small patch of scrub, we came across

a very fine lily in flower. The flowering head is somewhat cone-shaped, consisting of a number of brilliantly scarlet bracts, like in shape to the tubular florets of a dahlia. The top ones have a yellow flower in each bract; the bracts remain below as the flowering ones expand. The bracts are quite hard. These flowering heads are borne on stalks varying in height from 18 inches to 4 feet. Several large leaves come up from a common root-centre, and are large and very much divided, and about a foot in diameter. There were quite a number of them growing in sandy soil, with plenty of moisture and under perpetual shade. This flower is a very much handsomer thing than the waratah. One wet day we came across a carpet snake sunning himself full stretch on a log; he was not very active, and allowed us to handle him without much show of resentment. Every day we got wet through; the long grass and herbage was always wet, and all depressions, whether in scrub or open, full of water. Mr. Kershaw and Ian had developed sores on legs and feet, and had to limit their excursions.

On the 26th January we packed our things to shift to the sandalwood landing, sending them down by boat, whilst we walked, and were ferried across by the boat. We found two black-boys had also arrived at the landing with twelve pack-horses to get stores for the sandalwood-getters inland. The horses were all gathered together in the smoke of two fires lighted to keep the March flies off the poor animals. A large dark variety of these pests was very numerous, and persistent in its attacks on man or beast. We found quite a number of the nests of *Trichodere cockerelli* within a short distance of this camp, and the blacks speared a small dasyure (native cat) that had been hiding amongst the pack bags. We spent our time exploring the tea-tree and mangrove swamps for the next few days, the wading being often difficult, owing to the amount of fallen timber, mostly submerged, deep holes into which we would unsuspectingly plunge, clumps of ferns, climbing ferns and rushes, and dangerous, as they were infested with crocodiles.

On the 30th the cutter came for us, and we transferred our belongings to it and went down-stream. A crocodile's nest was noted on the right bank, in the mangrove portion, and we landed to examine it. The mangroves were small, the bank about 18 inches above high tide mark, and the nest 8 feet in from the water's edge. It had a base diameter of about $4\frac{1}{2}$ feet, and 2 feet across the top; it was 3 feet high, composed of decaying vegetation and sand. Uncovering it, the eggs, 43 in number, were found within a foot of the top, all in a heap. A piece of stick was laid across the middle of the eggs—whether by accident or design it is hard to say; but the blacks aver that it is always so. The surrounding ground for 10 or 12 yards showed where the reptile had scraped the earth and leaves from; in many places it had been done quite deeply, and showed the imprint of its claws. We soon left the river and arrived at Lloyd's Island, leaving next

day for Claremont lightship to catch the s.s. *Suva* to take us home again.

After we had left the Claudie River Mr. M'Lennan remained on until 11th March, when he left for Lloyd's Island, sailing at a later date for Thursday Island. On 21st May, 1914, he left Thursday Island in a small two-ton cutter for the Archer River, on the western side of Cape York Peninsula, taking three months' provisions with him for himself and Mohr, who had been with us on the Claudie, and who acted as cook and camp attendant generally. The first anchorage was Crab Island, 28 miles from Thursday Island. Next morning, in trying to negotiate a passage between the island and mainland, the boat got stuck fast on a sand-bank. As this, with a falling tide, necessitated some hours' wait, M'Lennan and Mohr went ashore for breakfast, noting numbers of *Sterna bergii*, a few Pelicans, Curlews, and Reef-Herons on the banks. A Bower-Bird (*C. orientalis*), Crimson-winged Parrots, two species of *Graucalus*, Coucals, Leach's Kingfisher, Drongos, Fig-Birds, Friar-Birds, Yellow Honey-eaters, Wood-Swallows, Grallinas, Crows, and Whistling Eagles were noted, and several others heard calling.

A start was made at 2.30 p.m., and, as the wind had changed to south-west, it necessitated a close haul down the coast. A heavy rain squall struck the boat, the jib sheet was carried away, and they had a lively time until they got the jib rigged again. A good anchorage in No. 2 River was reached at sunset. Here a large flock of thousands of Curlew, Whimbrel, Little Whimbrel, and several smaller flocks of hundreds of the smaller waders were circling round the sand-banks at the mouth of the river, evidently congregating for their flight to the other side of the world. Terns, Noddies, Pelicans, and Egrets were also noted. Up the river a large flock of Straw-necked Ibis was circling high in the air. Several different bird-calls, mostly of migratory species, were heard during the night.

On the 24th the boat anchored off the mouth of the Batavia River, about 90 miles from Thursday Island. On the 27th inst. it anchored early some distance beyond Albatross Bay. M'Lennan went ashore and walked inland a couple of miles through messmate forest country. Birds were not very plentiful. The following were noted:—White-bellied Sea-Eagle, Osprey, Crow, *Cracticus mentalis*, *Graucalus melanops*, *Pachycephala pallida*, *Micræca flavigaster*, *Pæcilodryas superciliosa*, *Myiagra concinna*, *Rhipidura tricolor*, *R. setosa*, *Climacteris melanonota*, *Stigmatops ocellaris*, *Ptilotis flava*, Friar-Bird, *Melithreptus albogularis*, *Malurus dorsalis*, *Artamus hypoleucus*, *Merops ornatus*, Coucal, a Bronze-Cuckoo, *Pardalotus* (? sp., heard calling), *Gerygone albogularis*, *Halcyon macleayi*, *Dacelo leachi*, *D. macleannani*, *Collyriocincla superciliosa*, *Cacatua galerita*, *Trichoglossus septentrionalis*, Drongo, *Podargus papuensis*, *Caprimulgus macrurus*, and White-fronted Heron.

The mouth of the Archer River was reached on the 29th May, and some difficulty experienced in entering it owing to numerous

sand-banks. Next day he proceeded up the river to a mission station, and was recommended by the superintendent to go to the Watson River, a tributary of the Archer, as a boat could get up about 40 miles, and there was a number of fresh-water swamps and good camping-places along its banks. On the way up several crocodiles were seen, and one shot. A sandalwood landing-place was reached on the 2nd June, and here it was decided to camp. The cutter went back and a dinghy was retained. A dingo was shot during the night as it was investigating the boat. Mr. M'Lennan's description of the country along the river is as follows:—"The banks for about 10 miles from the mouth are thickly fringed with mangroves; behind the mangroves are big stretches of open plain and shallow, rush-grown swamps; and beyond these again are low ridges covered with messmate, bloodwood, and numerous other trees. Above the mangroves and beyond our camp there are narrow fringes of light tropical scrub. The river flats are thickly covered with stunted bloodwoods, cabbage gums, ironwoods, paper-barks, wattles, and other trees. Around the lagoons are casuarinas and paper-barks; the ridges the same as lower down. No open plains or large swamps."

On 6th June he notes, on returning from a long walk:—"The carcass of the dingo came floating past, with a crocodile shepherding it; then just about dusk Alf was fishing from the dinghy, and a crocodile came to the surface about 30 feet away, and lay watching him. I grabbed the rifle and put a bullet into its head, and down it went out of sight."

On the 7th, after lunch, he started to skin some birds collected during the forenoon, but soon had to desist owing to a sudden attack of fever; took some quinine. His remarks are:—"I thought it was malaria, but have since concluded that it was dengue. Spent a wretched night; could not sleep. The fever abated a bit towards morning. 8th June.—Felt very sore and stiff, bad headache; took some more quinine and stopped in bed. 9th June.—Still feeling pretty bad. Alf went off up river to get some birds for skinning. I shot a *Micræca* near camp, and was just starting to skin it when Alf came back to tell me that a big crocodile was asleep on the bank half a mile up the river. I got the rifle and went up with him. The crocodile, a hideous brute over 16 feet long and 2 feet 6 inches across the belly, was still in dreamland. I could not get a shot at the head, so I put a bullet in behind the shoulder from a distance of 20 feet. It plunged into the river, swam up stream a few yards, then across to the other side and sank. I waited for some time, but it did not show up again. Returned to camp with a severe headache, and skinned the *Micræca*."

On the following night he "heard a dingo prowling round the camp; it sneaked away when I got up. I waited a few minutes till it came back, and I put a bullet into it. It crashed away through the grass for a few yards, then uttered its death-howl."

On the 16th he went up the river in the boat, and reached the limit of the tidal waters a little before sundown; further progress barred by rocks. The banks of the river are here about 30 feet high, and the channel about 50 yards across. This is about 10 miles from the main camp. The notes for the rest of the month are a daily record of collecting about the main camp.

July was spent in collecting—8 miles above the camp for the first week, then 12 miles further down, mostly in scrub and the more open country. Early in July several days were spent in the mangroves getting specimens of the birds that frequent them, such as *Myzomela erythrocephala*, *Myiagra latirostris*, *Pacilodryas pulverulentus*, *Alcyon pusilla*, *A. pulchra*, and others. August was spent in much the same way, and, as provisions and cartridges were exhausted, a return to Thursday Island made at the end of the month. One hundred and sixty-one species were identified.

A second trip was made by Mr. M'Lennan to the Archer River in 1915, when he left Thursday Island on 30th March, reaching and anchoring inside the mouth of the river at sunset on the 4th April. Here some natives told him of a breeding-place of birds on Archer Creek, which runs into the Archer River a few miles from its mouth. He anchored a few miles up the creek, and went ashore to explore some swamps. Plover, Egret, and Ibis were plentiful on the small swamps near the river. He writes:—"Go on to a big swamp about 3 miles from the river, and wade through about 2 miles of it; water waist-deep, going very heavy. Semi-palmated Geese numerous; found several half-built nests and numbers that the natives had robbed. No eggs."

On the 9th April he went on to another river down the coast, and went up it for about 3 miles before anchoring. The river here widens out into a big shallow bay, 2 miles across by 3 miles long. In this are two big mangrove-covered islands, and numerous creeks or channels running into it. Egrets, Pelicans, Mangrove Ducks, and Stilts were noted on the mud-banks. On exploring the creeks hundreds of old nests were noted in the mangroves; along several of them Pied Egrets, Great-billed Herons, and small flocks of Black-billed Spoonbills and Ibis were noted.

On 13th April he returned to the Archer River, and went up a tributary stream, the Watson River. On his first day here he came across *Bathilda ruficauda clarescens* and the Golden-shouldered Parrakeet. On the following day he explored a big rush-grown swamp, noting a Jabiru, Plovers, Native Companions, Black and Mangrove Ducks, Pied, Little, and Great Egrets, White Ibis, and Sharp-tailed Stints. Numbers of Galahs were in the trees round the swamp.

Leaving the Watson River on the 17th April, he went up Archer Creek, exploring the creeks and islands along it. Some distance up on the right bank he found a swamp which was alive with birds—White and Straw-necked Ibis, Royal Spoonbill, Glossy Ibis, Egrets, Little Egrets, Pied Egrets, Plumed Egrets,

Masked Plover, Sharp-tailed Stints, Red-kneed Dottrel, Black-fronted Dottrel, Jabirus, and Native Companions.

On the following day he went to the swamp early in the day, and later again at sunset, when he found it alive with Duck, and remarks:—"They evidently come to feed at night, as I have not seen them during the day." Three species were identified—Mangrove-Duck, Plumed Whistling-Duck, and Black Duck. On other swamps were noted Jacanas, White-eyed Duck, and Pigmy Geese. On a swamp 3 miles north-west of camp were Jacana, Pigmy Geese (with young), and numbers of Semi-palmated Geese, a mob of Black Duck, three White-eyed Duck, and a Whistling-Duck. Out in *Pandanus* country Finches were numerous—Red-faced, Bicheno's, Black-rumped, Crimson (*Neochmia phaeton albiventer*), and Chestnut-breasted, and several nesting.

On the 23rd April the country further up the river was explored, but all the smaller swamps were dry. In the evening the natives brought in a water carpet snake. This is a water python, with all its scales keeled, to enable it to hold and crush its slippery prey. Every night some hours were spent out after Owls, with varying results. This expedition ended on 5th May, when Thursday Island was reached.

NOTES ON SPECIES OBSERVED.

Dromaius novæ-hollandiæ (*Dromiceius novæhollandiæ novæhollandiæ*).—Emus had been frequently seen near the camp before our arrival, and the aborigines had brought young birds to Mr. M'Lennan. We, however, did not see any, though we found traces on several occasions.

Casuarius australis (*Casuarius casuarius johnsonii*).—The encrustment of these fine birds was often met with in the scrub; it consisted usually of large stones and seeds of various fruits, even the large, rough stones of the *Pandanus*. They live mostly upon fallen fruit, of which there is always a plentiful supply. The horny helmet of the bird is no doubt helpful in enabling it to thread its way through the tangle of vines and other climbing plants so frequently met with in its usual haunts.

On 16th September Mr. M'Lennan flushed a Cassowary from her nest at the edge of the scrub; the nest contained two addled eggs and a newly-hatched young bird. The nest consisted of a layer of grass and leaves three feet in diameter and two inches in thickness. The old bird emitted three roaring grunts as she ran from the nest. The young bird was 50 days old when we arrived. It was 1 foot high when erect, and was covered with hairy down of a pale brown colour; three dark brown stripes extended the whole length of the dorsal surface, with two shorter and fainter ones on either side; the head was not striped, and was of a reddish colour. He was an amusing companion, and accompanied us on our marches from one camp to another, being usually carried in a billy. We fed him on fruit, and were hoping to bring him away with us. Unfortunately, however, he met with an untimely end at the hands—or, rather, teeth—of a mongrel dog.

On one occasion we watched a Cassowary bathing in a shallow pool on the Upper Claudie River. This one we bagged, and secured

the skin. Its crop, a very large one, was crammed with wild fruits and leaves, some of the fruits being two inches in diameter. The intestines contained a number of tape-worms.

Their tracks were often noted in the beds of creeks where the sand or soft mud would take an impression. We on several occasions heard their call, which seemed to be a short but deep booming grunt.

Megapodius tumulus (*Megapodius duperryi assimilis*).—The Scrub-Fowl was plentiful, and both old and freshly-attended mounds were very common. Some of these were 20 feet in height from the base. These are old nests, and are added to year after year. The bird burrows down into these mounds to deposit her egg, and then fills the burrow up. When searching for the egg one has to find these "pipes" and follow them down. This is one of the noisiest birds of the scrub, and may be heard both day and night. The call is loud, harsh, and screaming in character. Though essentially birds of the scrub, they are sometimes met with in open forest, and often wander to it at night, especially in the wet season, when the scrub is saturated with moisture. On one or two occasions they came into the trees near our camp and woke us with their raucous calling. They are shy birds, but we often got glimpses of them in the scrub. Once, when sitting quietly on the bank of a creek, we had a good view of one which strolled up on the other bank, walked jerkily about for some time, and then went her way. Once, when examining a Pitta's nest, a pair rushed past without taking any notice of our presence. They often served to replenish our larder, but are not nearly so palatable as the next species.

Catheturus purpureicollis (*Alecturus lathamii purpureicollis*).—Plentiful in the scrub. Their mounds are much smaller and more loosely built than those of the Scrub-Fowl. The naked skin of the neck is of a bright red colour, with a few white spots on the lower and upper parts. The wattle is of a lavender colour, instead of yellow, as in the southern form. The birds are an excellent addition to the menu.

Synoicus australis (*Synoicus ypsilophorus queenslandica*).—Several of these birds were flushed from the long grass, but no specimen was obtained.

Excalfactoria australis (*Excalfactoria chinensis cairnsæ*).—On several occasions we flushed this species from the grassy plain near our top camp, and obtained one specimen—a male.

Turnix melanotus (*Turnix maculosa melanota*).—We flushed these birds on many occasions, and obtained several specimens before the grass grew too long. In the wet season we found it a difficult matter to raise any of the Quail.

Ptilinopus swainsoni (*P. regina regina*).—Not at all common; noted on Haggerstone Island. In my previous notes I identified this bird as *P. ewingi*; this latter species, however, does not occur on the eastern coast-line, being found in the Northern Territory.

Lamprotreron superba.—A common bird in the scrub, where it usually nests and feeds on the wild fruits.

Megaloprepia assimilis (*M. magnifica assimilis*).—Frequently seen, and their throaty "Bol-be-coo" note more frequently heard, in the

scrub. They feed upon wild fruits, and keep to the scrub, where they usually nest on some thin, horizontal fork, at no great height from the ground.

Myristicivora spilorrhoea (*M. bicolor spilorrhoea*).—Mr. M'Lennan's earliest note of the arrival of these migratory birds was on the 9th August, when, on the Pascoe River, he noted seeing "a single Torres Strait Pigeon fly into the scrub." On the 29th August, when visiting Lloyd Island, he noted that "a fair number were coming over to roost." On the 30th he noted—"About 100 Torres Strait Pigeons came over"; then on the 31st he noted—"More Torres Strait Pigeons appear to be coming every day." On the 24th September he noted—"Great numbers of Torres Strait Pigeons are coming over to the island to roost." Again, on the 14th October, he noted—"Great numbers of Torres Strait Pigeons are now coming over."

On the 5th November, the morning after our arrival at the island, we were witnesses to the prodigious numbers that left their roosting-place on the island for the mainland. After the Lorikeets and Starlings had mostly left, the Pigeons began to fly off, first singly, then in pairs or small lots, at intervals, from different parts of the mangroves. These lots became larger and more and more frequent until a continuous stream of birds was passing over from every part of the mangrove belt. The cooing, starting from single birds at dawn, had gradually increased until it became a loud and continuous murmur. We walked along after this between the mangroves and the steep side of the island, and saw numbers still in the trees, where many were beginning to construct or had already made nests in the higher mangroves.

When at our camp on the Claudie we had frequently to take toll of these birds in order to replenish our pot. They were in the habit of feeding in the scrub just below our camp. They are easily traced to their food trees by hearing their deep "Hoo-hooing." These trees are tall forest trees whose tops are often hidden in the canopy of the scrub. They bear plum-like fruits, some blue, others red, and others, again, white; some are bitter, others have a pleasant sub-acid taste. The Pigeons swallow them whole, and make no difficulty over it even when one measures $1\frac{1}{2} \times \frac{3}{4}$ inches. The presence of the birds in a tree is also indicated by the constant dropping of fruit dislodged by them, but even then it is a difficult matter to detect them, as their black-and-white plumage blends so well with the light and shade amongst the leaves.

When at Lloyd's Island again on 11th January, we went along the mangrove sea-front in two boats, and entered at different points. Several Pigeons were flushed from their nests, which were not so numerous as we expected. A recent storm blew down many of the trees, leaving large gaps in places, so that only the well-sheltered nests survived. Many nests were empty, some contained addled eggs, others squabs, and a few recent ones fresh eggs. The addled eggs are due to the parents being shot for the pot by the blacks employed on the island, who find it much easier to shoot sitting birds than those flying. Some of the nests are mere skeleton platforms of sticks, through which the egg may easily be seen; others are quite compact structures of leaves and twigs.

By the end of January the Pigeons coming over were not nearly so numerous, and we saw many flocks flying northward.

Lopholaimus antarcticus (*Lopholaimus antarcticus minor*).—Of this Pigeon Mr. M'Lennan wrote first of all on the 16th May, 1911, from a camp on the Jardine River, 28 miles south of Cape York, when he noted the occurrence of three large blue Pigeons. On the following day he saw a large flock of blue Pigeons, and on the day after he got two. These birds are smaller than the Northern New South Wales birds in every way, and have a smaller crest. Both specimens were males. Mr. Vidgen, of Paira, Cape York, at this time stated that he had noted a couple of flocks flying over his house, and that they seemed to be coming from over the strait, evidently from Papua. He also noted that it was seven or eight years since any had passed over, and previously to that ten years. Mr. M'Lennan again noted them flying over on the 6th August, 1911.

They were not again noted by Mr. Vidgen until 1914, when he made the following note on the 29th May:—"The blue Topknot-Pigeon has come across this year. The first arrivals were seen about two weeks ago. This is their first appearance since 1911." On 6th August, 1914, he made this note:—"We have shot a fair number of the Lesser Topknot-Pigeon this year, and right up to the last sight of them the ovaries showed no sign of development. They evidently do not breed here." Mr. Vidgen sent specimens of these birds; they are much larger than those sent by Mr. M'Lennan, and are evidently *L. antarcticus antarcticus*.

Macropygia robinsoni (*Macropygia phasianella robinsoni*).—Frequently seen and heard in the scrub. We did not succeed in finding any nests. The note is a high-toned "Cuck-oo-waup," repeated five or six times in succession.

Geopelia humeralis (*Chrysauchæna humeralis lewinii*).—This is a very common bird; it is in the mangroves along the coast and on the islands off the coast. We frequently flushed small parties from the ground in the open forest country. One nest found in open forest on the 19th November was placed 10 feet up in a small tree; it contained two fully-fledged young.

Mr. M'Lennan found this species to be quite common on the Archer River.

Geopelia tranquilla (*Geopelia placida placida*).—Occasionally seen and heard. Mr. M'Lennan noted this species as being common on the Archer River.

Chalcophaps chrysochlora (*Chalcophaps chrysochlora rogersi*).—Fairly common in the scrub. They are ground feeders, eating seeds, kernels, and fallen fruits. A favourite feeding-place is under a *Calornis* tree, where the ground is carpeted with seeds and stones ejected by the nesting birds.

Mr. Kershaw and my son Ian found one nest in the scrub on the 14th November; it was 8 feet up on a horizontal bough, and contained two fresh eggs. The call is a soft "Coo-oo-oo-o." Mr. M'Lennan noted them on the Pascoe River.

Hypotænidia philippensis (*H. p. yorki*).—We first met with this bird on Quoin Island. They were numerous on Raine Island, either in the grass or on the sand. They shelter during the heat of the day in the burrows made by the Petrel (*P. sphenurus*) and in the caves under the coralline rock. We flushed several when investigating the Petrel burrows, and afterwards when searching the caves

and crevices for Tropic-Birds. We flushed one from a nest under some dry grass, the nest being a circular depression in the grass, with the eggs, four in number, resting on the sand. From dissections of other females, it was evident that many of them were breeding.

Rallina tricolor (*Tomirdus tricolor robinsoni*).—We heard nothing of this species until the 20th December, when they were heard flying over our camp at night. After this they were frequently heard flying over every night, and they always seemed to be coming from the east. About this time we left for the Reef, and on our return we frequently heard them calling in the scrub at night, but never once did we get a glimpse of one.

Poliolmnas leucophrys (*P. cinereus leucophrys*).—When following the bank of a deep tea-tree swamp we shot one of these birds perched in a bush growing in the water, and in doing so disturbed a large crocodile from a clump of nipa palms about 5 yards from us.

Amaurornis rufierissa (*A. moluccanus ruficrissus*).—We heard the first of these birds on the night of the 22nd December, flying over our camp; a few more were heard on the 23rd, and on the 24th they could be heard passing over at intervals throughout the night. After this date we heard them nightly for the remainder of our stay; it was then the wet season. During the day we often heard them in the long grass, either by the river or on the flats.

On 6th March, after our departure, Mr. M'Lennan made the following note:—"I flushed a Rufous-tailed Moor-Hen from a nest containing six eggs, and whilst I was packing the eggs the bird returned and kept walking about within a few feet of me, uttering a hissing and grunting note. The nest was 2 feet from the ground; the blades of grass were bent over and trampled down, forming a platform slightly hollowed in the centre, with a few pieces of dry grass for a lining."

Puffinus sphenurus (*Thyellodroma pacifica royana*).—We were on Raine Islet for the first week in December, and during that time we found many burrows of this Petrel in the soft sandy soil of the top of the islet, where it was covered with a dense, down-trodden layer of dry and wiry grass and herbage, which contained many thorny burrs. This layer had to be removed before the burrows could be located, and, as the soil into which the birds had burrowed consisted of a mixture of loose, floury guano and fine sand, the task of excavating them proved to be hot, dusty, and disagreeable. Some of the burrows went deeply, and pursued a tortuous course, on the average, for about 6 feet, and were difficult or impossible to follow; others, again, were shallower and more open, and ran along close to the surface; many ran under the limestone ledges, and were safe from interference. The birds uttered a grunting call on our nearing them in the burrows; some scurried out, and others remained in. Most of the burrows contained a fresh egg; several eggs were incubating, others just hatching, and a few nests were occupied by downy young, the down being of a smoky grey, with the feet, bill, and legs whitish. Each burrow containing an egg had a bedding of dry grass for its reception. When caught, some of the old birds vomited up the partly digested remains of small *Medusæ*, the same kind being found in the stomachs of those taken for specimens. At a later date we found this jelly-fish in the sea, inside the reef. These

Petrels cannot rise directly from the ground, but run or scurry along until they come to a ledge, when they rise, and make off to the open sea.

We frequently went up at night to where their burrows were. Many birds were flying to and fro, and their mournful wailing and moaning call was to be heard from all sides. Two at one burrow were crying like a pair of cats; another pair that we could discern seemed to be indulging in a kind of display whilst calling in this way.

Just before dark flocks of these birds would return to the island and fly up and down over the sea close to the shore for some time before coming in on to their burrows.

Porphyrio melanotus (*Porphyrio melanotus neomelanotus*).—This species was noted by Mr. M'Lennan on the Pascoe River and also on the Archer River swamps, on the opposite side of the peninsula.

Podiceps poliocephalus (*Poliocephalus p. poliocephalus*).—Noted by Mr. M'Lennan on the Pascoe River on 1st August, 1913.

Sterna media (*Thalasseus bengalensis torresii*).—A few of these birds were noted on our way up the coast, near Townsville, and later, when we were nearing the Ashmore Banks, small flocks were seen hawking over shoals of fish. We did not find them nesting on any of the islands or sand-banks visited.

Sterna cristata (*Thalasseus bergii pelecanoides*).—A small colony of these birds was nesting on the south end of Quoin Island when we visited it on 30th November. On our way out to the Ashmore Banks they were frequently noted hawking over the shoals of fish. When we arrived at the banks a great crowd of birds was seen to be over No. 3; on nearing the shore this was seen to be composed of this Tern and *Sula leucogaster*. On landing at the south end we found a nesting colony of the Tern. Nearly every nest (which was a mere depression in the sand) was occupied by a newly-hatched, downy young bird, several of which were running about; other nests contained eggs nearly hatching. Although the colour pattern is the same in all the young ones, the ground colour of the down varies in the same way as that of the eggs.

We found a larger colony at the northern end of the sand-bank. The nests here mostly contained a single egg; those on the outskirts and at one end were mostly fresh, whilst those in the centre and at the other end were incubating. A few young were in nests or were running about.

When we arrived at Raine Island, on the 4th December, two small colonies were nesting in the depression in the centre of the island. The birds themselves were very numerous; the air over the island seemed to be full of them. They are, however, mostly in pairs, and keep together when flying, every movement being in unison. They were often seen to perform most remarkable aerial evolutions, tumbling and rushing down from a great height, and soaring high in the air. They were frequently seen in early morning carrying off turtles' eggs from the sandy shore when these had been unearthed by the nesting reptiles.

Another considerable colony of these birds was found on a large sand-bank inside the Barrier Reef, north-west of Raine Island. Most of the nests contained fresh eggs, though many must get broken by the turtles, which overrun the bank every night.

Sterna melanauchen (*Gygisterna sumatrana kempi*).—Only noted once or twice after passing Cape Flattery on our way up the coast.

Mr. M'Lennan found this species nesting freely on one of the smaller islands in Lloyd's Bay on 17th October; all the nests contained young birds. He also noted them a year later on the western side of the Peninsula.

Onychoprion anæsthera (*Melanosterna anæstherus novæhollandiæ*).—We noted this species on the way up the coast after and before entering the Reef. On the 30th November we noted hundreds of these birds over the least of the three islands in Lloyd's Bay. This had been visited by Mr. M'Lennan on the 16th October, when he found them nesting freely in the crevices of the rocks. When nearing Quoin Island, on the same day, a great number of birds were hovering over it and settling on the shore at one end. A nearer approach enabled us to make them out as mostly of this species. Quoin Island is a rocky island about a quarter of a mile in length, and rising at its highest point about 60 feet from the sea. A dense growth of a stunted, succulent tree covers a good part of the top, coarse grass and herbage the slopes and lower part. This Tern was flying all over the island and nesting in the crevices of the rocks, in caves, and under herbage.

During our stay on Raine Island we found this species breeding in crevices of the rocks and amongst the piles of stacked limestone in the central hollow of the island. The birds were in great numbers on this island. At sea we frequently noted them hawking over the shoals of fish.

Onychoprion fuliginosa (*O. fuscata serrata*).—Raine Island provided us with many sights, but one of the most extraordinary and at the same time most interesting of these was furnished by this species. The birds come in from the sea at about 5 p.m. in immense numbers. They do not light upon the land, as one would expect them to do, but fly high round and round over the island in a vast circle, every bird uttering shrill cries. The noise produced by such a vast assemblage of birds is incessant and indescribable. It can only be compared to that of millions of Cockatoos all calling at once. This seemingly purposeless flight goes on all night long. One soon gets accustomed to the din, and it lulls one to sleep; indeed, the sudden cessation of the calling in the morning at daybreak, when the birds all make off to sea, is apt to awaken one. Watching these birds flying overhead, a few seem to keep together, in pairs, but otherwise one cannot make out any other purpose in this extraordinary flight. I could only think that it was a mating flight, preliminary to the commencement of the nesting season. After they leave the island in the morning we see no more of them until their return in the evening to resume their flight and fill the air with their graceful forms and incessant cries. This happened throughout our stay on the island.

Anous stolidus (*A. s. gilberti*).—This species was noted on the way up the coast, and when we arrived on Raine Island we found them in great numbers, lining the seashore of the island or in small colonies all over the island, mostly composed of fully-fledged young and their parents. Many more were continually over the sea in the vicinity of the island, and towards nightfall many more came in to roost on the island.

Anous leucocapillus (*Megalopterus minutus minutus*).—Many old nests and dead birds of this species were noted amongst the succulent trees on Quoin Island. Mr. M'Lennan tells me that there is another nesting place in Torres Strait, near Darnley Island.

Larus novæ-hollandiæ (*Bruchigavia novæhollandiæ gouldi*).—Gulls are always to be found where other sea-birds nest in colonies, and are always on the watch for a chance to steal an egg or young bird. They were in fair numbers on Raine Island, and were constantly to be seen early in the morning on the sandy strip above high-tide mark on the look-out for turtle eggs that had been scooped out by these creatures during the night. They were also numerous on the large sand-bank on the reef north-west of Raine Island.

Streptilas interpres (*Arenaria interpres oahuensis*).—Several small flocks of Turnstones were on the Raine Island shore and also on the large sand-bank on the Barrier Reef north-west of Raine Island.

Hæmatopus longirostris (*H. ostralegus longirostris*).—Mr. M'Lennan, when visiting the Macarthur Islands on the 1st and 2nd July, 1913, found six pairs nesting. The first nest found was on an exposed coral ridge, and contained one egg; two other nests contained two and one egg each, all hard set.

Hæmatopus fuliginosus (*Hæmatopus niger ophthalmicus*).—On the 2nd July, 1913, Mr. M'Lennan noted one pair on the Macarthurs.

Erythrogonys cinctus (*E. cinctus cinctus*).—In April, 1915, Mr. M'Lennan noted this species as common on the swamps off the Watson River.

Lobivanellus miles (*Lobivanellus miles harterti*).—During the winter of 1914 and 1915 Mr. M'Lennan noted these birds as numerous on the swamps and mud-banks near the Archer and Watson Rivers. He also noted one flock near the sandal-wood landing on the Claudie River before our arrival.

Squatarola helvetica (*Squatarola squatarola helvetica*).—A female was shot on Raine Island on the 10th December. This bird was very fat.

Charadrius fulvus (*Pluvialis dominicus fulvus*).—Many times noted on all parts of Raine Island.

Numenius cyanopus (*N. cyanopus*).—Noted on several occasions on the shore or in the mangroves near the shore. Mr. M'Lennan states that this species is at Cape York all the year round, but is more numerous during the summer months.

Numenius uropygialis (*Phæopus phæopus variegatus*).—Noted near the mouth of the Claudie River and along the mangrove-bordered banks of the river. We frequently flushed them from sand or mud banks or snags during our trips up or down the stream. They were also on Haggerstone and other islands off the coast.

Mr. M'Lennan noted large flocks at the mouth of No. 2 River, on the western side of the Peninsula, on 25th May, 1914. Probably they were congregating before their annual migration northwards.

Mesocolepax minutus (*M. minutus*).—On the 28th May, 1914, Mr. M'Lennan noted large flocks in company with Whimbrels and Curlews at the mouth of the No. 2 River. On the 16th April, 1915, he noted:—"Shot four Little Whimbrels, too fat to skin; evidently they lay in a supply of fat to sustain them during their migratory flight."

Limosa melanuroides (*Limosa limosa melanuroides*).—Noted on Haggerstone Island on the 16th December. Noted also by Mr. M'Lennan on the Watson River on the 23rd April, 1915.

Totanus stagnatilis (*Iliornis stagnatilis horsfieldi*).—Mr. M'Lennan noted this bird as occasional on the swamps off the Archer River in May, 1914.

Heteractitis brevipes (*Heteroscelus incanus brevipes*).—Mr. M'Lennan noted this bird as occasional on the Archer River, in May, 1914.

Actitis hypoleucis (*Actitis hypoleucis auritus*).

Glottis nebularius (*Glottis nebularius glottoides*).—Mr. M'Lennan shot a specimen on the Watson River on 25th April, 1915; it was very fat.

Pisobia acuminata (*Limnocinctus acuminatus*).—Common on Raine Island. Mr. M'Lennan found the Sharp-tailed Stint numerous on the swamps bordering the Watson River in April, 1915.

Parra gallinacea (*Irediparra gallinacea novæhollandiæ*).—On the 21st April, 1915, Mr. M'Lennan, writing from the Watson River, notes:—"Went out north-west from camp and struck a swamp. Some Jacanas were noted here. Spent a couple of hours in the swamp looking for their nests, but did not find any. Found three young, not long hatched, on a lily leaf."

(To be continued.)

Observations on the Genus *Hylacola* (Ground-Wrens).

BY F. E. HOWE, C.M.Z.S., R.A.O.U., CANTERBURY.

(Read before the Bird Observers' Club of Victoria, 22nd March, 1917.)

MATHEWS'S "A List of the Birds of Australia" (1913, page 199) shows that we have two species of Ground-Wrens, together with four sub-species, briefly set out as follows:—

Hylacola p. pyrrhopygia (Chestnut-rumped Ground-Wren).

Range: New South Wales.

H. p. belcheri (Geelong Ground-Wren). Range: Southern Victoria (coastal).

H. c. cauta cauta (Rufous-rumped Ground-Wren). Range: South Australia.

H. c. halmaturina (Kangaroo Island Ground-Wren). Range: Kangaroo Island, South Australia.

H. c. brevicauda (Short-tailed Ground-Wren). Range: Victoria (Mallee scrubs).

H. c. whitlocki (Western Ground-Wren). Range: South-West Australia.

For the technical descriptions of both species, with the exception of the female of *H. c. cauta*, I rely on those of Mr. A. J. North ("Nests and Eggs," vol. i., pp. 263, 265). I am indebted to Mr. H. L. White, of Belltrees, Scone, New South Wales, for the loan of a very fine series of skins embracing both species, together with all the sub-species according to Mathews.

These birds are strictly terrestrial in habits, but on occasions are seen in the lower branches of small trees or other thick bush, but always within a few feet of the ground. They are, practically speaking, entirely insectivorous.

Adult Male.—General colour above brown, with a rufescent olive tinge, which is more pronounced on the lower back and rump; upper tail coverts pale chestnut; wings like the back; inner webs of the quills brown, the apical half of the outer webs of the primaries externally edged with ashy-brown, their bases dull whitish, which is almost entirely concealed by the brown primary coverts; tail feathers brown, tinged with rufescent olive, and all but the central pair crossed by a subterminal black band and tipped with ashy-brown; a spot in front of the eye dusky-brown; a distinct line extending from the nostril over the eye whitish; ear coverts brown, with white shaft lines; under surface of the body dull white, each feather, except on the centre of the abdomen, with a longitudinal streak of blackish-brown down the centre; under tail coverts chestnut; thighs brown; bill dark brown; legs and feet flesh colour tinged with grey; irides hazel. Total length in the flesh, 5.5 inches; wing, 2.15; tail, 2.35; bill, 0.45; tarsus, 0.8.

Adult Female.—Similar in plumage to the male, but has all the under surface pale buff and less distinctly streaked, the dark brown centres being narrower, shorter, and not extending to near the tips of the feathers; centre of the abdomen whitish.

Immature birds are without the striping on the throat and breast, and, instead, nearly the whole of the under surface has a rufescent wash, particularly on the throat and upper breast.

This bird appears to be nowhere more plentiful than in the coastal scrubs between the Hawkesbury River and Wollongong districts of New South Wales, and Vigors and Horsfield's type (*Acanthiza pyrrhopygia*) was probably secured near Sydney. Its range must also be extended to Victoria, as one skin collected by Mr. A. G. Campbell on the Murray River during 1904 is undoubtedly referable to this sub-species, and not to the allied form, *H. p. belcheri*. Another skin, collected by Mr. Campbell during April, 1904, is a female, and the locality (Lethbridge) is only about 50 miles from the place where I obtained *H. p. belcheri*. This skin is perplexing. In size it is much larger than *H. p. pyrrhopygia*, and has the same rufescent colouring on the throat, breast, and flanks of the female of that bird, whereas in the female skin of *H. p. belcheri* this colouring is missing, and the skins were collected in the same month. In the last issue of *The Emu* (vol. xvi., part 3, p. 161), Mr. H. L. White, referring to some of the birds of the Cobbora district of New South Wales, says:—“It may not be out of place to mention here that the Cobborah Estate is 160 miles in a direct line inland from the nearest point (Newcastle) on the New South Wales coast, and to the west of the Dividing Range. The country generally is open forest and



Nest, Eggs, and Adult of the Rufous-rumped Ground-Wren (*Hylacola cauta*).

high-class grazing, but in the vicinity is a belt of poor scrubby land, and it is in this latter that Mr. Austin finds some very interesting variations in what are usually looked upon as more coastal forms. So marked is the variation that in two cases (*Eopsaltria australis austini* and *Geobasileus reguloides cobhora*) Mr. Mathews makes sub-species. Other species examined by me—viz., *Collyriocichla harmonica*, *Ptilotis fusca*, and *Hylacola pyrrhopygia*—present much paler coloration than the coastal birds, the *Hylacola* being quite remarkable in its variation.”

In the parcel of *Hylacola* skins lent me by Mr. White, he includes a mature male and an immature pair, male and female, collected by Mr. Austin at Cobhora on 7th October, 1916. The mature bird is certainly much paler above and below. The eyebrow is much whiter, the black centre of the throat and breast feathers is not so dark, and is more linear; the chestnut under tail coverts are broadly tipped with white, and the tips to the outer tail feathers are whiter and broader. The bird is also much larger than specimens collected near Sydney. Probably Mr. White will have something to say about this bird later.

H. p. belcheri (Geelong Ground-Wren).

Two skins collected by Mr. H. A. Purnell and myself at Anglesea, on the coast, south of Geelong, Victoria, on 4th April, 1915, belong to this form. In comparing them with skins collected near Sydney, they are readily distinguished by the darker upper surface, the more scaled appearance of the forehead and crown, the darker striping on the throat and breast, and the whiter abdomen. The eyebrow, too, is longer and whiter. During April, 1915,* and October of the same year Mr. H. A. Purnell and I located these birds in three or four spots. They were equally at home in the dense tea-tree scrubs bordering the creeks and coast and the heath and sapling country of the flats and ranges. In habits and song they reminded me greatly of *H. c. brevicauda*, of the North-Western Mallee scrubs. This bird flies well, but when it runs its speed is astonishing, and it was a difficult and long job to get specimens in the open heathy country. The song is beautiful and well sustained, and that of the male has more volume and is slightly higher pitched. On our second trip, the object of which was to collect the so far undescribed nest and eggs, the wet season had brought up a great growth of tall grass, and this, added to the dense undergrowth, accounted for our failure, for the birds were fairly plentiful, their rich song being heard on every hand, and, although we spent a full day, not a bird was sighted. .

Hylacola cauta.

Hylacola cauta cauta (Rufous-rumped Ground-Wren).

Adult Male.—General colour above brown, the back washed with rufescent olive, which is more pronounced on the rump;

* *Emu*, vol. xv., part 1, page 41.

upper tail coverts rich chestnut ; wings brown, with a faint rufescent olive tinge to the outer webs of the secondaries and the inner series of the greater wing coverts ; tips and margins of the median and greater coverts white ; basal portion of the outer webs of the outer primaries white, which is followed by a blackish wash towards the centre of the feathers, and then by a narrow edge of ashy-white on their apical half, except at the tips ; primary coverts blackish, and only partially concealing the white bases to the outer webs of the primaries, which form a conspicuous white spot towards the centre of the wing ; tail feathers blackish-brown, the central pair and outer webs of the remainder washed with reddish-brown ; tips of the four central feathers ashy-brown, the remainder being largely tipped with white ; a spot in front of the eye blackish-brown ; a line extending from the nostril over the eye white, bordered on the forehead by a narrow line of black ; ear coverts brown, with white shaft lines ; sides of the neck brown ; under surface of the body white, each feather conspicuously streaked with blackish-brown down the centre, except on the centre of the abdomen ; under tail coverts chestnut ; thighs brown ; bill blackish-brown ; legs and feet fleshy-brown. Total length, 5.5 inches ; wing, 2.2 ; tail, 2.3 ; bill, 0.5 ; tarsus, 0.85.

Adult Female.—Similar in plumage to the male, but the under surface is pale buff and less distinctly streaked, the dark brown centres being narrower, shorter, and not extending so near the tips of the feathers ; centre of the abdomen pale buff.

H. c. halmaturina (Kangaroo Island Ground-Wren).

When compared with *H. c. cauta*, the most striking difference is the darker streaking in the feathers of the throat and breast of *H. c. halmaturina*. The feathers of the flanks, too, are of a dark olive-brown in *halmaturina* and greyish in *cauta*, and the white tips of the tail feathers are larger and whiter in *halmaturina*, and the upper and under tail coverts are brighter.

All ornithologists who have met this bird in the field are agreed as to its timidity, and Capt. S. A. White, of South Australia (*Emu*, vol. xii., p. 269), says :—“ These shy little birds were fairly plentiful, and specimens were often seen darting over the open ground between the bushes, uttering a chattering call.” Mr. A. G. Campbell (*Emu*, vol. v., p. 142) says :—“ The male bird is a pretty songster, and always attracts notice by his strong-throated warbling. The female is less brightly marked, and the young is distinguished by a light fawn-coloured throat and chest, though it has the dark-centred feathers of the older birds.” This is the reverse of the young of *H. p. pyrrhopygia* ; they lack the dark striping.

Dr. W. Macgillivray has kindly forwarded for examination a skin of an immature male, collected by Mr. F. P. Godfrey on Kangaroo Island between 14th and 24th October, 1905. Considering that the *Hylacola* breeds in August, September, to December, this bird was apparently only a few weeks from the

nest. The striping on the throat, breast, and flanks is very conspicuous, and the former, as well as being striped, is rufous brown. This colour is only just noticeable in the mature female, and is absent in the mature male. The white speculum in the wing is as large as that of the mature male, which in the mature female is just discernible, and the white edging of the primaries is much more pronounced than in either of the adults.

H. c. brevicauda (Short-tailed Ground-Wren).

This form is shorter than *cauta* or *halmaturina*, and the tail is shorter also, and much shorter than that of *whitlocki*. When comparing the primaries with the latter, those of *brevicauda* are much darker, but the white edging is not nearly so conspicuous, the brown spot in front of the eye is larger and darker, and the white patch on the forehead is only about half that of *whitlocki*. Since 1907 I have spent a few weeks of nearly every year in the North-West Mallee scrubs of Victoria, and on each occasion have come across this bird. It is fairly well distributed, and is nowhere more common than at Underbool, midway between Ouyen and Murrayville. In the early part of the day its beautiful little song is heard wherever there is short mallee or turpentine or other good cover. About mid-day the birds become quiet, and are rarely heard until evening comes, and then they sing again until darkness fairly sets in.

This form is very fond of frequenting the scrubs bordering a road or track, particularly when "traversed" by the surveyors. On the cut-lines through the Mallee the birds are generally met with, and it is under the dead branches of the fallen mallee trees they love to place the nest. A slight hollow is first scratched out by the birds, and the dome-shaped nest, made of bark and lined with grasses and feathers, placed in it, the opening in the side being slightly higher than the ground. The female sits very close, and the nest is usually found by flushing the bird. Nests are often built into the bark and *débris* that accumulates at the foot of the mallee bushes. Twice I found the birds nesting in the porcupine (*Tridida*), and on another occasion a nest was found at Ouyen backed up against a fallen dead pine, and without any cover whatever; it was only found by flushing the bird.

The breeding season for the *Hylacola* in the Mallee is fairly early, commencing in August; but more nests are found in early September, and probably two broods are reared. The eggs are three in number, nearly oval in shape; texture of shell fine, surface glossy; colour olive-grey, with very dark indistinct spots underlying the surface of the shell, mostly about the larger end, where they form an indistinct zone. These eggs are like miniature eggs of the Pilot-Bird (*Pycnoptilus*). Messrs. A. J. Campbell and A. J. North describe eggs taken by Mr. W. White on Kangaroo Island as those of *Hylacola cauta*, and which are now referable to those of *H. c. halmaturina*. The clutch in my collection was taken by me at Pine Plains, North-Western Victoria, on 20th September, 1907. They measure in inches—(a) .84 x .61, (b)

.83 x .61, (c) .83 x .61. I now claim my set to be the type clutch of *H. c. brevicauda*. Twice I have taken the egg of the Fantail Cuckoo (*Cacomantis rubricatus*), and on one occasion that of the Narrow-billed Bronze-Cuckoo (*Neochalcites basalis mellori*), from the nest of this bird. In *The Emu*, vol. xiii., part 3, p. 149, I named this form as a foster-parent of *Chalcococcyx plagosus*, from information received in a letter from the late Mr. C. M'Lennan ("Mallee-Bird"). I rather think the strange egg was that of the Black-eared Cuckoo (*Owenavis osculans*). On 9th October, 1909, Messrs. J. J. Scarce, J. A. Ross, and I found a nest containing one egg and one young *Hylacola*, just hatched. It was blind and featherless; gape creamy-yellow, and the whole body perfectly black. Two days later I found a nest containing three fully-fledged young, that scattered as soon as the nest was touched. After much running we secured the lot. The plumage was identical with that of the parents, but the gape was cream in colour, mouth orange, irides dark brown.

Mr. A. J. Campbell, in his "Nests and Eggs," page 265, says:—"I have watched these birds in the Mallee. They hop about in pairs over the ground and through the under-scrub like *Maluri*." I think Mr. Campbell is wrong in saying they "hop." A Sparrow "hops," but the *Hylacola*, in its mode of progression, is like an *Amytornis*—half running and flying, with the tail held erect.

It is a fact that if the nest is touched, even if it contains an egg or two, the birds immediately desert it. At Underbool, in the North-West Mallee of Victoria, on 8th September, 1910, I was watching the suspicious actions of a Fantail Cuckoo in a small mallee bush in thick scrub. The Cuckoo was perched a few feet from the ground, and I could see by its actions that it kept looking towards the foot of the tree. I walked up and found a *Hylacola*'s nest nearly finished. I did not touch it, and quickly and quietly left the vicinity. After a week I visited the spot, hoping to take a nice combination clutch, but the nest was nearly pulled to pieces. This experience has been too frequent to please.

H. c. whitlocki (Western Ground-Wren).

Four skins collected by Mr. F. Lawson Whitlock for Mr. H. L. White at Mount Monderup, Stirling Ranges, Western Australia, are here exhibited.

This form is the most beautiful, the markings on the throat and breast being very much darker than those of *halmaturina* (the next darkest), and quite as broad as those of that bird, but much broader than those of *cauta* and *brevicauda*. The abdomen is whiter than any other of the genus, the chestnut upper tail coverts are brighter, and the tail longer. In size it is equal to *brevicauda*, both *cauta* and *halmaturina* being larger. Mr. Whitlock made two trips to the Stirling Ranges on behalf of Mr. H. L. White during the seasons 1910-11, and his field notes are worth recording. In *The Emu*, vol. xi., p. 239, Mr. Whitlock says:—

"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. 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 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 to 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 a chance of watching him. On my making the least movement he hopped or flew at once into a patch 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 related."

Australian Ibises.

By W. H. D. LE SOUËF, C.M.Z.S., HON. SEC. R.A.O.U.

THE Glossy Ibis (*Plegadis falcinellus*) is a comparatively rare bird in Australia, except possibly in certain localities, when compared with the White (*Ibis molucca*) and Straw-necked Ibis (*Carphibis spinicollis*). Glossy Ibises nest in single pairs in trees, usually overhanging water, and not in rookeries like the other species.

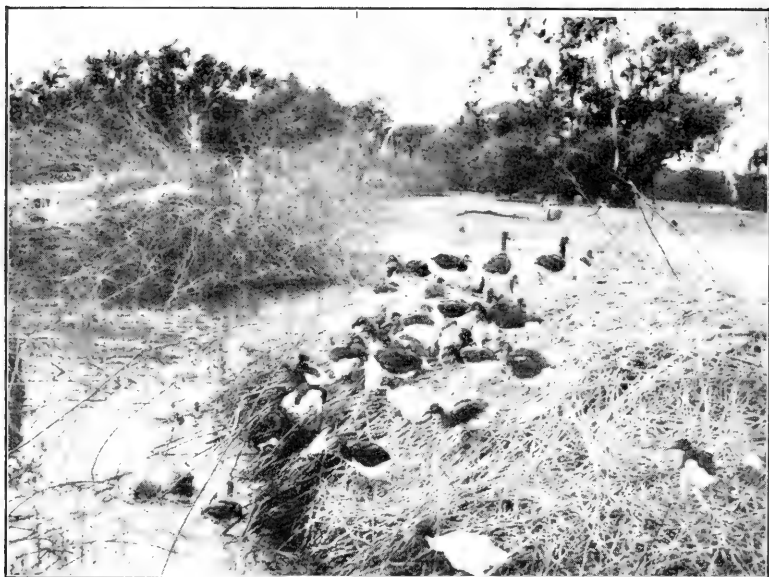
The Australian White Ibis is closely allied to the Egyptian Sacred Ibis, and is just as useful as that bird is in destroying locusts and other troublesome insects; that is evidently why the Egyptians made this bird sacred, and mummified it, over 3,000 years ago. In a wet season, when there has been sufficient water to fill the swamps with surface drainage, these birds congregate in thousands to construct their nests; but should the season prove dry, which it frequently does, they will not nest, apparently knowing that there would be no food or water when the young birds hatched out. Also, should they start nesting, and the water in the swamp dry up before the young birds hatch out, the parent birds will frequently desert the nests and eggs and leave a feast for the Crows. On one rookery alone in Riverina, New South Wales, over one hundred thousand Straw-necked Ibises were computed to be nesting. The normal clutch is three eggs, although occasionally two or four may be laid. The nests are built of twigs on the trodden-down lignum or other bushes which grow in the swamp, and the nests are frequently lined with fresh eucalyptus leaves, probably to drive the insect pests away from the sitting birds and young. The birds come to the swamp where they have decided to nest in various-sized companies, sometimes only a single pair or possibly 30 pairs, and they choose a bush that will take all the nests of the company; therefore, the single pair chooses a very small bush. The first-comers naturally choose the centre of the swamp to nest in; therefore you will frequently find young birds in the middle almost ready to fly, and fresh eggs at the outskirts, and all stages in order in between.

When disturbed by human beings the young of two adjoining companies will often scramble into the water and swim over to one another; I presume they return to their right quarters when danger is past. It is a little difficult for us to tell how the parents can distinguish their own young, say, in a group of 60 young birds all mixed up together. To us they all appear alike.



Flight of Ibises at Widgiewa, N.S.W.

PHOTO. BY MRS. OTWAY FALKNER.



Young of Straw-necked and White Ibises near Kerang.

PHOTO. BY W. R. PENNYCOOK, ESQ., BENDIGO.



Nest and Eggs of the Straw-necked Ibis (*Carphibis spinicollis*) at Widgiewa, N.S.W., January, 1917.

PHOTO. BY MRS. OTWAY FALKNER.

Although both species nest in separate rookeries, yet as a rule odd couples of the other variety nest with them; probably they could not locate their own company—anyhow, they agree together.

Their food consists mostly of grasshoppers, as well as fresh-water snails (which are frequently the host of liver fluke), beetles, and caterpillars. The enormous amount of insect life that is eaten by these useful birds is difficult to realize, as by actual counting I found that the contents of the stomach of one of them contained 2,410 young grasshoppers, 5 fresh-water snails, several caterpillars, and some coarse gravel, in all weighing $4\frac{1}{2}$ ounces.

It is impossible to estimate the value of the good work these birds do for the grazier and farmer; it is beyond our comprehension. Last season was a wet one in southern Australia, and the Ibis took full advantage of it and nested in many places—probably considerably over one million of these splendid birds were added to the Ibis population of Australia. The birds fly well and strongly, and often at a great height, and they are probably, without exception, the most useful birds Australia possesses.

White-winged Black Terns in Western Australia: a Remarkable Visitation.

BY W. B. ALEXANDER, M.A., R.A.O.U.

THE White-winged Black Tern (*Hydrochelidon leucoptera*, Temm.) breeds in the lakes and marshes of Southern Europe and Central Asia, from Spain to China. In winter it migrates southwards into the tropics, and is met with on the coasts and lakes of Africa, India, and the Malay Archipelago. The first record of its occurrence in Australia was made by Gould in the *Proceedings of the Zoological Society* in 1866, he having received specimens said to have been obtained at Cape York. Some doubt was thrown on the authenticity of this record, but the fact that the bird was an occasional visitor to Northern Australia was established on the publication of the "Catalogue of Birds in the British Museum," since, in addition to Gould's specimens, the Museum contains a skin obtained at Cape York by Captain Stanley on the voyage of the *Rattlesnake* in November, 1849, and two skins obtained by Elsey on the Victoria River, Northern Territory, in March, 1856. There are also in the British Museum skins of a pair from Nelson, New Zealand, procured on 12th December, 1868. Mathews, in his "Birds of Australia," gives his opinion that the authenticity of these New Zealand birds and of one of Gould's from Cape York must be rejected, since they are in full breeding plumage, and he states that after examination of a long series of skins he has found no other birds shot in the winter (of the Northern Hemisphere) in the breeding plumage.

The writer spent Easter, 1917, on a yacht at Careening Bay, Garden Island, off the coast of Western Australia, about 12 miles south of Fremantle. On Easter Saturday we experienced a very strong easterly blow, which was at its height in the late afternoon and evening. First thing the following morning a small Tern, in immature plumage, was found sitting in the dinghy, and on being approached tried to defend itself by pecking, but did not attempt to fly away. Some half an hour later it was thrown up into the air and flew off along the shore. Later in the morning we landed on the island, and in a bay at the southern end found a party of Terns hovering over the shore catching the large dragon-flies, *Hemianax papuensis*, which were exceptionally numerous amongst the shrubs on the island. When first seen from an adjacent hill these birds at once attracted attention owing to their very white tails, which were spread out in a fan-shape while they hovered. When closely approached and seen from below some of them were found to have black and white speckled bodies and a conspicuous black patch under the wings, similar in shape to that seen in the Letter-winged Kite; others were in the same immature plumage as our visitor of the morning. During the rest of the holiday these birds were constantly noticed along the coast, and on the following evening one settled on the deck of the yacht just at dusk, and allowed itself to be caught. It was placed in a hamper with the intention of taking it back to Fremantle alive, but next morning it was found to be dead. Subsequent examination showed that it had died from starvation, the stomach and intestines being absolutely empty.

On my return to Perth I learnt from Mr. O. Lipfert, taxidermist to the Museum, that he had seen these birds at Monger's Lake, close to Perth, and that among them he had had a good view of one bird entirely black except for the grey and white wings and white tail. I also heard from Mr. T. P. Draper, K.C., who had been spending the holidays near Mandurah, on Peel's Inlet, some 40 miles south of Perth, that there were hundreds of the birds on that inlet, and he brought a specimen which he had shot for identification.

Subsequently, I inserted a notice in the paper pointing out the rarity of these birds in Australia, and asking for information as to the localities in which they had been seen. The replies received may be summarized as follows:—

Mr. J. A. Waldeck, of Moora (about 100 miles north of Perth), writes that he saw the birds "on the coast west of Moora, at a place called Wedge Island, and for 12 miles inland, during Easter week." "We saw nothing of the bird on the way out, or at the coast till Sunday morning. On the way home on Monday they were very numerous, especially in the coastal hills; the last we saw at a swamp 12 miles inland."

Mr. F. F. Isele, of Wanneroo, says that the birds were seen on the Mariginiup Lake, 5 miles from the coast and 17½ miles north of Perth, in considerable numbers, also on Craigie Lake, 12 miles

north of Perth. He adds:—"I remember having seen the birds for several successive winters on the Upper Nile a few years ago, but, not knowing that they were not familiar to this country, I did not attach much importance to the matter."

Mrs. C. L. Johns, of South Doodlakine (120 miles E.N.E. of Perth), writes that the birds were there for a day or two about the middle of March, and then disappeared. "There is a chain of lakes, or rather swamps, about 4 or 5 miles away, and there is a large creek in our property which was running a banker."

Mrs. J. I. Rutland, of Bull's Brook (about 20 miles N.N.E. of Perth), saw the birds in great numbers a week previous to Easter. "Some of them flew away south without resting here, whereas about 50 hovered about for two or three days, living on the dragon-flies."

Mr. H. W. Gibbs, of Coolup (55 miles south of Perth), says that a large number of the birds were hovering over and around a swamp on his property, and spent most of the time in pursuit of flying insects.

Mr. J. F. Johnston, of Bunbury (a seaport 90 miles south of Fremantle), says that they were noticed first there on Easter Monday, and were in thousands. Numbers of them were hovering about over his lucerne patch, and there were large numbers on the Leschenault Estuary. Mr. H. W. Gibbs and Mr. C. L. Clarke also report numbers of them on the estuary at Bunbury.

Mr. P. L. Reynolds wrote that there were several hundreds flying about the estuaries and fields in the neighbourhood of Busselton (a seaport about 30 miles S.S.W. of Bunbury), and that they appeared there about Easter.

A specimen was also sent to the Museum from Balingup (125 miles south of Perth and 35 miles inland from Busselton), where it was picked up in a paddock.

The foregoing letters point to the birds having arrived overland from the north-east, and not along the coast, as might have been anticipated. They seem to have reached Doodlakine in the middle of March. They were seen at Bull's Brook before Easter, but they appear only to have reached the coast on Easter Sunday, as the result of the strong easterly wind on the previous day. At the risk of wearying my readers, I have set out all the observations I have been able to collect—firstly, because no field-notes on the habits of these birds in Australia have been published previously, and secondly, because a visitation of a species of bird in such very large numbers in a locality over a thousand miles from the nearest point at which it had been previously seen must be almost unprecedented. It seems quite clear that the total number of birds in the area between Moora and Balingup, 225 miles apart, must have been many thousands. Practically every swamp and estuary all along the coast-line seems to have had its quota. It has been stated already that their chief food seems to have been the dragon-flies (*Hemianax papuensis*). These insects were in millions throughout the district at the time, and it has been suggested to me that the birds followed them. I do

not know whether the unusual numbers of this common dragon-fly were reared in Western Australia or whether they also had migrated into the district. In this connection I may mention that enormous numbers of the butterfly *Danaida chrysippus petilia* appeared in south-west Australia in the summer of 1914-15. This species usually visits the area each summer, but in that year its numbers were incredible to anyone who did not see them, and it was accompanied by *Terias smilax*, which had never been met with in the south-west before, as well as by *Anaphæis java teutonia* and *Papilio demoleus sthenelus*. This is not the place to enlarge on this insect migration, but it is worth noting that the visitation of Terns can be paralleled by similar irruptions of insects.

In these days many people attribute any unusual occurrence to the war, and it has been seriously suggested to me that the birds had been disturbed from their haunts on the Danube or the Tigris by the fighting in those areas, and were seeking a peaceful home in Australia.

During the weeks following Easter the birds remained plentiful in the neighbourhood of Perth, and I frequently saw them about the Swan River. On two occasions I visited Herdsman's Lake, a large swamp a few miles from Perth, with Mr. T. P. Draper, in order to obtain specimens for the Museum.

The flock on Herdsman's Lake consisted of several hundred individuals, and, as already described, they spent their time hovering with widely-spread tails over the water and reeds capturing dragon-flies. Towards afternoon they settled down to rest among the reeds, and those that remained flying about were chiefly immature birds. I imagine that the older birds, being more adept at catching dragon-flies, obtained all the food they required by mid-day, whilst the young birds continued feeding longer. A slightly larger Tern of a different species, which I think was a Marsh Tern (*Hydrochelidon hybrida*), was associated with the birds on Herdsman's Lake, but it was not secured for identification.

Four different states of plumage were represented—

(1) *Adult in full breeding plumage*.—Less than 1 per cent. were in this plumage, and no specimen was secured, but, as already mentioned, one was seen by Mr. Lipfert. I saw one or two whose bodies appeared to be entirely black on Herdsman's Lake, and in the first week in May I had an excellent view of one sitting on a post in the Swan River at Perth. In this plumage the head and body are completely black, the wings grey, with a small white patch on the shoulder, the tail pure white. The feet and legs red, the bill *black*. This is the only feature in which this bird and the one seen by Mr. Lipfert differed from the illustration given by Mathews and the descriptions in the books. Is the red beak the last feature of the breeding coloration to be assumed, or does the Eastern form of the species have a black bill instead of a red one?

In this connection I may point out that the presence of birds in full adult plumage in Western Australia suggests that the New Zealand and Cape York records, which Mathews does not accept, may be genuine.

(2) *Birds in intermediate plumage.*—Probably 80 per cent. of the birds were in this plumage. The head and body were white, with black patches, varying in amount to some extent on different individuals, but not as much as one would expect if the birds were really in transition from winter to summer plumage. Moreover, the birds did not appear as a whole to become any darker during the month during which I frequently saw them, and this just at the time of year when one would suppose they would be acquiring their breeding-plumage (April and May). Judging from their sexual organs, these birds were all immature. The wings were grey, with a white patch on the shoulder, beneath with a large black patch, as already mentioned; the tail pure white; bill black; feet red.

(3) One specimen obtained was like the above in every respect except that the tail was grey. It is stated by Mathews that the females have grey tails, the males white. All the birds of group (2), both males and females, obtained by us had white tails, except this one specimen. The British Museum Catalogue says that this species is distinguished by its white tail.

(4) *Birds in immature plumage.*—About 20 per cent., or perhaps more, of the birds agreed with the others in size, colour, and shape of bill and feet and proportionate lengths of quill-feathers. Their plumage was, however, quite different. They were grey above, with brownish mottlings on the feathers of the head and wings; tail grey; under parts, including under surface of wings, pure white; feet red; bill black. It is only owing to their structural similarity and their constant association with the other birds that I regard them as individuals of the same species. Almost certainly they are in first year's plumage.

In my opinion the first year's plumage is (4), the second year's plumage (2), and the adult in summer plumage (1). I conclude that the birds that visited Western Australia were almost all immature, and that the few adults among them had already assumed their summer plumage by April, when they reached us. The bird described under (3) I suggest was a second-year bird, which had exceptionally retained the first-year coloration of the tail. These suggestions are made with much diffidence, as ornithologists who have had the opportunity of examining numerous skins from all parts of the world have reached different conclusions. I would point out that many members of the family *Laridæ* have two distinct immature plumages before reaching the adult form, though I am not sure whether this is the case among the *Sterninæ*.

In conclusion, I should like to appeal to Australian writers not to use the most inappropriate name of White-winged Tern

for this bird. The name White-winged Black Tern is given to this bird by British ornithologists to distinguish it from the Black Tern (*Hydrochelidon nigra*). It is true that the Latin name *leucoptera* bestowed on the bird by Temminck means "white-winged," but the white on the wing is a comparatively small amount on the coverts. I would suggest that it should be known in Australian books as the Black Tern, this being the only Black Tern in Australian literature, and hence not needing the prefix "White-winged" to distinguish it. It would be less misleading than dropping the word "Black" out of the name, as is commonly done.

A much happier name, as anyone who has seen the birds alive will agree, would be White-tailed Tern. The white tail, in contrast even with the speckled plumage of the majority of the birds seen in Western Australia, was very conspicuous, and in the adult this contrast is even more striking.

The Nestlings of Australian Finches: What do we Know about Them?

BY GREGORY M. MATHEWS, F.R.S.E., R.A.O.U.

A RECENT paper in an American scientific journal would not, perhaps, be noted by every Australian ornithologist, and, as it touches upon a subject which is of great interest to such, I here make some notes.

The paper is entitled "The Classification of the Weaver-Birds," and the author is James P. Chapin; it was published in the *Bulletin of the American Museum of Natural History*, vol. xxxvii., pp. 243-280, 8th May, 1917. It begins:—"The one external character which enables us to distinguish the Ploceidæ, or Weavers, from the Fringillidæ at a glance is the condition of the tenth or outermost primary." We have no members of the Fringillidæ in Australia, but we have a series of Finches which are classed in the Ploceidæ. The British custom, so far accepted by Australian ornithologists, is to call the outermost primary the first, whereas Americans count from the inside and term it the tenth. Much of Chapin's paper deals with the size and value in classification of this outermost primary, which is a very small one. Chapin's conclusions were drawn up from field study of the African members of the family Ploceidæ in the Congo, where he collected birds for some years. During this period he noted the coloration of the mouths of nestlings, and observed that peculiarities in that connection could be reconciled with other data, and thereby a more definite and conclusive classification be achieved. As regards the Australian forms, he had recourse to literature, and from this deducted certain items, which I now consider, and it is certain that such facts, when confirmed, will add to the value of

our classification. We may ignore the condition of the outermost primary in this place, as it does not concern us.

Two sub-families have long been recognized in the family Ploceidæ—Ploceinæ and Estrildinæ—all the Australian Finches being referred to the latter. Again, Chapin separates some aberrant members in the former sub-family, but that is of more interest to the general systematist or African specialist than to ourselves. He states, however:—"The skeletons . . . show no differences by which the Ploceinæ can be distinguished from the Estrildinæ. Moreover, they even agree closely with those of Fringillidæ, such as *Passer*, *Pinicola*, and *Parvaria*." No skeletons of Australian forms seem to have been examined, so that it would be of interest to consider these, especially as it is concluded afterwards that these are the most specialized forms.

Chapin's chief item is in regard to the mouth markings of the nestlings. Campbell, in the "Nests and Eggs Austr. Birds," vol. i., p. 498 (1901), under the species *Poephila mirabilis*, wrote:—"There is a singular fact in connection with the young birds that has not yet been recorded by other observers—that is, a protuberance upon the gape which (when the youngster is in a dark part of the aviary) reflects the light and shines with an opal-like brilliancy." Simultaneously, however, this has been noted by A. G. Butler in the *Avicultural Magazine*, vol. v., p. 25, December, 1898 (Campbell's MS. was written before this date, though not published until 1901), where he published a note "On the Ornamentation of the Mouth in the Young Gouldian Finch," observing:—"The inside of the mouth is either ivory-white or flesh-pink, the palate conspicuously marked (like a domino) with five more or less round black spots in pentagonal form—one in front, two wide apart in the centre, and two near together at the back. . . . The tongue is crossed just in front of its centre by a broad belt, or by two large pear-shaped black spots, with apex directed forward. . . . At the back of the gape are three prominent rounded tubercles in the form of a triangle. Two were emerald green and one blue, and all had a pearly or opalescent lustre."

Chapin states his results thus:—"The two sub-families Estrildinæ and Ploceinæ will be retained. For convenience we may distinguish them in English as Weaver-Finches and Weaver-Birds (or true Weavers). . . . So far as known, all the nestlings of the Ploceinæ lack dark spots in the mouth, have the gape simply swollen, and yellow or whitish, as is usual in the young of Passerine birds. The eggs of Ploceinæ are usually coloured or spotted, though in a few cases pure white. . . . The Estrildinæ are to be distinguished by the fact that their nestlings exhibit dark pigmented spots or lines in the mouth, often with small coloured wattles or lobes at the gape. These latter are lacking in *Spermestes*, *Amauresthes*, and *Munia*, which have lines on the palate instead of spots. Those three genera, with others, no doubt, still to be ascertained, are thus rather distinct from the rest of the group.

The Weaver Finches can scarcely be said to merit their name, for they build nests which are not pensile, nor really woven, their most typical form being flask-shaped. The entrance opens at the side. . . . A striking thing about their nesting habits—in many species, at least—is that the parents neglect to clean the nest of excrement, with the result that it becomes extremely foul before the young are ready to leave it. This is rarely the case with the Ploceinæ. . . . So far as I can ascertain, the Estrildinæ in every case lay pure white eggs. . . . From the preceding remarks, it should be clear that in order to decide on the relationships of the various genera of Ploceidæ, the examination of nests and young is indispensable. . . . It is greatly to be hoped that ornithologists will investigate the nesting. . . . The skeleton, and particularly the sternum, of the last-named genera are worthy of attention. Important features of many . . . genera are still in doubt. . . . The exact affinities of *Tæniopygia* and the other Australian genera may not be very clear, but they are all surely Estrildine.”

A diagram is given to illustrate the apparent development of the forms, and *Poephila*, with which Chapin would associate the other Australian forms, though he has indicated that *Munia* is aberrant, is placed almost at the limit. On this account alone it would be of great value to have on record the coloration of the mouths of Australian birds. There is almost a score of species on the Australian list, and the majority of these are referred to different genera, a dozen being accepted by conservative workers. Very different coloration is seen throughout the series, and in some cases the same colour-pattern has been retained, though structural differences have been evolved. Nothing is known about the mouth coloration, save in the case of *Poephila* and *Munia* (not the Australian species of the latter genus).

Chapin, from other characters, ranges the species into groups, and thus *Aidemosyne* and *Munia* appear in the lowest, then *Tæniopygia*, then *Bathilda*, *Ægintha*, *Stizoptera*, *Zonæginthus*, *Neochmia*, *Stagonopleura*, *Erythura*, and *Poephila*, while he appears to have overlooked *Emblema*. This is apparently Chapin's idea of their development, and it is certainly different from the grouping, following Sharpe, given in my "List," which reads:—*Stagonopleura*, *Zonæginthus*, *Tæniopygia*, *Emblema*, *Stizoptera*, *Lonchura* and *Heteromunia* (= *Munia*, Chapin), *Aidemosyne*, *Ægintha*, *Bathilda*, *Poephila*, and *Alisteranus* and *Neopoephila* (= *Poephila*, Chapin), and *Neochmia*, *Erythura* having been added since the "List" was published. Many of the Australian species are available to field ornithologists, so I am writing this note asking anyone who meets with nestlings to observe and record the coloration or any other details of the mouths, so that Chapin's notes may be confirmed, or otherwise, from different material and locality.

A couple of interrogations may be noted. Have the Australian species referred to *Munia* the same aberrant mouth-coloration as

the Java Sparrow, the real *Munia*? Has *Aidemosyne* a spotted mouth, or is it like *Munia*? Then *Taniopygia*, from external characters alone, is regarded as possibly peculiar, and thus merits consideration. My own conclusion, from Chapin's account, is that all the Australian birds will be found to resemble more or less *Poephila*, though it is possible that unexpected results will be seen, especially as it is suggested that these Weaver-Finches have arrived in Australia at different periods. It is certain that they are immigrants from the north, and, moreover, comparatively recent. Thus, they are practically absent from south-west Australia and Tasmania, only one species occurring in each of these localities, and these are representative species, belonging to the same genus, *Zonæginthus*. This at once suggests that this was the earliest immigrant into Australia, and that later arrivals have exterminated it in the northern districts. *Stagonopleura* and *Taniopygia* occur in Victoria and South Australia, and these may have come with *Zonæginthus*, but in less numbers, and, not being such wanderers, have failed to penetrate into Tasmania or get round to Western Australia. It is possible that some of the northern species came at the same time, but did not push south, but it is certain that the northern forms are extending their range, as the case of *Erythura* emphasizes this. However, the Australian species are all well differentiated, so that every item that can be of use is necessary. Consequently, I hope this note will bring forth descriptions of nestlings' mouths, and if this be undertaken it is feasible to anticipate other items being recognized that may be of even more value.

A New Raptor (*Gypoictinia melanosterna*) for Tasmania.

BY COL. W. V. LEGGE, C.M.B.O.U., TASMANIA.

ON or about the 23rd November, 1916, while in my poultry yard in the early morning, my attention was arrested by an unfamiliar cry of a bird of prey, accompanied by the well-known notes of the Brown Hawk and the Harrier. The birds were high in the air, directly above me. Soaring in wide and perfectly uniform circles was a large, Eagle-like bird, with long, narrow wings and even tail, seemingly quite indifferent to the swoops of the two Brown Hawks and the Harrier. The wings and tail showed at once that he was not a Wedge-tailed Eagle, and a momentary glance revealed to me the two conspicuous white under-wing patches identifying the stranger as the splendid Black-breasted Buzzard (*Gypoictinia melanosterna*), beautifully depicted in Gould's fine plate. As Campbell remarks in his "Nests and Eggs," these white patches, very noticeable from beneath, when the bird is soaring above the spectator, are an easy clue to its identity. It was a fascinating sight to gaze at its majestic circlings, with perfectly immovable wing, all the while indifferent to the attacks

of its adversaries. Gradually widening them without a beat of the wing, the Buzzard moved out in a north-easterly direction towards the forest-clad ranges of the East Coast, until he was lost to view.

The question arose at once—from whence and by what migratory path had this new visitant come to Tasmania? The true Buzzards and our aberrant Australian form are denizens of forests, both on mountain and plain. It is therefore probable that the newcomer, under the influence of the frequent north-easterly winds of last spring, took flight from the Gippsland forests across Bass Strait to the Flinders Island ranges. Once in that locality, it is an easy advance for a bird of powerful wing to the forest-clad region of Cape Portland, and thence southward to the “wilderness” of hills and gorges which unite with the East Coast ranges, thickly clad with forest. An alternative route would have been from the Otway Forest to King Island and across to the North Coast. There the country rises rapidly to the Great Central Plateau of Tasmania, which would tend to preclude a further wandering to the south or east.

To ornithologists who are given to studying the Accipitres, the Black-breasted Buzzard is an interesting species. The wide range that it is now known to possess since the publication of Messrs. Campbell and Barnard's exhaustive paper on “The Birds of North Queensland” has been but slowly added to during the long years from Gould's day until now. This is doubtless due to its being, like the true Buzzards, a forest-loving species, and consequently difficult of observation. Its great eastern habitat, the mountain forests of Eastern Victoria, New South Wales, and Queensland, is extended by the above-quoted paper to the Northern Territory. From the coast brushes, where Gould procured it, the Buzzard probably, in the breeding season, sallies westward into the great timber land beyond the Dividing Ranges on its bird-egging depredations. There it would breed in isolated forests, coming as it did under A. J. Campbell's far-reaching observations. Its powerful flight will carry it thence westward to the Macdonell Ranges, where it is also probably resident, as these ranges would help as a connecting link to the Western Australian woodlands, where Gilbert found it. From there north the intervening forest land in the Kimberley province will form another link in its range to the Northern Territory.

The most noteworthy feature in the interesting life-history of this species is that, added to its ordinary reptilian diet, it has a daring habit, combined with much “sagacity and cunning,” of robbing birds of their eggs, as an addition to its larder. As this fact may not be known to readers of *The Emu* who have not had an opportunity of reference to our standard works, it may be well to recapitulate some of the evidence relating to the exploits of the robber. It was first heard of from the aborigines, and disbelieved. Why that should be so is not plain to the writer, for no one who has studied the ethnology of the Australian aborigine

can deny that among the child-races of the world he stands pre-eminent for his marvellous powers of vision and observation in his native wilds. He is a human companion of the fauna among which he lives. Gould's valued collector and assistant, Gilbert, was the first, as we note in the great author's "Handbook," to give information on the subject on the testimony of the blacks, as related by a pastoralist, Mr. Drummond, together with his son. In essence, the natives' story is that the Buzzard, having discovered an Emu on its nest, advances on the ground to the attack, with a stone in its talons, with outstretched wings, and assaults the Emu with great ferocity. Having driven the Emu off the eggs, the Buzzard hovers over the nest and drops the stone on the eggs. It then devours their contents, and, in addition, probably carries some to its nest. If no stone is procurable the bird picks up a lump of hard, calcined earth and uses it! A. J. Campbell, in his comprehensive work, "Nests and Eggs of Australian Birds," alludes to this evidence, and adds to it considerably by giving an extract from an article by Mr. H. K. Bennett in the *Proceedings of the Linnean Society of New South Wales*. This substantiates the evidence of the blacks. Mention is made here of a friend of his who found an Emu's nest with five broken eggs and a lump of calcined earth "as big as a man's fist" lying by them. Further proof is given by A. J. Campbell, who found a nest with the shell of a Bustard's egg in it. Finally, in Messrs. Campbell and Barnard's paper on "The Birds of North Queensland," we have the latter's testimony that he has proof of this robber "dropping stones on eggs in the Northern Territory." There they also noticed its great soarings, and were struck by "its peculiar floating flight while hawking over the tree-tops." Lastly, in its nesting habits it competes with the Eagles in building its eyrie, which is nearly as large as that of the Eagles. It no doubt has the habit of adding to the structure from season to season, as the Sea-Eagle (*Haliastur*) does, which, by the way, is not the custom of our Wedge-tailed Eagle, so far as I have ascertained.

Kaup, the well-known Continental ornithologist, removed this species from the genus *Buteo*—the true Buzzards—and created for its reception the new genus, *Gypoictinia*, on account of its very differently scaled tarsus, the anterior portion of which is protected by broad, diamond-shaped scales, which are supplemented on the sides and posterior part by small reticulated ones. This amply justifies its separation from *Buteo*, in which the anterior tarsal scales are rectangular and transverse.

Finally, we may note that, to the systematic ornithologist, there remains the interesting fact that the one and only Australian member of this noteworthy group of birds of prey stands almost at the head of the group in size. It is only exceeded in dimensions by one or two species of the true Buzzards, notwithstanding that they range over the new world and the old, Malaysia and Oceania excepted, the big South American Buzzard (*Buteo melanosterna*) of the western republics of that continent being the only species that passes our bird materially in size and length of wing.

Birds of Rockingham Bay District.

BY A. J. CAMPBELL, C.M.B.O.U.

IN the remarks by Mr. H. G. Barnard and myself on the birds of this rich region which appeared in the last issue of *The Emu*, two kinds were held over for further elucidation.

Pachycephala queenslandica (Queensland Whistler).

No birds are more puzzling in their phases of plumage than the Yellow-breasted Thickheads. When we were on the flat country and on Goold Island, during August and September, we procured specimens which, although apparently adult, showed signs of immature plumage (rufous edgings on the wing feathers, &c.), and their notes were different. But when we went to the ranges during October we found the males "full-throated" with song, and with breasts resplendent with yellow. We now believe that the grey birds of the coast and the full-plumaged ones of the range are referable to the race above-named.

Ptilotis lewinii (*chrysotis*) (Yellow-eared Honey-eater).

We found this a fairly common species. It frequented the flowering citrus trees of gardens, and came into outhouses and even dwellings after fruit; hence sometimes the local name of "Banana-Bird." In the open the bird fossicked various native flowers, including the olive-green floriferous heads of a climbing pisonia (*P. aculeata*). These flowers, judging by the hum of insects (including a big "bumble bee") about them, must be heavily charged with nectar.

Several nests of the Honey-eater were taken on the coast land, and birds observed, but the nest which we were "shepherding" on the table-land was destroyed by some evil thing. The table-land birds were more tuneful, and frequently gave the characteristic trilling whistle of *lewinii*, which we never heard the lowland birds give. Therefore we thought the lowland variety might be possibly *P. notata*, but the only skin obtained in that locality proved to be *lewinii*. Could the commonly-reputed *notata* of collectors, after all, be a northern form only of the widely-distributed *lewinii*? We regretted we did not get more material while on the spot.

Referring to pisonia trees and their sticky seeds, the late Mr. A. J. North, in his "Nests and Eggs," vol. ii., p. 109, when dealing with *Ptilotis notata*, on the authority of Mr. Frank Hislop, Bloomfield River, mentioned this Honey-eater in connection with another pisonia (*P. brunoniana*), the seeds of which sometimes hold a bird as with the best bird-lime. Indeed, the new material must be more potent than the best bird-lime, because Mr. Hislop has seen on the floor of the forest Nutmeg-Pigeons, a large Rufous Owl (once), and a Crested Hawk, disabled by the clinging, glue-like seeds.

Various.—To our former list may be added the following, which were observed during my previous trip (1914), namely:—*Ægialitis nigrifrons* (Black-fronted Dottrel), *Ægialitis ruficapilla* (Red-capped Dottrel), *Charadrius fulvus* (Lesser Golden Plover), *Hematopus fuliginosus* (Black Oyster-catcher), seen at Dunk Island; *Lobivanellus personatus* (Masked Plover), *Anthus australis* (Australian Pipit), seen on Bellenden Plains.

Regarding the previous remarks on the Ashy-fronted Robin (*Heteromyias cinereifrons*), although we found nests with single eggs only, the photograph in my book, "Nests and Eggs," by Mr. D. Le Souëf, shows that a pair of eggs is sometimes laid by this Robin. Also, referring to the Striped Honey-eater (*Plectorhyncha lanceolata*), we stated these birds were observed on Gould Island only. Some were noted on the Kirrama table-land too.

To conclude. It is a far cry from Kirrama, North Queensland, to South Yarra, Melbourne. During October I heard the merry voices of Reed-Warblers (*Acrocephalus australis*) on the Kirrama Creek. The next occasion I heard them was two months later, in the private gardens surrounding my lodgings in the populous suburb of South Yarra. There is much yet to be learned of the migration movements of these agreeably interesting birds.

New and Rare Victorian Birds from Mallacoota.

BY JAS. A. KERSHAW, F.E.S., R.A.O.U., NATIONAL MUSEUM,
MELBOURNE.

IN January last Mr. C. Daley presented to the National Museum two birds sent from Mallacoota, in the far east of Victoria, by Miss E. Dorran, R.A.O.U. These proved to be specimens of the Top-knot Pigeon, *Lopholaimus antarcticus*, and the Koel or Flinders Cuckoo, *Eudynamis cyanocephala*. The former, although a very rare visitor, has already been recorded from Victoria, and one or two are known to have wandered as far south as Tasmania. As early as 1879 a head of this fine Pigeon was forwarded, with other birds, to the Museum from the Gippsland Lakes by the late C. T. Stafford, Esq., who wrote:—"The head of this Pigeon is one of six birds that were brought to me as shot in the vicinity of the lakes, a considerable flight of them having come over the sea, but too far gone in moult to be of any service as specimens. . . . The flesh is very inferior to the Wonga or Bronze-wing for the table." The occurrence of the Koel or Flinders Cuckoo so far south is of particular interest, as it does not appear to have been previously recorded south of Sydney. The specimen, which was the only one seen, is a female.

Additional interest is attached to the above by the still more recent discovery in the same locality of the Red-crowned Fruit-Pigeon, *Ptilinopus swainsoni*. The specimen, a young male, was obtained by Miss E. Dorran on the 21st August last, and forwarded

to the Museum in the flesh. So far as I can ascertain, this species has not been previously recorded south of the Hunter River in New South Wales, though *P. superbus* appears to have wandered as far south as Tasmania, and the late Mr. A. J. North has recorded a young male from Buckley's Crossing, in the Snowy River district, near the southern boundary of New South Wales. The occurrence of these three species so far south of their usual habitat suggests the possibility of further unexpected discoveries in this little-known locality.

Camera Craft Notes.

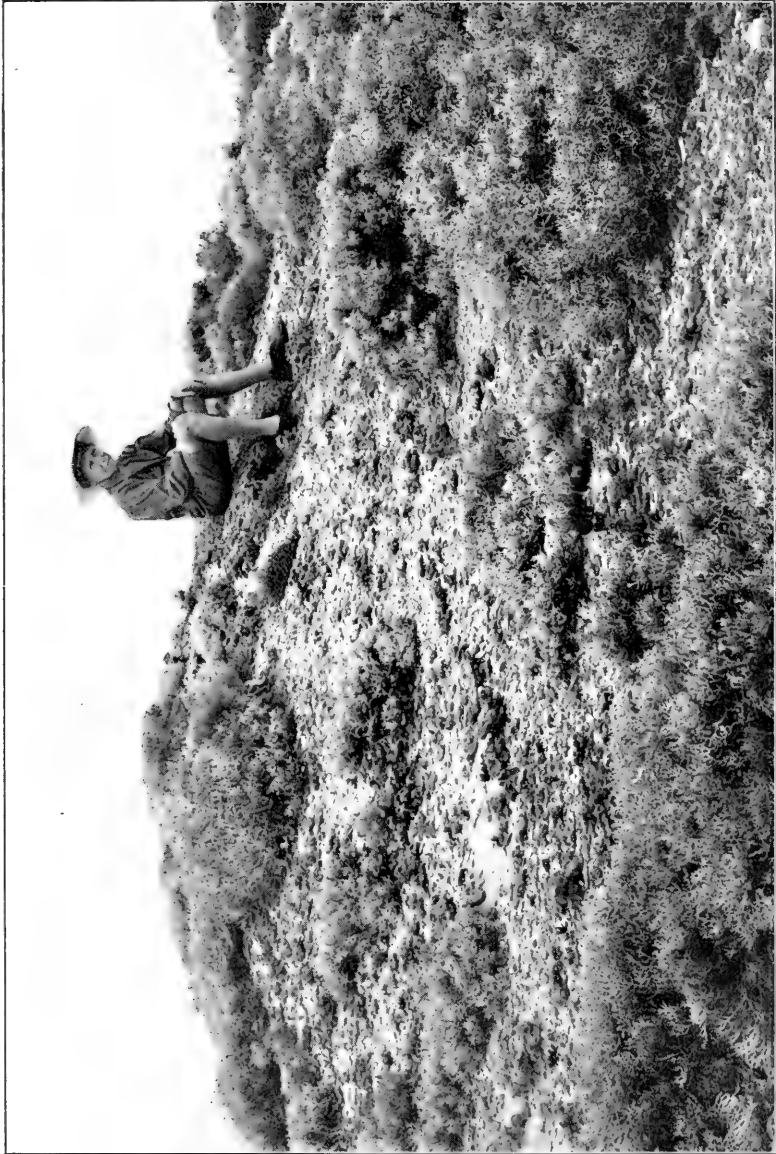
"Warrener" Shells at Portsea.—The accompanying photograph shows a small rocky islet on the shore platform, Ocean Beach, Portsea, Victoria. The top of the islet is covered with shells and the operculums of the large "Warrener" or Periwinkle (*Turbo*) used by the Pacific Gull. Capt. White expressed doubt on a somewhat similar occurrence in a recent issue of *The Emu*, but I am satisfied the Pacific Gull does drop the shells to break them.—D. LE SOUËF, C.M.Z.S.

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Evelyn Notes.—The Evelyn district is well known to many bird-observers on account of being fairly rich in bird-life. Our few experiences of the locality have usually ended in disaster through bad weather. The accompanying photographs serve to remind us of perhaps the most uncomfortable night we have ever spent in the cause. We decided to pay a visit to Evelyn one week-end during September, 1915, to obtain, if possible, pictures of the Mountain Thrush (*Oreocincla lunulata*), of which we had previously located two nests. We arrived at mid-day on Saturday, loaded up with blankets and stretchers, prepared for sleeping out. We did not bring a tent, however, and were not prepared for the rain which fell continuously throughout the afternoon and night. After capturing the young ones—one was nearly drowned in the process—we proceeded to make ourselves a shelter for the night. This, however, added to our discomfort, as the sodden branches dropped icy water down our necks. Eventually we managed to light a fire, and decided to sit at that all night. We steamed and shivered till daybreak, when we commenced operations. At lunch time, however, the adult birds still kept at a distance, and we were obliged to satisfy ourselves with photographs of the young. We were, however, more fortunate with a Harmonious Thrush (*Colluricincla harmonica*) nesting near by, which obliged us with several sittings.—S. A. LAWRENCE, R. T. LITTLEJOHNS. Melbourne, 29/5/17.

* * *

The Shy Barred-shouldered Dove.—Pigeons and Doves are so far as my experience goes, among the most difficult of Aus-



Rocky Islet covered with Operculums and the Shells of the "Warraner" or Periwinkle (*Turbo*) used by the Pacific Gull (*Gabianus pacificus*), Ocean Beach, Portsea, Victoria.





Young of Australian Ground-Thrush (*Oreocincla lunulata*).

PHOTO. BY S. A. LAWRENCE, R.A.O.U.



Double Nest of Barred-shouldered Dove—lower one deserted.

PHOTO. BY A. H. CHISHOLM, R.A.O.U.

tralian wild birds to photograph—a fact that is not so much due to the average situation of the nests as to the restlessness of the owners. Accordingly, the natural zest which attaches to the stalking of a bird with a camera is added to in the case of the *Columbiformes*, and increased further by the exceeding gracefulness of the birds, particularly the crested species, when sitting on the nests. The Crested Pigeon (*Ocyphaps lophotes*) at home is one of the prettiest avian vignettes one could wish to see; but, personally, I have not been able, with a limited experience of the bird, to do more than photograph a nest of its young. During this week I endeavoured to obtain a pictorial acquaintance with the rarest of the three Doves—*Geopelia humeralis*; but the effort terminated before it was well begun, owing to the excessive shyness of the potential sitter. The nest was found on 2nd August, in a thorny bush on the bank of Norman Creek, in the heart of East Brisbane. It was just the usual flimsy structure of grasses, but interest was added to the discovery by the presence of a second nest immediately adjacent. Each nest contained two eggs, but the set in the lower of the pair was addled, and partly covered with grasses, obviously having been deserted. The Dove flushed strongly at the first footfall, and did not return to the vicinity within two hours. I photographed the two nests without handling the contents of either, and gave the scene a call later in the day. The Dove was sitting again, but she flew immediately, and, from that point, probably did not go near the nest any more, for when I paid another cautious visit on the following day the fresh eggs were cold. A day later there were only a few bits of shell in each nest—some marauder had cleaned out all four.—A. H. CHISHOLM, R.A.O.U. Norman Park, Brisbane, 11/8/17.

Stray Feathers.

Harriers in New Zealand.—I was interested in Mr. Dove's notes on the Harrier in last issue. In New Zealand *Circus gouldi* is the common—almost the only—Hawk. There is a bounty on its destruction in this district, given by the Acclimatization Society, and a patient of mine remarked the other day—"Well, the Hawks' bills have paid the doctor's bill this time," and sure enough he paid me with a cheque of £3 11s., representing 142 beaks. He is a rabbit trapper by occupation, and catches the Hawks in rabbit traps baited with a dead rabbit. Even young (healthy) rabbits seem to have no fear of the Hawks, and I have never seen a Hawk swoop at a rabbit yet; but he tells me they will sometimes attack a baby one, or one in the last stages of death from poisoning. Mostly they feed on dead ones, I fancy. He only trapped a small area, and 142 beaks seem to me an astonishing number for a range of a few hundred acres.—T. J. ICK-HEWINS. Waiuku, N.Z., 4/9/17.

[Why this licensed slaughter?—EDS.]

Nesting of Black-fronted Dottrel.—About the first week in January, 1917, when on the banks of the Yarra River, near Heidelberg, I noticed a pair of Black-fronted Dottrels (*Ægialitis melanops*), and, after watching them for some time, saw the female bird approach her nest and sit on the two eggs, which she had left on my arrival. I then took a stand a little distance off, partly hidden from the birds, and noticed the female return to the nest and sit on the eggs for a short time and then leave again. This she did several times; but at other times when she went to the nest she seemed to place a small drop of water on each egg, but did not sit on them when she did that, and when I examined the eggs I noticed the water. This she did on several occasions, and, as the day was very hot and the eggs were exposed to the sun, I was wondering whether the bird moistened the eggs with the idea of better protecting them from the heat of the sun. They were well advanced in incubation. I would be glad to know whether any other bird observer has noticed the same thing.—DONALD THOMSON.

* * *

Magpie-Lark.—Concerning that little favourite, the Magpie-Lark (*Grallina picata*), the following incident may be of interest. Behind my house is a box-tree in which a pair of these beauties build. During the very dry spell last year they used a little puddle-hole near my window for their "pug," which they made from collected grass (very small pieces), and mud, *but only one operated at a time*. The male, carrying his quota of building material, would fly in a bee-line for the nest, and *immediately* on his arrival the female would leave the nest on the other side in such a manner as to give the casual observer the impression that the one bird flew right through the tree and out the other side. My friend, Mr. H. Burrell, considers this to be a means of protective deception on the part of the birds. It certainly seems like it, especially as it was difficult, even at a distance of five yards, to distinguish male from female, owing to their very muddied throats and breasts. I am convinced that the birds understood all the principles of the Monnier system of reinforced cement in mixing the mud with grass.—T. J. REDHEAD. The Vicarage, Manilla, N.S.W., 2/7/17.

* * *

Simulation of Death by the White-eared Honey-eater (*Ptilotis leucotis*).—I was, during the season, greatly interested in the wonderful mimicry of death by a female White-ear at Ferntree Gully. In a dense thicket of dogwood (*Prostanthera lasianthos*) I came across a very deep, cup-shaped nest of this Honey-eater suspended from the frail branches of a dogwood. It was, as usual, beautifully constructed of dry grasses and strips of dry bark, and lined with a very thick mat of black wallaby hair, and contained two young birds, apparently about a couple of days old. Whilst admiring the beautiful cradle, the female flew into

the top of an adjoining dogwood, and, steadying herself by clinging with her feet uppermost to every twig in its line of descent, gradually came to the earth, when it very slowly collapsed upon its side. The feathers of the neck shivered, and then lay quite open and loose, and the brilliant beady eyes nearly closed. Then like a flash she was up and away, but speedily returned, to repeat the same manœuvre over again, until I quietly drew away from the heavily-breathing, naked bird babies in their cosy nest, and left them to their mother's care.—A. CHAS. STONE. South Yarra.

* * *

Warburton Bird Notes.—Yesterday (30th April), at 10.30 a.m., whilst working in my office, I pricked my ears at an unusual bird call outside. Surely a Cuckoo? On going outside, the plaintive trill of the Fan-tailed Cuckoo was heard in all directions, and in the distance the sad note of the Pallid Cuckoo. There must have been at least a dozen Fan-tailed Cuckoos calling, and three were seen in a small tree fronting the road. They were in evidence for about ten minutes, and then all departed as abruptly as they came, and have not been heard or seen since. Doubtless they were on their way back north. On several occasions last week a fluttering at the window announced the visit of a Black-and-White Fantail, apparently desirous of engaging in mortal combat with his own reflection. Butcher-Birds are heard every day. One in particular has a very musical song, which might be attempted in musical notation thus:—



Lyre-Birds are fairly plentiful along the Donna Buang road, and by going quietly one can get quite close to them.—A. E. RODDA. Warburton, 1/5/17.

* * *

Late Migrants in Tasmania.—The following three species of birds, which usually go northward in the autumn, are, in June, still about Hobart, their most southerly range in the Australian Region:—

Australian Curlew (*Numenius cyanopus*, Vieillot) was on the sandy beach of Bellerive this morning (12th June). It is not a good feeding-ground:—in fact, a bad one, and the Silver and Pacific Gulls (being too clean) appear to be the only birds which get a living upon it. The two Curlews had probably strayed, as the morning was well shrouded in fog. It is the first morning this winter with a fog and a frost combined. Perhaps the food supply in their familiar grounds had frozen. One of the two birds was calling. This is the month for being well into the breeding period in the tundra of North-East Siberia.

Small-billed Cuckoo-Shrike (*Graucalus parvirostris*), Gould.—I saw a flock of nine on several occasions on and about 5th June. There were both adult and immature birds, the latter being the young of this summer. The flock was perfectly silent, and was passing amongst the orchard trees and adjacent timber.

Fan-tailed Cuckoo (*Cacomantis flabelliformis*, Latham).—I saw it on 1st June, and recognized it by its flight and markings. It has not been calling for months.

The past few weeks have been mild, and on two occasions only have we had a low temperature. The weather to-day appears to indicate the real winter, and those birds which have been induced to stay because of good climate and abundance of food—if Tasmania ever really has it—may now be sorry for themselves.—ROBERT HALL. Hobart, 12/6/17.

Correspondence.

To the Editors of "The Emu."

DEAR SIRS,—The very valuable article on "Birds of the Rockingham Bay District, North Queensland," by Messrs. A. J. Campbell and H. G. Barnard, in *The Emu*, vol. xvii., p. 2, is to my mind somewhat marred by the controversial tone adopted in reference to the work of Mr. G. M. Mathews. Personally, I think that Mr. Mathews' own great work on "The Birds of Australia" is even more spoilt by this fault, and that a text-book is not the right place in which to embody the controversies of the moment. It will be a great pity if the habit is to spread to all contributions to Australian ornithology. Of course, I do not object to the authors expressing their opinions as to whether particular forms are or are not worthy of specific or sub-specific rank. Such opinions from field workers are of supreme importance, and personally I think that these matters cannot be settled solely by examination of skins, but that the nests, eggs, notes, and other habits of the birds must also be taken into consideration.

Without in any way holding a brief for Mr. Mathews, who is quite capable of fighting his own battles (but, being in England, may not be able to reply in time for the next issue), will you allow me to comment on one point in the article in question?

On page 17 the authors write:—"Bee-eaters have been observed passing to and from New Guinea during migration. How can it be possible, then, that there are two races of these birds in Australia, as Mathews infers?" Again, on page 36, when discussing the Spangled Drongo, they say:—"If this bird migrates from New Guinea (one of us has observed it doing so), why does Mathews make two sub-species of the Drongo—one for Queensland and the other for Northern Territory?"

Mr. Mathews may or may not be right in these cases in separating these migratory birds into sub-species, but the mere fact that they are only summer migrants in Australia, and

possibly winter together in New Guinea, does not affect the question, as the authors appear to suppose. It has been known for some years that two sub-species of Wheatear occur regularly in England on migration in spring and autumn. The smaller form remains to breed in the British Isles, while the larger passes on to Scandinavia. A similar phenomenon is met with in the cases of the Willow-Wren and the Chiffchaff. The sub-species *Phylloscopus trochilus trochilus* and *Phylloscopus collybita collybita* remain in England all through the summer, and are two of the best-known British birds, but in spring and autumn some individuals of the northern forms, *P. trochilus evermanni* and *P. collybita tristis*, pass through England on migration. I have just received a reprint of an article by my brother, H. G. Alexander, from *British Birds* (vol. x., p. 263, April, 1917), in which he records that Miss E. L. Turner and he watched specimens of the Common and the Northern Willow-Wrens in company in the same bushes at Dungeness on 13th September, 1916, and were able to distinguish them both by their slightly different coloration and their decidedly different notes. The European cases quoted seem to me exactly comparable with the Australian cases referred to by Messrs. Campbell and Barnard. In each we have sub-species with different ranges in the summer mingling together on migration, and in neither case are we aware whether the two forms remain mixed during the winter or have distinct winter areas. The fact, however, that they follow the same routes on migration has not prevented European students from regarding the birds mentioned as sub-species.—Yours, &c.,

W. B. ALEXANDER.

Queen's College, University of Melbourne, 17/7/17.

To the Editors of "The Emu."

DEAR SIRs,—I beg to amend the classification at the end of my article in the January, 1917, issue, p. 170. I had overlooked the fact that Mathews, in the same volume (July, 1916, p. 34), had separated *Acanthiza albiventris* from *A. pusilla*, adding *A. venus*, *A. hamiltoni*, *A. consobrina*, *A. whitlocki*, and *A. tanami* as sub-species, and leaving *A. macularia*, *A. archibaldi*, *A. diemenensis*, *A. zietzi*, *A. arno*, *A. apicalis*, and *A. katherina* as sub-species of *A. pusilla*.

Perhaps Mr. Mathews is correct, but the only difference, according to the late Mr. A. J. North, is the white under tail coverts and slightly larger size of *A. albiventris*. If this is sufficient to separate *A. albiventris* specifically from *A. pusilla*, it is strange that the under tail coverts in *A. hamiltoni* are fulvous, as is also the case in *A. pusilla* and all, or nearly all, of its sub-species.—Yours faithfully,

F. E. HOWE.

Canterbury (Vic.), 24/7/17.

Monthly Conversazioni.

THE first monthly conversazione of the R.A.O.U. was held at the Union's room at Temple Court on 4th July, 1917, at 8 p.m. There were 28 present. The vice-president, Dr. J. A. Leach, occupied the chair.

Mr. W. B. Alexander exhibited, on behalf of Mr. Ashby, of South Australia, skins of a new variety of Parrot (*Platycercus elegans fleurieuensis*), and discussed the relationship of the new form with *P. adelaidæ*, *P. elegans*, *P. nigrescens*, and *P. flaveolus*. Mr. Kershaw exhibited skins of *P. flaveolus* and *P. adelaidæ* in illustration of Mr. Alexander's remarks. Mr. Alexander also exhibited a pair of skins of the White-winged Tern (*H. leucoptera*), an irruption of which had appeared in Western Australia this year. Prior to this there were very few authentic records of this bird in Australia. Mr. Kershaw made some interesting remarks *re* skins of rare birds—*Geoffroyus maciennani* and *Eclectus macgillivrayi*—that he had procured at the Claudie River, Queensland. Mr. A. C. Stone exhibited the nest of *Glyciophila fasciata*, which had been forwarded by Mr. F. C. Berney from Queensland. Mr. Le Souëf read letters from Dr. W. Hornaday, of U.S.A., and Mr. J. Buckland, of England, dealing with the protection of birds and the plumage traffic. Mr. Buckland stated that the British Government had prohibited the importation of avian plumage as a war regulation. Mr. Le Souëf then showed a very fine series of pictures dealing with the subject of Ibises, most of which had been taken in Riverina, N.S.W. He indicated how very beneficial these birds are to agriculturists, and how necessary it was that they should receive the utmost protection. He also showed some unique pictures of the locust, an insect that is particularly acceptable to all species of Ibis. Live specimens of the White and Straw-necked Ibis were also exhibited in illustration of his remarks. Mr. Le Souëf was heartily applauded for the information he had given. Messrs. Stone, Howe, Ross, and Mattingley, in discussing the subject, also contributed many interesting notes. Mr. G. F. Hill then contributed a paper dealing with the nidification of the Rainbow Pitta (*P. iris*) in the Kimberley and Darwin districts, and called attention to the unusually open nesting-sites utilized by this species.

The second (August) conversazione of the R.A.O.U. was held on Wednesday, 1st, at the R.A.O.U. room, Temple Court, Collins-street, and there was an excellent attendance of members. Mr. W. H. D. Le Souëf occupied the chair. The subject before members was "Penguins," and Dr. Nicholls contributed a masterly paper dealing with his investigations at the Penguin rookeries at Phillip Island. Numerous birds had been captured, and a very complete series of measurements obtained. These proved conclusively that only the Little Penguin inhabits the rookeries at Phillip Island. It was found that the male was

slightly larger than the female. The paper was illustrated by a splendid series of skins of the Little Penguin in different stages of development, and some excellent pictures that had been obtained by Mr. T. H. Tregellas.

Mr. Le Souëf then screened many unique studies of different species of Penguins, and his remarks upon them were greatly appreciated by members. Eggs of several species of Penguins were exhibited by Mr. A. C. Stone.

The third (September) conversazione of the R.A.O.U. was held on Wednesday, 5th, at the room, Temple Court, and a fair number of members attended. The chair was occupied by Mr. A. H. E. Mattingley, who welcomed to the meeting Mr. Quinney, of Mortlake, and Miss Cayley, of Sydney. Mr. Alexander and Dr. Nicholls exhibited skins of the Little Penguin from Western Australia, and called the attention of members to the coloration of the backs of the birds, which was somewhat brighter than is found in the eastern birds. The subject for the evening was "Honey-eaters," and Mr. W. H. D. Le Souëf opened the subject with a fine series of lantern slides dealing with many species. From his comments on the pictures members gleaned much interesting information. Mr. A. H. E. Mattingley then contributed some interesting notes on the subject, his remarks being illustrated by some praiseworthy pictures of many forms of Victorian Honey-eaters. Messrs. Alexander, Stone, Keep, and Ross took part in the discussion which followed. Mr. F. E. Wilson then read a letter from Private L. G. Chandler, which showed that, in spite of exacting military duties in France, he was still able to gain a little time for nature study.

A feature of the evening was the series of eggs of Honey-eaters exhibited by Mr. A. C. Stone, and about which he made some interesting remarks. A fairly extensive series of skins of Honey-eaters from the Union's collection was tabled, and a comparison of them added much to the evening's enjoyment.

About Members.

Ornithologist at the Australian Museum.—The trustees of the above institution have decided not to fill permanently for the present the position of ornithologist, rendered vacant by the death of Mr. A. J. North, C.M.B.O.U. Mr. A. F. Basset Hull, R.A.O.U., has offered his services in an honorary capacity, and the Museum trustees have accepted the offer.

Mr. Basset Hull is to be congratulated (and members of the R.A.O.U. may well congratulate themselves, likewise the trustees of the Museum concerned) on his patriotism in giving up gratuitously so much of his valuable time in the interests of the ornithology of his State, and incidentally of the Commonwealth.

By reason of the "material" and fine library at his hands, Mr. Basset Hull's services on the "Check-list" Committee will be doubly valuable.

Obituary.

DEATH has removed two influential members of the R.A.O.U.

First, Mr. O. W. Rosenhain, who was travelling with Mrs. Rosenhain in the East at the time. Three days before arriving at Japan Mr. Rosenhain was attacked by a heart seizure, which ended fatally on the 4th September, 1917. He was born in South Australia, and was comparatively a young man. He took keen interest in birds and bird protection, and promoted the "Bird Protection Court" at an exhibition held in Melbourne some years ago. At the Bird Observers' meetings and field outings the late Mr. Rosenhain was the most genial of members, and his loss will be keenly felt.

Second, Mr. E. A. Petherick, C.M.G., the Australian bibliographer, who, in submitting himself to an operation, died at Mount St. Evin's private hospital, East Melbourne, on the 17th September. Mr. Petherick was born at Burnham, Somerset, England, and was 70 years of age. In 1909 Mr. Petherick presented the nation (through the Commonwealth Parliament Library) with an invaluable collection of books, documents, charts, &c. (numbering several thousands—the collection of a lifetime) pertaining to the history of Australia and the early voyages of navigators in the Southern Seas. At the annual session of the R.A.O.U. held in Sydney, 1911, a movement was started to have the Petherick bibliography concerning Australian ornithology published. The movement has not yet borne fruit, and, on purely national grounds, should be set afoot again, perhaps after the war. The work of the "Check-list" Committee would be greatly aided by such an indispensable reference.

All members of the R.A.O.U. will desire to pay tribute to the memory of these two deceased members, and tender their sincerest sympathy to the respective families.

Notes.

THE honorary secretary, Mr. Le Souëf, would be glad of any notes that members can give him from actual observation on the food of birds of prey, especially Eagles.

THE honorary treasurer is desirous of reminding members that subscriptions for the current year are now due. Owing to the great increase of printing cost, he would be glad to receive subscriptions promptly.

FOLLOWING the decision of the vote of members, the Council has decided that the annual congress and camp-out shall not be held this year, and that the election of officers and the business of the annual meeting shall be conducted by correspondence.

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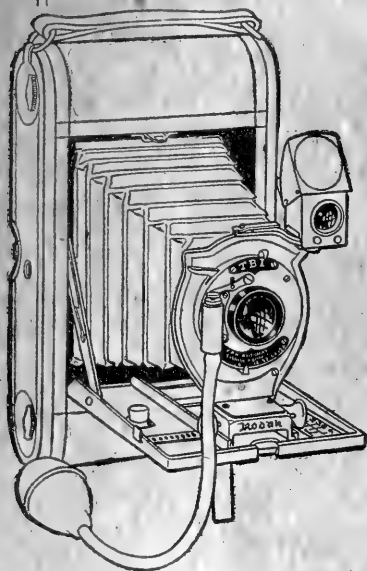
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FLEURIEU PENINSULA ROSELLA.
Platycercus elegans fleurietuensis.

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

VOL. XVII.]

1ST JANUARY, 1918.

[PART 3.]

Fleurieu Peninsula Rosella

(*Platycercus elegans fleurieuensis*).

(Edwin Ashby, *Emu*, vol. xvii., part 1, July, 1917.)

BY EDWIN ASHBY, M.B.O.U., R.A.O.U.

THE habitat of this bird seems to be confined to the Fleurieu Peninsula, South Australia, extending from The Meadows to Cape Jervis. While on several occasions during the past twenty years I have noted exceptionally highly coloured Rosellas in the neighbourhood of The Meadows, I had no opportunity to collect specimens. Last Easter, on the occasion of a hurried motor trip to Cape Jervis, Mr. Frank E. Parsons, R.A.O.U., and myself saw between Yankalilla and Second Valley a large number of this highly-coloured form, but when nearing Second Valley they became very numerous; every clump of gum-trees appeared to be frequented by a flock of them, and each flock had its quota of highly-coloured birds. The brilliancy of the red on the under side and rump marked them out as very distinct from the normal form of *Platycercus elegans adalaidensis*. Except for the fact that the tone of red is so distinct from typical *Platycercus elegans*, one would have placed them with that species, but the character of the red coloration links them up more closely with the Adelaide Rosella. While many of these birds were frequenting the red gums, in both the evening and morning considerable numbers flocked to the box-thorn hedges in the township of Second Valley, feeding on the red berries, which were produced in great profusion.

The notes and habits of this Parrot are, as far as I could judge, identical with *P. adalaidensis*. The birds could be heard early in the morning calling to one another with shrill whistling notes, rapidly repeated three or four times.

An Introduction to the Study of the Penguins on The Nobbies, Phillip Island, Western Port, Victoria.

WITH SOME REMARKS ON THE VALIDITY OF *EUDYPTULA UNDNA*
(THE FAIRY PENGUIN).

BY DR. BROOKE NICHOLLS, R.A.O.U.

THE idea has long been entertained by Australian ornithologists that two species of the genus *Eudyptula* inhabited the Victorian coast.

From the earliest times the study of this particular genus has been more or less of a puzzle, and it has been the custom to recognize two species—*i.e.*, “a larger, light-coloured species known as the Little Penguin (*Eudyptula minor*, Forster) and a smaller, dark-coloured species, the Fairy Penguin (*Eudyptula undina*, Gould).” The quotation is from Mathews’s “Birds of Australia,”¹ the latest work on the subject. This author, however, states that the material he has on hand has led him to revise his views, and he now thinks that there is but one form for the whole of Australia, to which he gives the name *Eudyptula novæhollandiæ* (*E. minor*). This species he believes to be “in a plastic state, several sub-species being in the process of formation,” and he is forced to this conclusion by the variation shown in the examples he has studied from Western Australia, Tasmania, South Australia, and New South Wales.*

In grouping the whole of the Australian forms under the sub-specific name *E. novæhollandiæ*, Mathews states that he is afraid his scheme will not commend itself to Australian ornithologists, and he invites them to co-operate in solving the problem by making a study of series of specimens from breeding places.†

With the object of further studying the problem, a visit was paid to the Penguin rookery at Phillip Island on 9th to 12th March, 1917, in company with Mr. W. M'Lennan (“the man from the mangroves”) and Mr. Tom Tregellas. It was our intention to try and secure the necessary data whilst the birds were alive, and afterwards liberate them; but the impossibility of making

* One of the “plastic sub-species” he describes from New Zealand waters under the name of *E. minor iredalei* (Chatham Island Little Penguin). This, he says, is the most typical bird in his collection of *E. undina* (the Fairy Penguin). He further states that it was a good species to me as it was easily recognizable, in addition to its smaller and darker coloration, by its short, thick bill. His description is:—*Adult male* differs from *E. minor minor*, Forster (New Zealand bird), in its smaller size, darker coloration, and by its short, thick bill; exposed portion of culmen 34 mm., depth 16 mm.

† Since the publication of vol. iv., Part V., of his “Birds of Australia,” Mathews has again reclassified the *Eudyptula*.¹³ He now admits two species for Australia—*viz.*, *E. minor novæhollandiæ* (Little Penguin), range N.S.W., Vic., Tas., S.A.; and *E. minor woodwardi*, sub-sp. n. (Western Little Penguin). Differs from *E. m. novæhollandiæ* in its grey-blue coloration above, and the flipper being grey and not blue. *Type*.—Sandy Hook Island, S.E. of Western Australia. Range, Western Australia.

correct measurements, especially those relating to total length, upon struggling, biting birds decided us to make a series of skins. The list of same, with the data, will be found tabulated at the end of the article. The coloration of the soft parts was taken in the field, and all measurements were taken in the flesh, in millimetres. All the specimens were chloroformed. The measurements were as follows:—

Total length.—Bird outstretched on back, and measured from tip of bill to tip of tail.

Flipper (two measurements).—(1) From base of flipper to tip of wing (in taking this measurement the mm. rule was pressed in under the "arm-pit" of the flipper tight up against the body); (2) from carpal joint to tip of wing.

Tarsus.—From joint of tarsus with leg to joint of first phalange of middle toe.

Middle toe and claw.—From joint of first phalange to tip of claw.

Culmen.—*Length.*—From base of culmen to tip (not following the curve at tip of maxilla). *Depth.*—From the gonys (*i.e.*, the point of union of the mandibular rami), one point of the callipers being placed on the prominence at the point of union of the rami, the other immediately above it.

It has been found necessary to give the precise points from which the measurements were taken, as most previous workers have omitted them, or measured from different points, which renders comparisons useless.

Before we come to summarize the tabulated results, a few general remarks on Penguins may not be out of place.

The earliest reference to Penguins is to be found in the first voyage of Vasco da Gama to India, in 1499. The following extract has been taken from a paper read before the A.A.A.S., Adelaide, 1907, by James M'Clymont, M.A.²:—"Penguins were seen by the companions of Vasco da Gama in the Angrade Sao Bras, on the south coast of Africa, in December of the year 1499. These are referred to in a copy of the original MSS. of the voyage by an anonymous writer who accompanied the expedition, in which the birds are called 'Fotylicayros,' in error for 'Sotylicayros,' one of the names applied to Penguins as well as Auks. It was stated that the birds were as large as Ganders (*patos*), and their cry resembled the braying of asses, and they could not fly because they had no quills (feathers).

"Manuel de Mesquiton Perestrello, who visited the same coast in 1575, added to this description that the ends of the wings of Solilicarios were covered with fine down (*penugen*), that the birds dived for fish and reared their young in nests constructed from fish-bones, which, it may be inferred, were the residue of repasts of Penguins and seals. Observations of present-day naturalists do not support the fish-bone construction theory (says M'Clymont), as the Cape Penguins use only small stones, shells, and *débris*. In modern Portuguese Penguins are called 'Pinguins' ('Pinguins du sul')."

In Captain Cook's third voyage to the Pacific Ocean (1776-1780)³ mention is made that on 6th October, 1776, in lat. 35° 15' S., about the level of the Cape of Good Hope, they saw three Penguins and some Pintadoes. In consequence of this, says Captain Cook, they sounded, but found no ground with a line of 150 fathoms. A White-capped Noddy settled on the rigging, and was taken on the 8th. They arrived at Cape Town on the 18th. On the day they saw the three Penguins the nearest land was then distant 100 leagues (some 300 miles). Penguins were also met with on all the intervening islands visited between the Cape and New Holland—Prince Edward, Marion, and Kerguelen Islands—and were used for fresh food.

Prior to this, on his first and second voyages, Cook had met with Penguins and Pintadoes. Cook was not the first Australian bird-observer, but, curiously enough, the Pintado was the first Australian bird ever described. A footnote in Dampier's "Voyages" (1699) states that the Pintado-Bird was the *Daption capensis*, and Dampier describes them as being "as big as Ducks, and speckled black and white." Professor Ernest Scott went to some trouble in establishing the identity of this bird in a paper read before the Club in 1906.⁴ It proved to be the Cape Petrel, a bird fairly common to these seas.

As Captain Cook's meeting with the Pintado was an historic one, it may be quoted here:—"On the 18th of March, 1770, in the morning, we were visited by a Pintado-Bird and some Port Egmont Hens—an infallible sign that land was near, which we discovered at six o'clock in the morning of the 19th, four or five leagues distant. To the southmost point in sight we gave the name of Point Hicks" (Cape Everard). That was Cook's first sight of the Australian coast, and incidentally of Victoria, not so many miles distant from the Penguin rookery on The Nobbies.

The first Australian Penguin to be described was a Crested Penguin, *Catarrhactes chrysocome* (*Penguinis chrysocome chrysocome*). The type was secured by Tobias Furneaux, one of Cook's captains. In March, 1773, Furneaux accompanied Cook on his second voyage. Their vessels became separated in a storm, and, whilst Cook steered for New Zealand, Furneaux made up for Tasmania and anchored near Penguin Island, in Adventure Bay. This island, without doubt, received its name from the numbers of birds upon it, but the species would not be the crested one, but the small *E. minor*, as the Crested Penguin (*Catarrhactes chrysocome*) has only been recorded half a dozen times, or less, from our coasts.

Captain Cook also visited this island a few years later, for during his third voyage it is mentioned that "Captain Cook went again on shore and found the grass-cutters on Penguin Island."

Thus there is a long chain of Penguins stretching between the old and the new worlds down the long years of discovery.

The first record⁵ we have of the Little Penguin, *Eudyptula minor* (*E. minor minor*), is Forster's account of the New Zealand form, described from Dusky Bay, New Zealand, where it was

collected by Captain Cook on 31st March, 1773. I am indebted to Mr. Hugh Wright, of the Mitchell Library, Sydney, for Forster's original description of the bird.

Forster, J. R.—“*Historia Aptenodytæ.*”

(9) *Aptenodytes minor*, rostro nigro, pedibus albidis.

Habitat in Nova Zealania. Haec certe species cuniculos agit in montium latera; dum enim in *portu obscuro* (Dusky Bay) in insulam escenderem, portui objectam, Phocarum necandadaerum causa, et per summam ejus partum virgultis *Pimeleæ* consitam procederem; vix tres, quatuorve passus progredi licuit, quaminus in cuniculos subterraneos deciderem, usque ad genua, vel etiam ad medium cortoris: Deinde incolæ *Æstuarii Reginae Charlottæ* (Queen Charlotte's Sound) mihi ipsi commonstrarunt, qua ratione easeem e mari ad cuniculos in montibus situs succedentes, manibus capiunt vel sustibus enecant, ut eas, pellibus detractis, assare et comedere possent.

Corpus magnitudine circiter *Anatis querquedula*.

Rostrum albidum, *mandibulis* inæqualibus, inferiore truncata, reliqua cum *Palato Linguaque* ut en congeneribus.

Oculi Iride livida.

Pedes Supra albida, *subtus* una cum apicibus fusconigri; in cæteris a congeneribus non discrepant.

Alæ Supra atro-coeruleæ, margine infimo albo, *subtus* candidæ.

Cauda rotundata? *rectricibus* xvi. laxè pinnatis, rigidissimis setosis.

Mensura.

	Poll. Angl.
Ab apice rostri in extremum caudæ	14 = 355.6 mm.
Ab apice rostri in unguem digiti medii	14
Alæ expansæ	11
Rostrum longum	1 $\frac{1}{4}$
latum	$\frac{2}{5}$
Profundum (utraque mandibula simul sumta)	$\frac{7}{10}$
Ab apice tostri in medium oculum	2 $\frac{1}{2}$
Ala ipsa	4 $\frac{1}{2}$
Diameter trunci, poné alas	3 $\frac{2}{5}$
Pedes nudi in unguem digiti medii	2 $\frac{1}{5}$
Digitus medius cum ungue	1 $\frac{9}{10}$
Unguis digiti medii	$\frac{3}{5}$
Polle cum ungue	$\frac{1}{2}$
Cauda circiter	1 $\frac{3}{10}$

The first mention we have of the *Eudyptula* in Australian waters was made by Latham,⁶ from a drawing made at Port Jackson. Latham's description is as follows:—"New Holland Pinguin.—Length, two feet or more. Bill black, the upper mandible hooked at the tip, the under truncated; plumage above brown, the feathers tipped with grey, giving a mixed appearance; chin, throat, and the rest of the parts underneath rufous-white; wings as in other Pinguins, and brown; legs pale flesh-coloured brown; webs black. Inhabits New Holland; met with at Port Jackson, but is scarce: called there 'Gur-roo-mul.'"

This description, Mathews⁷ says, was unrecognizable until the original drawing was discovered. "It was then seen to be a

good picture, and, as Stephens had given a Latin name to this description," Mathews says, "we should accept this as the earliest name available for the Australian form." ("Two feet or more in length" can hardly be called a good description.) This was in 1826—a lapse of 53 years since Furneaux landed at Penguin Island, in Tasmania.

It would be interesting to know who made the drawing at Port Jackson described by Latham, and where it is at present. In this connection the Mitchell Library was communicated with, but they have not got it. But, as Mr. Wright, the librarian, states:—"It seems strange that the bird was not described earlier than 1826 if it was found at Port Jackson, because Sir Joseph Banks had men here collecting for him long before that date, and Collins and White would surely have seen and described it if it lived near the principal settlement. Is it not likely that the specimen was brought here from some other part of Australia and a sketch made from it here and sent to England?"

Also, long before this date, both Bass and Flinders were familiar with the Little Penguin (*E. minor*). Bass, in October, 1798, when he discovered the Strait that bears his name, must have seen the bird, and probably ate it, although he makes no mention of it. However, on his famous voyage in the whaleboat, just after leaving Wilson's Promontory, on the 2nd October, he, much to his amazement, rescued a party of white men.⁸ They were the remnant of a gang of convicts escaped from Port Jackson, who had been marooned whilst they slept by the rest of their treacherous companions, upon a small, wave-beaten rock. For five weeks they had lived upon this small island off the Promontory, upon Petrels and seals, says Bass. And Penguins, too, we may be sure. Two days later Bass's whaleboat turned into Western Port, past Cape Woolamai. He spent twelve days in the harbour, and from Bass's eye-sketch of the island he must have been within sight and sound of The Nobbies.

Again, in January, 1799, Bass and Flinders, in the *Norfolk*, a 25-ton sloop built of Norfolk Island pine, sailed from Sydney Cove to confirm Bass's idea that a strait existed. This they did by circumnavigating Van Diemen's Land. Upon the return voyage the Babel Isles were marked down and named "because of the confusion of noises made by the Geese, Shags, Penguins, Gulls, and Sooty Petrels."⁹ There we have the direct evidence of both Bass and Flinders knowing the Little Penguin, and this as early as 8th January, 1799—the date of the discovery of the Cat group of islands. Again, in 1802, Flinders found the bird "under the bushes on Goose Island," one of the Recherche Archipelago.¹⁰

How was it, then, that *E. minor* went so long undescribed? and who was it made the drawing at Port Jackson? One of Banks's men, perhaps, or more likely either Bass or Flinders, both very exact in describing and sketching natural features; or was it a sketch made by one of the early sealers and whalers out of

Sydney Cove, who in those days lived the lives of Bass Strait buccaneers ?

In 1827 *E. minor* (*Aptenodytes minor*) was described in King's "Voyages¹¹ to the Inter-Tropical and Western Coast of Australia in 1815 and 1822." He states:—"This bird is common in all parts of the Southern Ocean. The above specimen was found at King George the Third's Sound, near the south-west extremity of New Holland."

SUMMARY OF PREVIOUS WORKERS.

Spheniscus minor = *E. minor*.—Gould's "Birds of Australia,"* vol. vii.,¹² states:—"There is no external difference observable in the sexes. The feathers of the upper surface light blue, with a fine black line down the centre of each, the whole of the under surface silvery-white; eyes flat, inside pale buffy-white, with a network of dark brown round the outer margin and with a fine ring of the same colour near the pupil, giving the appearance of a double iris; bill brown colour, deepening into slaty black on the culmen and tip; feet yellowish-white; nails black."

Spheniscus undina = *E. undina*.—Of this species Gould states that "it is considerably less in size than *E. minor*, from which it also differs in its *comparatively smaller wing* and in the deeper blue colouring of the upper surface of the body. By many persons it might be regarded as the young of *E. minor*, but I invariably found the young of that species, while still partially clothed in the downy dress of immaturity, to exceed considerably in size all the examples of this new species, even when adorned in the adult livery and possessing the hard bill of maturity. There can be no question of the two birds being distinct. The whole of the upper surface black, and upper side of the wings glassy light blue, with a narrow stripe of black down the centre of each feather, the black mark being broadest and most conspicuous on the back; all the under surface of the body, the under side and inner margin of the upper side of the wings, and inner web of the tail feathers silky-white; *bill reddish-brown beneath, black above*; feet yellowish-white."

Gregory Mathews⁷ gives the following measurements:—♂—Total length, 398 mm. Culmen—length, 38 mm.; depth, 12 mm.; flippers, 111 mm.; tail, 28; tarsus, 24; middle toe and claw, 48.

F. M. Littler,¹³—♂, 425 mm.; bill, 39; wing, 75; tarsus, 19. ♀, 400 mm.; bill, 35; wing, 65; tarsus, 18.

Describing birds of Ninth Island, off Tasmania, he says:—"It is always an easy matter to separate the sexes, the male being much stouter in build. . . . Another point of difference exists in the bills. That of the male is a stout, formidable weapon, whilst that

* Gould does not give any measurements.

of the female is much slimmer and weaker in appearance. I have found the above differences constant in the great hordes of Penguins that were under continuous observation for just two days short of a fortnight." Littler is inclined to bracket *E. minor* and *E. undina* together.

Littler says that Dr. Finsch refused to admit any specific distinction, also that Dr. Coues, after examining Gould's types in the museum at Philadelphia, says:—"These specimens are slightly smaller than the average *minor*, bluer than usual, but not bluer than No. 1338, and with rather weak bills. . . I cannot distinguish these specimens even as a variety."

Lucas and Le Souëf,¹⁴ describing *E. minor* and *E. undina*, give the following measurements:—

	<i>E. minor.</i>		<i>E. undina.</i>
Total length	18 inches (457.2 mm.)	...	14-15 inches (355.6-381 mm.)
Gape	2.15	...	1.75
Flipper	5.6	...	4.7
Mid. toe and claw	2.1	...	1.9

Hutton and Drummond,¹⁵ writing of Blue Penguins (*E. minor*), give the total length at 16 inches, and state that "the female is smaller than the male." As they give no other measurements, theirs is probably a naked eye observation. It has already been mentioned how difficult it is to tell male from female, and the difference of a few millimeters, as shown by the tables, is not appreciable to the naked eye when comparing birds side by side.

A. J. Campbell¹⁶—

E. minor, total length, 18 inches. States that a rookery existed on Red Point, Phillip Island, in 1880, but departed after quarrying and other operations had disturbed them.

E. undina.—Total length (about) 14 inches, and differs from *E. minor* "in being constantly less in size and in deeper glossy blue colouring of the upper surface."

R. Hall,¹⁷—*E. minor* (*E. undina*), one species.

Total length, about	16 inches (406.4 mm.)
Exposed culmen	1.4
Gape to tip	... 1.75

Basset Hull¹⁸ gives the two species in his list, but in a recent letter states that he "has long since arrived at the conclusion that there is but one valid species of *Eudyptula*, ranging from Tasmania to Port Stephens."

J. A. Leach¹⁹ allows two species.

Capt. S. A. White, in a letter, states:—"I am sure we have two birds on our coast-line."

Charles F. Belcher,²⁰ writing of Fairy Penguin (*E. minor undina*, Belcher's nomenclature), says:—"I include the birds till recently

known as Little Penguins, the authorities having decided that all our small Penguins belong to the same species." He states that, granting all the birds belong to one species, they show amazing variations. Of two picked up on beach at Torquay after the autumnal gales, "the larger measured 16½ inches, the smaller 13½; the beak of former was 1¼ inches long and ½ inch deep at base; in the latter 1⅔ inches long and less than ⅓ inch deep." Generally speaking, the larger bird was almost twice the size of the smaller, and was dull blue (unmottled) where the smaller bird was a deep blue." It is hardly correct to say that a bird measuring 16¼ inches is "almost twice the size" of one measuring 13½.

DEDUCTIONS FROM TABULATED LIST AT END OF PAPER.*

TABLE I. <i>Total Length Measurements.</i>				TABLE 2. <i>Flipper Measurements.</i>					
No. of Skin.	♂	No. of Skin.	♀	No. of Skin.	♂	No. of Skin.	♀		
2 ...	395	3 ...	395	4 ...	117	68	3 ...	122	63
4 ...	382	5 ...	393	9 ...	115	67	5 ...	115	65
9 ...	420	7 ...	352	10 ...	115	58	7 ...	115	63
10 ...	403	8 ...	390	14 ...	116	68	8 ...	120	71
14 ...	412	11 ...	387	15 ...	125	70	11 ...	105	62
15 ...	370	12 ...	312	19 ...	125	72	12 ...	110	61
19 ...	402	16 ...	390	2 ...	—	73	11 ...	117	68
		17 ...	340				17 ...	111	62
		18 ...	372				18 ...	115	66
:2784		... :3331		713 403		... 1030		581	
av. 397.7		av. 370.1		av. 118.8 67.1		av. 114.4		64.4	

* Measurements of adult specimens only.

TABLE 3 (*Culmen Measurements*).

♂	No. of Skin.	Length.	Depth.	♀	No. of Skin.	Length.	Depth.
	2 ...	38 ...	14		3 ...	37 ...	12
	4 ...	37 ...	15		5 ...	35 ...	12
(pair 11)	9 ...	37 ...	15		7 ...	35 ...	12
(pair 3)	10 ...	40 ...	15		8 ...	38 ...	13
	14 ...	37 ...	14		12 ...	35 ...	12
	15 ...	41 ...	14		16 ...	39 ...	13
	19 ...	40 ...	14		17 ...	38 ...	13
					18 ...	39 ...	12
					11 ...	36 ...	13
		270	101				
		av. 38.5	14.4			332	112
					av. 36.9		12.3

TABLE 4 (*Tarsus*).

No. of Skin.	♂	No. of Skin.	♀
2 ...	27	3 ...	23
4 ...	27	5 ...	26
9 ...	27	7 ...	25
10 ...	27	8 ...	23
14 ...	28	11 ...	29
15 ...	23	12 ...	25
		16 ...	27
19 ...	28	17 ...	28
		18 ...	24

7 ...	187	9 ...	230
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26.7

av. 25.5

7 adult males average 397.7 mm. in length.

9 ,, females ,, 370.1 mm. in length.

TABLE 5 (*Middle Toe and Claw*).

No. of Skin.	♂	No. of Skin.	♀
2 ...	54	3 ...	48
4 ...	48	5 ...	48
9 ...	48	7 ...	47
10 ...	47	8 ...	50
14 ...	50	11 ...	45
15 ...	50	12 ...	44
19 ...	51	16 ...	48
		17 ...	49
		18 ...	46

7 ...	348	9 ...	425
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av. 49.7

av. 47.2

Up to the present time little or no data has been available for comparing the sizes of the male and female Penguins.

The adult female usually being described as "similar to adult male," the total length measurements show the male to be the larger bird, and they are borne out by the culmen measurements set side by side, both with regard to length and depth.

The flipper measurements, which show a fair amount of variation in both sexes, when averaged, also prove the male to be the larger bird.

Such is also the case with the tarsus and the middle toe and claw.

The male is in every way the larger bird, but the difference in size is only appreciated when the measurements are contrasted side by side.

It is, in this connection, interesting to note that skins 21 and 22 of the tabulated list are those of immature pairs of birds caught at same burrow. In every case the male measurements exceed those of the female.

The missing numbers in the tables refer to immature birds.

The measurements, then, and the data in the list at the end of the paper, show that there is only one species found at Phillip Island. But there are two forms corresponding to two phases of plumage—"A," those which have just completed the moult, and "B," those just about to moult.

The differences in plumage were very striking, the newly-moulted bird being "the small, dark-coloured species," the other (the bird not yet commenced to moult) being "the larger (fatter) light-coloured species."

We now determined to examine a number of live birds, and to assist in their quick classification we labelled the small, dark-coloured bird "Type A," and the larger (?), light-coloured bird "Type B." Type A corresponded in coloration to skins 17-18; and type B to skins 4 and 5—all now in R.A.O.U. collection.*

* A few of the skins are in the collections of Dr. W. Macgillivray, Broken Hill, and J. A. Ross, Esq., Melbourne.

Altogether, 24 adult (live) birds were removed from their burrows, and at the end of the examination it was seen that they all belonged to the one species, the difference in coloration being due to the various stages the moult had reached.

Being desirous of ascertaining if the measurements of the culmen would reveal the "short, thick bill" species, *E. undina* (*E. minor iredalei*, Mathews), as compared with *E. minor* (*E. minor novahollandiæ*), very careful measurements were made upon the living birds. These are given below, together with the measurements taken from the skin specimens. After examining a few of the living birds, M'Lennan detected a difference between the heads of the male and the female. It was hard to define, but, after closely inspecting a number of birds, both Tregellas and myself were satisfied that a difference did exist. What constituted the difference it was then hard to say, but the head appeared to be very slightly larger and more "vicious" looking, whilst the eye had a peculiar expression which can only be described as being more aggressive.

M'Lennan's acute observation on the living birds regarding sex is now borne out by the culmen measurements in Tables 6 and 7. The asterisks denote pairs of birds (*i.e.*, birds found in the same burrow), and, with the exception of pair Nos. 46, 47 (live birds), the males show the larger measurements.

In the skin specimens (Table 6) the male is the larger in two pairs of birds listed.

CULMEN MEASUREMENTS OF ADULT (SKIN) SPECIMENS.

TABLE 6.

"A" TYPE.						"B" TYPE.					
No. of Skin.	♂		No. of Skin.	♀		No. of Skin.	♂		No. of Skin.	♀	
	L.	D.		L.	D.		L.	D.		L.	D.
2	38	14	77	35	12	4	37	15	*3	37	12
*9	37	15	12	35	12	*10	40	15	5	35	12
14	37	14	16	39	13				8	38	13
15	41	14	17	38	13				18	39	12
									*11	36	13

* Pairs of birds 9 and 11, 10 and 3.

and cutting edge of lower bill dark or slaty-brown, under surface of lower bill pearly-white tinged with pink.

Fect.—White, faint tinge of pink, † edge of web and V-shaped mark between toes dark brown, under surface blackish.

The newly moulted birds show a curious faint striation across the broad end of each white feather on the under surface of the breast. This appears as a fine whitish line. After the bird enters the water we believe this line disappears. If so, it can be taken as a guide to tell whether the bird (young or adult) has been in the water after a fresh moult.

CHARACTERISTICS OF IMMATURE AND MOULTING BIRDS.

As the colouring of the bill and soft parts of the immature (out of the down) and nestling birds have not been so far described, it will be of interest to give them in full from the field notes.

Skin No. 1 (imm. ♂).—*Iris*, when alive, dark brown; after death inner circle of silvery-cream, with an outer circle of dark brown, with fine network of silvery-cream lines. (Soft parts unwittingly omitted.)

Skin No. 13 (imm. ♂).—*Iris* silvery-cream, flecked brown in outer circle, whole of upper bill brownish-black, tip and cutting edge of lower bill similar, under surface pearly-white tinged with pink. *Fect.*—White, faintly tinged pink and blue, V-shaped mark between the toes dark brown, and extending further than in No. 15 (adult female). Stomach empty.

Skin No. 20 (imm. ♂).—Soft parts similar to skin No. 21. *Stomach.*—Parasitic round worms in upper part of stomach mixed with food *débris*, consisting of beaks of squid, seaweed, and small white seed-like bodies, probably parts of squid, and numerous basaltic pebbles (grit), much more in quantity than in adult specimens examined.

External Parasites.—Fleas. The occurrence in the Penguins of a flea akin to *Pulex irritans* was not expected.

Skin No. 21 (imm. ♀).—*Iris*:—Inner circle of silvery-cream, outer circle of dark brown, with fine network of silvery-cream lines. *Upper bill and tip of lower bill black, basal half of cutting edge of upper and lower bills bluish-white*, under surface of lower bill bluish-white. *Feet white tinged with blue*, webs edged with blackish-brown, V-shaped mark between toes and under surface blackish-brown.

Parasites.—Internal, parasitic worms; external, small lice and fleas.

Stomach.—Small pebbles of black basalt, squid beaks, seaweed.

Skin No. 38 (nestling ♂, youngest bird found).—*Iris.*—Inner circle silvery-cream, outer circle dark brown, with network of silvery-cream lines.

* Gould described appearance of double iris.

† Littler described pinkish tinge.

Upper bill and tip of lower bill brownish-black, cutting edge of upper bill fleshy-brown, *lower bill* pearly-white, tinged with pink; *egg tooth* plainly marked; bare skin round eye dull blue; feet white, faintly tinged with blue, edge of web and V-shaped mark between toes and claws dark brown, and soles of feet blackish. Toe-rings, 1-2-1.*

Stomach.—43 (young) squid beaks, seaweed, feathers, and small pebbles; these squid beaks measured from 2 mm. to 3 mm. in length.

Internal parasites, small round worms; external parasites, small lice.

Skin No. 51 (imm. ♂).—*Iris*.—Inner circle silvery-cream, outer circle dark brown, with fine network of silvery-cream lines.

Upper bill brownish-black, cutting edge fleshy-brown, tip of lower bill brownish-black, *rest* pearly-white tinged with pink.

Feet white, faintly tinged blue; narrow edge to web and V-shaped mark between toes dark brown, under surface bluish.

Stomach.—Remains of fish.

Internal parasites, worms; external parasites, lice.

The bluish tint in the coloration of the upper surface of the feet of young birds appears to be characteristic.

The notes on the coloration of the soft parts and bill show a gradual change of colour from nestling through immature and young adult to adult life.

One night we decided to catch several "wet" birds—that is, birds having just come up from the sea. The object was to make sure of getting adult specimens in good plumage, moulting birds not entering the water, and to ascertain if any of the season's young birds had left the burrows. Four specimens were secured at 10 p.m. one evening. All were adult birds—two males and two females. Several others were secured, but they were "dry" birds, having come out of the burrows, as all moulting birds appear to do, at night, or else the birds had come up from the sea some time previously, and had dried off in the meantime, taking at least one hour in the process.

THE ROOKERIES.

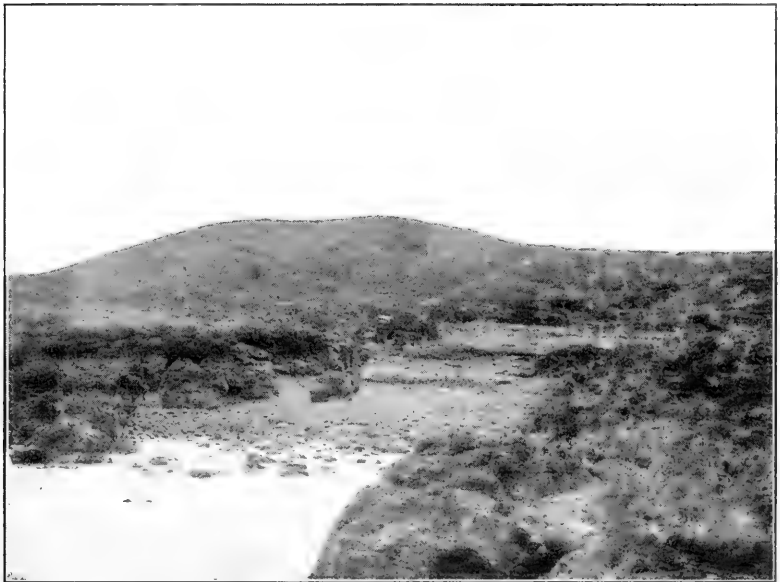
The Penguin rookeries, for purposes of description, may be grouped into four localities—(1) the Big Nobby rookery (photograph No. 1), (2) the Little Nobby rookery (photograph No. 1), (3) the Shelly Beach rookery (photographs Nos. 5-6), (4) the Headland rookery (photograph No. 9).

The Big Nobby rookery (photograph No. 1) occupies about two acres on the summit of this outlier or stack, 100 feet above sea-level. There is apparently only one entrance and exit for the

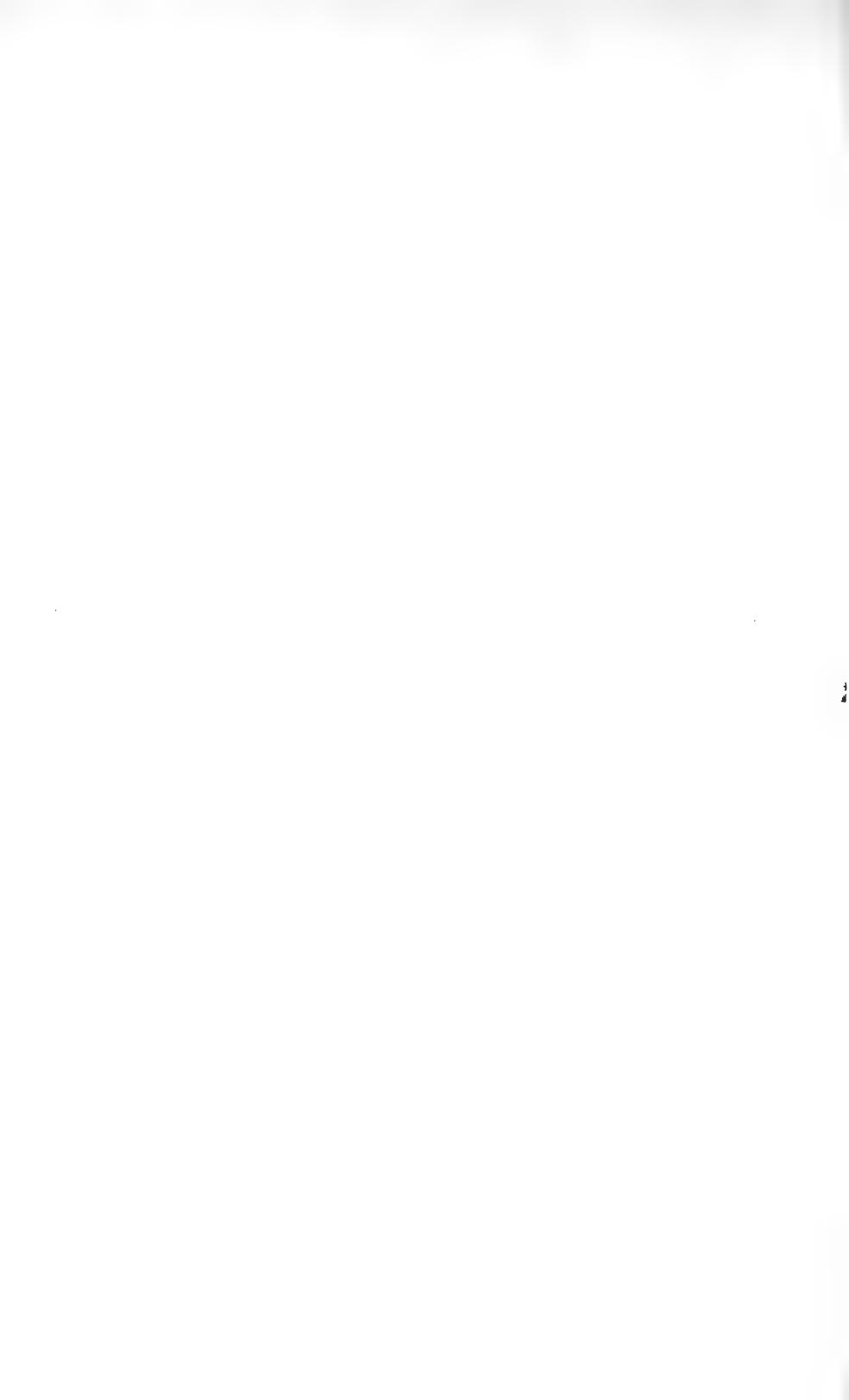
* By "toe-rings" is meant the scutellations. It was thought that the number of these on each toe might assist in determining the age of the bird. Only a few observations were made towards the end of the investigation.



1.—The Big and Little Nobbies at flood tide, from Phillip Island.
Seal Rocks in distance.



2.—Landing-place of Penguins, Little Nobby.
Lane of pebbles leading to rookery.



Penguins—a steep tourist track on the south-east corner of the island, nearest the reader when looking at photograph No. 1. The sides are precipitous, and in places overhung, but, as we did not circumnavigate the island, a closer inspection is necessary.

Twenty years ago the track up the cliff was on the opposite side to the present one, but we did not see it. However, the Penguins were there before the tourist. The top of the island is a rabbit warren of burrows, and, at the time of our visit, was covered with stalks of dry thistles and grass. The sides sloping down from the crown are covered with mesembryanthemum, which hides the nesting burrows. We found Penguins and rabbits and a Mutton-Bird or two in this rookery.

On the Little Nobby rookery (photograph No. 1) we spent most of our time. It was the nearest to the camp, and, although inaccessible at high tide, was best suited for our observations. Twice we waited half the night to see the birds come up from the sea. There is only the one landing-place. This is a natural cleft in a small bay on the north side of the Lesser Nobby, marked by a cross within a circle in photograph No. 1. The entrance is studded with clumps of rock, round which the waves swirl and race in a lather of white foam.

The first you see of the incoming bird is its small, dark head just above the surface of the water, a few yards beyond the breaking foam. By this time it is nearly dark, and on the moving surface, amidst the black points of rock, it is difficult to pick out your bird. An occasional "bark" tells of their coming, and from the point of observation on the rocky ledge a few feet above the water one can distinguish little dark forms avoiding the rocks at the entrance by swimming and paddling around them to an easier approach in the clear water (photograph No. 2). If in danger they submerge, even if the water is only a foot deep. The birds dislike the onward rushing foam of shallow, breaking water, and will get beneath the surface if possible.

As they come ashore the birds wait about the water's edge to dry off, as was observed by Le Souëf on Albatross Island. Several times we surprised little parties of them sheltering in a sort of small cave running up under a shelf of rock at the landing-place.

From the water's edge a narrow lane about 20 feet wide and $1\frac{1}{2}$ chains in length, composed of small boulders and pebbles, leads right up to the front of the rookery (photograph No. 2).

The first night we saw few birds; they saw us first, and waited "outside" till darkness allowed of a safe approach. By this time we had taken up a new position at the end of the lane, right at the foot of the rookery (photograph No. 3). We waited half an hour in the darkness before a slight rattling of the pebbles showed us two birds, very quiet and shy, and within six feet, as the light of a dark lantern was turned suddenly on to them.

At night all the birds, young and old, came out of the burrows,

and the noise and scuffling reminds one of the Petrels in a Mutton-Bird rookery. Their loud, discordant cries at times resembled the crying of a naughty, petulant child in a temper.

Looking up at the rookery, from the rocks at the water's edge, one could discern dozens of birds silhouetted against the black sky along the crest. They looked like ninepins on the skyline. And here and there, as a bird emerged from its burrow and sat upright at the entrance, its breast gleamed white in the darkness for a minute or so, and then vanished as the bird turned and moved away.

That night we secured several of the birds. Those taken at the little cave at the entrance were quite wet, and those secured on the top of the rookery were damp, and it was an easy matter to tell if a bird had come up from the sea or just out of a burrow. We roughly estimated that at least 200 birds were to be seen at any time on this rookery at night on an area of less than an acre. During the day, when examining the rookery, it *appears* to be deserted, even if 70 per cent. of the burrows be occupied. But at night time the place was overrun with birds. They are everywhere under foot, and an evening visit is certainly an "eye-opener" when trying to estimate the numbers inhabiting the rookeries.

The constant journeyings of the Penguins to and from the rookeries have worn little tracks and paths in the pigface-weed. On the main track (photograph No. 4) the vegetation is quite dry and bleached and beaten down into the soil, showing the course followed by the birds. Photographs Nos. 2, 3, and 4 are taken in direct series from the sea, up through the lane of pebbles to the main track, from which pathways lead all over and up to the crest of the rookery.

The Shelly Beach rookery is situated $1\frac{1}{2}$ to 2 miles from The Nobbies, along the coastline of the island back towards Cowes. It faces north, and consists of a beautiful curving bay, about one mile in length (photograph No. 5). Unlike The Nobbies, it contains no rock or pigface-weed, but is more or less of a sand-dune formation covered with "blue-bush," "cushion-bush," and tussocks of porcupine-grass (photograph No. 6). The bay is ringed round with a low hill range, and the level ground, averaging from 150 to 200 yards in width, extends from the foot of the hills to the beach front.

This whole area is one large rookery, and part of it was once an aboriginal kitchen midden. The birds are to be found moulting everywhere. Underground (photograph No. 7); under the tussocks (photograph No. 8); as many as six were counted huddled in one heap under the dead branches of the "blue-bush" (photograph No. 10). Penguins were also to be found half-way up the hill slope and also on the top, and away inland more than half a mile from the sea. In addition to the birds captured and measured here, we saw over a hundred others, mostly in the "B" type of plumage. Of this number, two only were young birds with the



3.—Rookery on Little Nobby, showing tracks and entrances to burrows amongst the "pig-face" weed.



4.—Penguin Paths, showing beaten track, Little Nobby.



5.—Shelly Beach Rookery, looking east. A mile of curving beach.



6.—Shelly Beach Rookery, looking west. Cushion-bush in foreground.

last remnants of down hanging to their new feathers. The remains of the egg tooth were quite distinct in both birds.

The birds under the bushes, when approached, would get up and run away under adjacent clumps. Those birds in the burrows, however, when molested too much, dug into the back of the burrow and threw out the earth with a back kick of the feet. The burrows were mostly shallow, one or two feet deep. In the deeper holes, if the occupant was "at home," the presence of blow-flies and a peculiar odour indicated the fact. The latter is not to be easily described, but anyone who has slept in a Bass Strait bed on a mattress made from undressed Mutton-Bird feathers will readily recognize it.

It is only when disturbed that a Penguin in the burrow will call out during the day. Several times we heard a sharp "squark," and upon investigation found that a rabbit had forced itself in between two birds, and seemed quite at home.

Based upon the rough calculation of 200 birds per acre, there are probably not less than 10,000 Penguins in the Shelly Beach rookery.

THE HEADLAND ROOKERIES.

These are situated upon the south-west corner of the island, opposite The Nobbies (photographs Nos. 9 and 1). We had not the time to find out how far they extended along the coast-line. But the whole of the steep cliffs on the sea front, as well as the flat headland above for about two miles east in one direction and at least a mile south in the other were tenanted by birds. About a mile from The Nobbies one portion of the headland is traversed by a deep ravine which the storm waters have excavated to a width of 40 to 50 feet. In parts this gully is 15 to 20 feet deep. The opening on the beach faces towards Flinders, on the mainland opposite. From here it runs back into the headland for half a mile or so, decreasing in width and depth. We found the Penguins making use of it as a track leading to the rabbit-burrows and tussocks inland. Many of these birds were over half a mile from the sea. During the breeding season the labour of making the daily journey to and from these nesting-sites must be extremely hard upon the birds. Dr. Wilson, of Antarctic fame,²² Captain Scott's beloved companion, has, however, recorded the Adelie Penguin nesting 1,000 feet above sea-level on the sides of Mount Erebus. Why birds whose enemies are in the sea should choose such inaccessible spots to nest is a difficult problem to answer. Probably it is a question of space and want of room, the burrows on the sea front being taken up by the early comers, whilst the later arrivals have to seek further inland.²³

In one of the moulting burrows on the top of the headland we found four birds—Nos. 34, 35, 36, 37 of tabulated list. As they illustrated the two "types" of the plumage phase, a photograph was taken of them (photograph No. 11). "The smaller, dark-coloured species" is on the right, "the larger, light-coloured species" (*E. minor*) on the left of the picture.

In handling the birds in the burrows, it was found that the young birds were softer-voiced and made fewer attempts at pecking than the older birds. The "fat" adult unmoulted birds (type "B") were very savage and shrill of voice. When brought out into the open, in the sun, they commenced to pant, and, like Falstaff, they could be well described as being "fat, and short, and scant of breath." The moulted birds, on the other hand, were far less irritable. Their fortnight's fast, and loss of fat and feathers, no doubt had something to do with their quietness.

On our last afternoon, after the arrival of the vehicle which was to take us back to Cowes, we saw a rabbit, chased by a dog, run into a burrow. Upon investigation a Penguin was found there also. The rabbit was huddled in behind the bird, fur and feather rubbing shoulder to shoulder. Both were easily reached. The driver pulled out the rabbit; the driver's dog immediately jumped at it, but refused to look at the Penguin. We replaced the bird in the burrow, and it was only after a lot of coaxing and "sooling on" that we could get the dog to look at the burrow. He positively refused to poke his nose in at the entrance, and his whole demeanour spoke eloquently of a long acquaintance with and a vast respect for Penguins in general and this one in particular. We wondered if the half-wild cats, several of which were seen at the Shelly Beach rookery, had the same fear of the birds. This Penguin was one of the few examined on the side of the rookery facing Cape Woolamai. It belonged to type "B," and was just commencing to moult. Its burrow was on the highest point of a steep cliff overlooking a rocky beach. The nearest landing-place for the bird was three-quarters of a mile from the burrow. Upon inquiry, the driver stated that he knew of another large rookery a mile or two away. We had no time to examine it.

We did not attempt to calculate the area of this headland, as we hope to make a more detailed examination later; but at the lowest computation it is six times the area of the Shelly Beach rookery. The birds are not so thick upon it as at the Little Nobby and Shelly Beach; but, allowing for that and for the other rookeries yet to be examined, it is probable that the Penguins on Phillip Island may number some 40,000 to 50,000.* This is the last stronghold of these birds upon what is practically our mainland. All the other known large rookeries are placed in islands off the coast, mainly in the Bass Strait.

As an asset to the residents of Phillip Island and to the Victorian Tourist Bureau, its value is unknown and unguessed. Perhaps it is better so. But it is unjust and unwise that these Penguins are not found upon the list of our protected birds. They are not even partially protected. It is only a matter of a few years, and they will be driven away by increasing settlement and indifferent fishermen, who now use them as bait for their crayfish pots.

*A second visit during the Christmas of 1917 revealed many further rookeries and a much greater number of birds. The Penguins on Phillip Island probably number close upon 200,000, including young birds.



7.—Moulting Penguin underground, Shelly Beach rookery.



8.—Pair of Moulting Penguins under a tussock, showing cast-off feathers, Shelly Beach rookery.



9.—Moulting Burrow on top of Cliff, Headland Rookery, which contained four birds. Note feathers outside burrow.



10.—Six Moulting Penguins sheltering under the "Blue-bush," Shelly Beach rookery.



11.—Four Birds out of one Burrow, two having completed moult and two just beginning.

PHOTO BY TOM TREGELLAS.

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[No attempt has been made in this paper to describe or contrast the general coloration of the specimens collected. This we hope to do at a later date, after having reviewed the series of skins in the H. L. White collection at the National Museum, Melbourne.

In conclusion, we wish to thank Messrs. W. B. Alexander, M.A., Biologist of the Perth Museum, and J. A. Kershaw, F.E.S., Curator of Melbourne National Museum, for their kindly interest in the work, and loans of Western and Southern forms. These, with the skins of the H. L. White collection, will apparently yield some interesting data.]

TABULATED LIST OF SPECIMENS.

Date.	Site.	Skim.	Sex.	Total Length.	Flipper, two Measurements.	Culmen, Length and Depth.	Tarsus.	Mid. Toe and Claw.	Descriptive.
9/3/17.									
Taken on	Lesser	1	Imm. ♂	365	67	30 X 11	23	48	Colouring.—Iris, when alive, dark brown; after death inner circle of silvery-cream, with an outer circle of dark-brown, with a fine network of silvery-cream lines. Solt parts unwittingly omitted.
	Nobby, facing north.								Soft parts unwittingly omitted.
		2	Ad. ♂	395	73	38 X 14	27	54	
Lesser	Nobby, facing north.								
Lesser	Nobby, facing north, same burrow as 10 pair	3	Ad. ♀	395	122 X 53	37 X 12	23	48	Iris.—Inner circle silvery-cream, outer circle dark brown, with network of silvery-cream lines.
									<i>Upper bill</i> , blackish-brown; <i>lower bill</i> , tip and cutting edge similar, under surface pearly-white.
									<i>Feet</i> .—Upper surface tinged with pink, edge of web and V-shaped part between toes dark brown, under surface blackish.
									<i>Ovary</i> (in bottle), enlarged oviduct at extremity, and eggs (ova) of different sizes.
									<i>Stomach</i> .—Green, oily slime, and one small piece of black basalt.
		4	Ad. ♂	382	117 X 68	37 X 15	27	48	Iris.—Inner circle silvery-cream, outer circle dark brown laced with network of silvery-cream.
Lesser	Nobby, facing north.								<i>Upper bill</i> blackish-brown, cutting edge and tip and cutting edge of lower bill slate-brown, under surface of lower bill, pearly-white.
									<i>Feet</i> .—White, faint tinge of pink, edge of web and V-shaped space between toes dark brown, under surface blackish.
									<i>Stomach</i> .—Empty, except whitish slime.

Lesser Nobby, on top.	5	Ad. ♀	393	115 x 65	35 x 12	26	48	<p><i>Iris</i>.—Inner circle silvery-cream, outer circle flecked with brown. <i>Upper bill, lower bill</i>, and <i>leg</i>, similar to No. 9. <i>Ovary</i>.—Some of the ova the size of No. 4 shot. <i>Stomach</i>.—Empty, except for greenish slime and three parasitic worms. <i>Colouring</i>.—<i>Iris</i> (when alive)—inner circle silvery-cream, outer circle dark brown, with fine network of silvery-cream lines. <i>Upper bill</i> brownish-black, cutting edge upper bill and tip and cutting edge of lower bill slate-brown, under surface lower bill whitish. <i>Feet</i> white, faintly tinged with blue, edge web and deep V-shaped mark between toes dark brown, under surface blackish. <i>Stomach</i>.—Full of fish, remaining quite fresh, not digested; parasitic worms alive (after chloroform). <i>Iris</i>.—Silvery-cream, slightly yellower than No. 6, outer circle dark brown with network of silvery-cream lines. <i>Upper and lower bill</i> similar to No. 6. <i>Feet</i> tinged very faintly with pink, rest same as No. 6. <i>External parasites</i>, fleas and tick. Both ears were crowded with tick. Dark mark across vent. <i>Ovary</i>.—Oviduct enlarged, some ova size of No. 4 shot. <i>Stomach</i>.—Greenish slime, 7 horny beaks of small (tiny) squid, two small pieces of basaltic grit.</p>
Lesser Nobby, on top.	6	Imm.*	357	115 x 67	30 x 11	24	47	
Lesser Nobby, on top.	7	Ad. ♀	352	115 x 63	35 x 12	25	47	

* Sex not determined.

Date. Site.	Skin.	Sex.	Total Length.	Flipper, two Measurements.	Culmen, Length and Depth.	Tarsus.	Mid. Toe and Claw.	Descriptive.
Lesser Nobby, on top.	8	Ad. ♀	390	120 x 71	38 x 13	23	50	<i>Upper and lower bill</i> , same as 6 and 7. <i>Ovary</i> .—Enlarged oviduct and eggs the size of No. 4 shot. <i>Stomach</i> .—Contained single Penguin feather stained green with slime; no worms. If fasting during the moult, would worms be voided and got rid of? <i>Iris</i> .—Inner circle silvery-cream, outer circle dark brown, with network of silvery-cream lines. <i>Upper bill</i> blackish-brown, cutting edge and tip and cutting edge of mandible dark brown, under surface pearly-white. <i>Feet</i> white tinged with pink, edge of web blackish, under surface blackish. <i>Stomach</i> empty.
Lesser Nobby, facing north, same burrow as No. 11.	9	Ad. ♂	420	115 x 67	37 x 15	27	48	<i>Iris</i> .—Inner circle silvery-cream, outer circle dark brown with network of silvery-cream lines. <i>Upper bill</i> blackish-brown, cutting edge and tip and cutting edge of mandible dark brown, under surface pearly-white. <i>Feet</i> white tinged with pink, edge of web blackish, under surface blackish. <i>Stomach</i> empty.
Lesser Nobby, pair No. 3 same burrow.	10	Ad. ♂	403	115 x 58	40 x 15	27	47	<i>Iris</i> .—Inner circle silvery-cream, outer circle dark brown with network of silvery-cream. <i>Upper and lower bill</i> as in No. 9. <i>Feet</i> as in No. 9. <i>Testes</i> dark and shrinking. Bird just preparing to moult. <i>Stomach</i> .—Green oily matter, basaltic grit, and beaks of squid.
Lesser Nobby, facing north, pair No. 9.	11	Ad. ♀	387	105 x 62	36 x 13	29	45	<i>Iris</i> .—Large inner circle silvery-cream, narrow outer circle of silvery-cream, with flecks of brown. <i>Upper and lower bill</i> , same as No. 9. <i>Ovary</i> .—Evidently shrinking back to normal, awaiting the moult. <i>Stomach</i> .—Greenish-yellow slime and beaks of squid.

..	12	Ad. ♀	312	110 x 61	35 x 12	25	44	<p><i>Iris</i>.—Inner circle silvery-cream, outer circle dark brown, with network of silvery-cream lines. <i>Upper bill</i> brownish-black, cutting edge and tip of lower bill dark brown, under surface pearly-white. <i>Feet</i> white tinged with pink, webs edged with dark brown, and V-shaped mark between toes dark brown, under surface blackish. <i>Ovary</i>.—Eggs size of No. 4 shot; oviduct enlarged. <i>Stomach</i>.—Remains of fish. <i>Iris</i>.—Silvery-cream, flecked brown in outer circle. <i>Whole of upper bill</i> brownish-black, tip and cutting edge of lower bill similar, under surface pearly-white tinged with pink. <i>Feet</i> white, faintly tinged with pink and blue, V-shaped piece between toes dark brown, and extending further than in No. 15. <i>Stomach</i> empty. <i>Iris, upper and lower bill</i>, similar to No. 18; died quickly. <i>Feet</i> pinkish-white above, V-shape between toe and edge of web brown, under surface blackish; very large, heavy male just coming to moult, very fat, with all new feathers still under the skin. <i>Stomach</i>.—Fish, heads of squid, several pebbles, and a quantity of slimy mucus; no worms. Soft parts similar to No. 19. <i>Stomach</i> empty. <i>Iris</i>.—Silvery-white inner circle, outer circle dark brown, fine network of silvery lines.</p>
Big Nobby.	13	Imm. ♂	394	118 x 67	37 x 13	27	52	
Lesser Nobby.	14 (wet)	Ad. ♂	412	116 x 68	37 x 14	28	50	
Lesser Nobby.	15	Ad. ♂	370	125 x 70	41 x 14	23	50	
Lesser Nobby, 10/3/17.	16	Ad. ♀	390	117 x 68	39 x 13	27	48	

10 p.m.

Date. Site.	Skin.	Sex.	Total Length.	Flipper, two Measurements.	Culmen, Length and Depth.	Tarsus.	Mid. Toe and Claw.	Descriptive.
	16—	<i>continued.</i>						
10/3/17. Lesser Nobby, 10 p.m.	17 (wet)	Ad. ♀	340	111 x 62	38 x 13	28	49	<p><i>Upper bill</i> blackish-brown, cutting edge, tip, and cutting edge of lower bill dark brown, under surface lower bill white tinged with pink.</p> <p><i>Feet</i>.—Upper surface pinkish-white, lower black, V-shaped mark and edge of web dark brown.</p> <p><i>Ovary</i>.—Eggs size No. 4 shot.</p> <p><i>Stomach</i>.—Whole fish size of whitebait, worms, basaltic grit, but not in same quantity as in nestlings.</p> <p><i>Iris</i>.—Inner circle silvery-cream, outer circle dark brown, with fine network of silvery-cream lines.</p> <p><i>Upper bill</i> brownish-black, tip and cutting edge of upper and lower bill dark brown, under surface pearly-white tinged with pink.</p> <p><i>Feet</i> white tinged with pink, narrow edge and V-shaped mark on web between toes dark brown, soles of feet blackish.</p> <p><i>Stomach</i>.—Seaweed and brown slime.</p> <p><i>Iris</i>.—Inner circle silvery-cream, outer circle dark brown, with network of silvery-cream lines.</p> <p><i>Upper bill</i> blackish-brown, tip and cutting edge of upper and lower bill dark brown, under surface lower bill pearly-white tinged with faint pink.</p> <p><i>Feet</i> white tinged with pink, edge of web and V-shaped mark between toes dark brown, under surface blackish.</p>
10/3/17.	18 (wet)	Ad. ♀	372	115 x 66	39 x 12	24	46	

<p>10/3/17. Lesser Nobby, 10 p.m. Caught coming up from sea.</p>	<p>19 (wet)</p>	<p>Ad. ♂</p>	<p>402</p>	<p>125 x 72</p>	<p>40 x 14</p>	<p>28</p>	<p>51</p>	<p><i>Stomach</i>.—Greenish slimy only. <i>Ovary</i>.—Few ova size of No. 6 shot. <i>Iris</i>.—Inner circle silvery-cream, outer circle dark brown with network silvery-cream lines. <i>Upper bill</i> brownish-black, tip and cutting edge of upper and lower bills dark brown, under surface of lower bill pearly-white tinged with pink. <i>Feet</i> white tinged with pink, web and V-shaped mark dark brown, under surface blackish.</p>
<p>10/3/17. Lesser Nobby, Pair 21. Caught sitting outside burrow with its mate.</p>	<p>20</p>	<p>Imm. ♂</p>	<p>308</p>	<p>111 x 60</p>	<p>28 x 11</p>	<p>24</p>	<p>47</p>	<p><i>Stomach</i>.—Trace of green slime. Soft parts similar to No. 21. <i>Stomach</i>.—Parasitic round worms in upper part of stomach mixed with food <i>débris</i>, consisting of beaks of squid, seaweed, and small seed-like bodies, probably parts of squid, and numerous basaltic pebbles (grit), much more in quantity than in adult specimens examined.</p>
<p>..</p>	<p>21</p>	<p>Imm. ♀</p>	<p>288</p>	<p>110 x 60</p>	<p>25 x 9</p>	<p>23</p>	<p>46</p>	<p><i>External parasites</i>, fleas. The occurrence of a flea in the Penguins akin to <i>Pulex irritans</i> was not expected. <i>Iris</i>.—Inner circle silvery-cream, outer circle dark brown, with fine network of silvery-cream lines. <i>Upper bill</i> and tip of lower bill black, basal half of cutting edge of upper and lower bill bluish-white, under surface of lower bill bluish-white. <i>Feet</i> white tinged with blue, webs edged with blackish-brown, V-shaped mark between toe and under surface blackish-brown. <i>Parasites</i>.—External, small lice and flea; internal, parasitic worms.</p>

Date. Site.	Skin.	Sex.	Total Length.	Flipper, two Measurements.	Culmen, Length, and Depth.	Tarsus.	Mid. Toe and Claw.	Descriptive.
	21—	<i>Continued.</i>						
12/3/17. Nesting in the down.	38	N. ♂	318	120 x 68	27 x 9	30	46	<p><i>Stomach.</i>—Small pebbles of black basalt, squid beaks, seaweed.</p> <p><i>Iris.</i>—Inner circle silvery-cream, outer circle dark brown, with network of silvery-cream lines.</p> <p><i>Culmen</i> and tip of lower mandible brownish-black, cutting edge of upper mandible fleshy-brown, lower mandible pearly-white tinged with pink; egg tooth plainly marked, youngest bird found. Bare skin round the eye dull blue.</p> <p><i>Feet</i> white faintly tinged with blue, edge web and V-shaped mark between toes and claws dark brown, soles of feet blackish. Toe-rings 1-2-1.</p> <p><i>Stomach.</i>—43 squid beaks, seaweed, feathers, and small pebbles.</p> <p><i>Internal parasites,</i> small round worms; external parasites, small lice.</p> <p><i>Iris.</i>—Inner circle silvery-cream, outer circle dark brown, with fine network of silvery-cream lines.</p> <p><i>Culmen</i> brownish-black, cutting edge fleshy-brown, tip of lower mandible brownish-black, rest pearly-white tinged with pink.</p> <p><i>Feet</i> white, faintly tinged blue, narrow edge to web and V-shaped mark between toes dark brown, under surface bluish.</p> <p><i>Stomach.</i>—Remains of fish.</p> <p><i>Internal parasites,</i> worm; external parasites, lice.</p>
12/3/17.	51	Imm. ♂	350	125 x 70	34 x 11	27	52	

Date.	Site.	Live Bird.	Sex.	Type of General Coloration.	Flipper.	Culmen Length, and Depth.	Descriptive.
11/3/17.	Phillip Island Rookery.	22 pr.	Ad. ♂	"A"	117	40 x 13	Live bird examined at the burrow. Freshly-moulted bird. General coloration of iris and soft parts type "A" (same as Nos. 17 and 18).
	Phillip Island Rookery.	23	Ad. ♀	"A"	..	36 x 12	General coloration, iris and soft parts, type "A" (same as 22). Half-moulted bird.
	Phillip Island Rookery.	24	Ad.	"B"	..	35 x 13	Soft parts same as Nos. 17 and 18. Moulting bird.
	Phillip Island Rookery.	25	Ad. ♂	"A"	..	38 x 13	Soft parts same as Nos. 17 and 18. Moulting bird.
	Phillip Island Rookery.	26	Ad. ♂	"A"	..	37 x 12	Soft parts same as Nos. 17 and 18. Moulting bird.
	Phillip Island Rookery.	27	Ad. ♂	"A"	..	37 x 15	Soft parts same as Nos. 17 and 18. Just finished moult.
	Phillip Island Rookery.	28	Ad. ♀	"A"	..	38 x 12	Soft parts same as Nos. 17 and 18. Just finished moult.
	Phillip Island Rookery.	29	Ad. ♂	"A"	..	39 x 14	Freshly-moulted bird; went into the sea.
	Phillip Island Rookery.	30	Ad. ♀	"B"	..	37 x 12	Just commencing the moult. Ran towards the sea, but hid under rock instead of going into water.
	Phillip Island Rookery.	31	Ad.	"B"	..	34 x 11	Fat bird, just commencing to moult. Soft parts as usual, pink more pronounced on feet.
	Phillip Island Rookery.	32	N.	..	..	33 x 11	Down still adhering round the neck, sides of breast, and base of flipper. The last trace of the absorbing egg tooth on the tip of the culmen still plainly visible.
	Phillip Island Rookery.	33	N.	"C"	..	30 x 10	No down remaining, but last trace of egg tooth just visible. Designated as type "C" to distinguish it from the almost similarly-coloured type "A." Freshly-moulted adult bird.

Date, Site.	Live Bird.	Sex.	Type of General Coloration.	Flipper.	Culmen, Length and Depth.	Descriptive.
These four birds all found in one burrow.	34	Ad.♀	"A"	..	35 x 12	Just finished moult.
	35	Ad.♂	"A"	..	38 x 14	Just finished moult.
	36	Ad.♀	"B"	..	35 x 14	It was interesting to find these four birds, all adult, in the same burrow. The male and female in each was fairly easily picked out, the male bird having always a larger head and more vicious look, whilst the eye had a peculiar expression which can only be described as being more aggressive.
	37	Ad.♂	"B"	..	37 x 12	Bill well curved.
12/3/17. Shelly Beach Rookery.	39	Ad.♂	"A"	..	37 x 12	Ventral markings very faint. Toe-rings, 2-2-2.
	40	Ad.♂	"A"	..	39 x 15	
	41	Ad.♂	"A"	..	39 x 14	
	pr.					
12/3/17.	42	Ad.♀	"A"	..	38 x 13	Ventral markings very pronounced.
	pr.					
	41					
	43	Ad.♀	"B"	..	36 x 15	
	pr.					
	44	Ad.♂	"B"	..	38 x 12	Scutellations of the toes. Toe-rings, 1-2-1.
	45	Ad.♂	"B"	..	37 x 12	
	46	Ad.♂	"B"	..	35 x 12	
	pr.					Toe-rings, 1-3-1.
	47	Ad.♀	"B"	..	38 x 13	Toe-rings, 1-2-1.
48	Ad.♀	"B"	..	38 x 13	Toe-rings, 2-2-1, 1-2-1.	
pr.						
49	Ad.♂	"B"	..	38 x 13	Toe-rings, 1-3-2, 1-2-1.	
50	Ad.♂	"B"	..	35 x 12	Toe-rings, 2-2-1.	

Ornithologists in North Queensland.

BY CAPTAIN (DR.) W. MACGILLIVRAY, PRESIDENT OF THE R.A.O.U.

PART II.

Ædienemus grallarius (*Burhinus magnirostris ramsayi*).—The plaintive wailing of this bird was occasionally heard from our camp on the Claudie. Mr. M'Lennan noted them as plentiful near the Archer River, and that he flushed a flock of about 20 from amongst the rushes and low tea-tree.

Esacus magnirostris (*Orthorhamphus magnirostris neglectus*).—On the 1st July, 1913, Mr. M'Lennan flushed a pair of these birds from some bushes on the Macarthur Islands, where they were preparing a nest. We noted a pair on the Sir Charles Hardy Islands, and another pair on Haggerstone. They are very shy birds, and run or fly off when one attempts to approach them.

Choriotis australis (*Austrotis australis derbyi*).—Mr. M'Lennan flushed one of these birds on the 24th July, when at the Pascoe River; it was in low, undulating country, covered with stunted tea-tree brush, banksia, wattle, and other small trees. During September and October he frequently disturbed them on an open grassy flat across the Claudie River from the camp—sometimes as many as fourteen at a time. They appeared to be feeding on caterpillars.

Out towards the ranges from our top camp on the Claudie, on a small stony hill covered with stunted scrub, Mr. M'Lennan showed us a Bustard's nest—a small, bare patch on the hard ground—from which he had flushed the mother bird on the 30th October; it then contained a single hatching egg. On our return to camp we flushed a pair from the grassy flat in front of it. They flapped their way out over the scrub, uttering hoarse barking cries. On the Archer River Mr. M'Lennan noted only one.

Antigone australasiana (*Mathewsia rubicauda argentea*).—Noted on several occasions, either flying overhead or feeding in grassy flats or rush-covered, shallow tea-tree swamps. Mr. M'Lennan states that they are numerous on the swamps about the Archer River, a flock of 100 being no uncommon sight.

Ibis molucca (*Threskiornis molucca stictipennis*).—Mr. M'Lennan noted this species once on the Pascoe River, and a small flock on a tea-tree swamp on the Claudie. He also found them in numbers on the swamps along the Archer and Watson Rivers.

Carphibis spinicollis (*C. spinicollis*).—This bird was not noted on the Claudie, but Mr. M'Lennan found it in numbers on the Archer and Watson River swamps.

Plegadis falcinellus (*P. falcinellus*).—Mr. M'Lennan came across numbers of these birds on the Watson River swamps, and, according to the natives, they nested in a swamp about three days' journey from where he was camped.

Platalea regia (*Spathero dia regia*).—Mr. M'Lennan flushed seven Royal Spoonbills from the mangroves half a mile from the mouth of the Claudie in October. They were numerous on the Watson and Archer River swamps.

Xenorhynchus asiaticus (*X. a. australis*).—On his arrival at the Claudie, in September, Mr. M'Lennan found it tenanted by a pair of

Jabirus with two fully-fledged young ones; these were also noted on an open plain near a tea-tree swamp. We also on several occasions flushed one or two on our way up or down the river. Mr. M'Lennan also noted this bird on the Watson River.

Ardea sumatrana (*Typhon sumatrana mathewsæ*).—We frequently noted a fine specimen of this great bird on the Claudie, and on many occasions heard its harsh, croaking call.

On 22nd August, 1914, Mr. M'Lennan, writing from the Watson River, notes:—"Flushed *A. sumatrana* from a nest 40 feet from the ground, in a paper-bark; it contained one fresh egg, which I left." 23rd August.—"When passing the Heron's nest I noticed that the bird was absent; went over to investigate, and found the egg on the ground. The Crows must have got at it." On the 9th April, 1915, when on the delta of the Archer River, he notes:—"Rowed up another creek; two nests of *A. sumatrana* noted. No eggs, but tracks of natives about both nests."

Herodias syrmatophorus (*H. alba syrmatophora*).—We only noted one of these birds on the Claudie, but Mr. M'Lennan found them in numbers on the swamps on the opposite side of the Peninsula.

Notophox novæ-hollandiæ (*N. novæ-hollandiæ*).—Common all along the Archer River.

N. pacifica (*Myola pacifica*).—Occasionally seen about the swamps near the Archer River.

Notophox aruensis;
Notophox flavirostris } (*Tonophox aruensis flavirostris*).—From the Archer River Mr. M'Lennan makes this note on 9th April, 1915:—"Go up for about three miles and anchor, as it is too shallow to proceed farther in the cutter. The river here widens out into a big, shallow bay, two miles across by three miles long. There are a couple of big mangrove-covered islands in the bay, and numerous creeks and channels running into it. A couple of flocks of Egrets (*Herodias timoriensis* and *H. nigripes*) noted. Spent the afternoon exploring one of the creeks; hundreds of old nests were seen in the mangroves on both sides of the creek. A couple of pairs of Pied Egrets noted." On 10th April, 1915, he noted:—"Rowed up another creek for about four miles. A couple of miles up the creek I came across another Heronry; it continued for about a mile on both sides of the creek. In the afternoon I explored one of the islands, and found another small Heronry—all last season's nests. Two large flocks of Pied Egrets, of about 20 and 60 birds, were seen flying due north from the mouth of the river at sunset."

These birds were numerous on the swamps of the Watson River.

Garzetta immaculata (*Egretta garzetta immaculata*).—Mr. M'Lennan noted of this species on 4th April, 1915:—"Large flocks of Egrets flying north four miles from the shore." He also noted them in flocks on the Archer River, and as numerous on the swamps along the Watson River.

Demiegretta sacra (*D. sacra cooktowni*, *D. s. greyi*).—Mr. M'Lennan noted the Reef-Herons as numerous on the Hannibal Islands, and that he found a number of old nests on one of the small islands in Lloyd's Bay.

We flushed a solitary grey bird from its nest on Quoin Island; it contained two eggs. On the Sir Charles Hardy Islands Mr. Kershaw

flushed a white bird from its nest, placed in a sheltered crevice on a high rocky point; it contained three fresh eggs. Numbers were disturbed by us when exploring the rocky shore of Haggerstone Island.

Nycticorax caledonicus (*Nycticorax caledonicus australasiæ*).—Numerous on Raine Island. All fully-plumaged birds; they would soon have been nesting. We flushed one from a cave under the limestone ledge, and in another cave found an old nest, no doubt placed there to protect its contents from the depredations of the Gulls. On the 9th December we flushed one from its nest—a trampled-down platform of herbage on a pile of rocks in the centre of the island; the nest contained one egg, which was afterwards taken by Gulls. Many Nankeen Night-Herons were to be seen every morning at daybreak on the turtle-nesting ground, on the watch for young turtles making their way to the sea.

These birds were also numerous on the large sand-bank to the north-west of Raine Island, on the Barrier Reef. We occasionally flushed one during our wanderings in the tea-tree swamps near the Claudie.

Mr. M'Lennan noted this species as numerous on the Hannibal Islands. On the western side of the Peninsula he found them to be equally common.

Butorides stagnatilis (*Butorides striata littleri*).—Often noted on the foreshore at Lloyd's Island in early morning or evening. During the day they roost in the mangroves. We on several occasions saw them flying to the mangroves when the Pigeons and other birds were leaving. We also disturbed them from the mangroves on Haggerstone Island, and occasionally in the swamps near the sandalwood landing on the Claudie River. Mr. M'Lennan found them to be quite common on the opposite side of the Peninsula in similar localities.

Dupetor gouldi (*Dupetor flavicollis olivei*).—Frequently noted in early morning or evening on the shore at Lloyd's Island, refuging in the mangroves during the day. Occasionally seen in the tea-tree swamps. Common on the Archer and Watson Rivers.

Anseranas melanoleuca (*Anseranas semipalmata*).—When returning up the Claudie on the 18th December we flushed a number of these birds from the trees about a large hole in the river which had come to be known to us as the "Lily Pool."

Writing from the Archer Creek, off the Archer River, on the 6th April, 1915, Mr. M'Lennan stated:—"Proceeded up the creek a few miles, anchored, went ashore and explored some of the swamps. Went on to a big swamp about three miles from the river, and waded through about two miles of it; water waist-deep and the going very heavy. Semi-palmated Geese numerous; found several half-built nests and numbers that the natives had robbed. No eggs. Returned along the edge of the swamp. Several old camps of the natives were examined; the ground about them was literally paved with eggshells." On 21st April, 1915, he wrote:—"Swamps north-west of Watson River, Semi-palmated Geese numerous."

Mr. H. G. Vidgen, writing from Paira, Cape York, under date 10th November, 1915, said:—"In a dry swamp not far away some thousands of Geese have been actually scratching the drying mud to unearth the roots of rushes, on which they live. Boy (H. S. Vidgen) said they scratched just like fowls, and the ground was

certainly too hard for any prospecting with the bill ; at any rate, they managed to keep in good condition, and now the rain has softened the crust for them. These birds have to fly three miles to a lagoon for water, but they always returned to this dry swamp for food. We rarely see Geese here. Sometimes they come to the Jardine River swamps, but the nearest breeding-ground is the Batavia River."

Nettapus albipennis (*Cheniscus coromandelianus albipennis*).—We first noted a pair of these birds on the 24th January, after the commencement of the wet season. They were more frequently met with afterwards, mostly in tea-tree swamps. They were pairing off when we left the Claudie.

On the 21st April, on the Watson River, Mr. M'Lennan saw one with a brood of small young.

Dendrocygna arcuata (*Dendrocygna javanica gouldi*).—This Tree-Duck was noted by Mr. M'Lennan on the Watson River swamps.

Dendrocygna eytoni (*Leptotarsis eytoni*).—Mr. M'Lennan noted these birds as occasional on the Archer River swamps.

Tadorna rufitergum (*Radjah radjah rufitergum*).—Mr. M'Lennan noted this Duck on the Pascoe, and soon after coming to the Claudie he flushed a flock of about 50 from a muddy mangrove bank a couple of miles from the mouth of the river. In July, on the Archer River, he found them to be fairly numerous.

On the 14th April, 1915, on the Watson River, he noted:—"A couple of broods of young Mangrove Ducks were seen along the water's edge at sunset ; numbers in the swamps." Two days later he noted a brood of Mangrove Ducks almost ready to fly.

Anas superciliosa (*A. superciliosa rogersi*).—This Duck was on several occasions noted in numbers on a sand-bank at the mouth of the Claudie. Mr. M'Lennan found this Duck to be numerous on the Archer and Watson River swamps.

Nyroca australis (*N. australis*).—Mr. M'Lennan noted a few on the Watson River swamps.

Plotus novæ-hollandiæ (*Anhinga novæhollandiæ*).—On the 18th December one of our blacks shot a specimen of this bird on the Claudie. It was moulting, and useless as a specimen. The black, however, did not discard it.

Mr. M'Lennan, from the Archer River, under date 1st June, 1914, noted:—"Flushed a Darter from its nest in a dead paper-bark overhanging the water ; it contained one egg." 16th June, 1914.—"A Darter's nest in a paper-bark overhanging the river contained one large young one, which promptly dived into the water as we approached." 15th July, 1914.—"Flushed two Darters from nests in paper-barks over the river ; each nest contained four eggs."

Phalacrocorax carbo (*P. carbo novæhollandiæ*).—From the Archer River Mr. M'Lennan noted, under date 1st June, 1914:—"Flushed a *P. carbo* from its nest in a dead tree near the bank ; no eggs."

Phalacrocorax sulcirostris (*Mesocarbo ater ater*).—A few were seen by Mr. M'Lennan on the Archer River.

Phalacrocorax melanoleucus (*Microcarbo melanoleucus*).—Noted also on the Archer River.

(To be concluded.)

Notes upon Eggs of the Wedge-tailed Eagle (*Uroaëtus audax*).

BY. H L. WHITE, R.A.O.U., BELLTREES, N.S.W.

THE six sets of *Uroaëtus audax* eggs which I send for exhibition at this monthly meeting of the R.A.O.U. are not typical—in fact, they are abnormal in coloration.

It is extremely hard to decide upon the typical colour of *Uroaëtus* eggs. During the last two seasons I have examined upwards of 50 sets, every one of which differed from what I had decided as a typical pair in my collection. The more one sees of eggs of this species the more the fact is made clear that to establish a type is almost impossible.

My collection contains 30 clutches; that of my friend Mr. J. H. Bettington, of "Terragong," Merriwa, has a still greater number. This gentleman has the largest collection of Wedge-tailed Eagle's eggs in Australia.

Some thirty years ago the Eagles existed here in hundreds, but are now rare; on the other hand, at "Terragong," 45 miles due west, the birds are still very numerous, and Mr. Bettington might easily collect 30 clutches of eggs during the spring.

In my collection are specimens from each State of the Commonwealth, all showing considerable variation, but none exhibiting the extreme difference found in those collected by Mr. Bettington on a comparatively small area round his estate. Not only do the "Terragong" eggs show great variation in size and shape, but the coloration is most unusual. Some specimens are almost spherical, while others are rather long ovals. The shades of colour range from pure white and bluish-white to dark rusty-red, through many shades of lilac, brownish-red, and purple.

The Merriwa country is chiefly undulating, black soil, volcanic formation, very rich, and well watered. I am puzzled as to whether some particular chemical in food or soil has anything to do with the bright coloration of the eggs generally. Some clutches of Ravens' (*Corone australis*) eggs obtained in the locality show a bright deep greenish-blue colour, quite unlike anything I have seen elsewhere. As the Merriwa country has been ringbarked for many years, Eagles find a difficulty in securing proper material for nest construction. During late years some have utilized the dead stalks (frequently with roots attached) of the variegated thistle (*Carduus lanceolatus*), which grows most profusely in the locality. These thistle-stalks become very limp in damp weather, and the nests do not last long. In one particular instance the stalks were so unstable that they kept slipping from their position, and eventually formed a heap, equal to a dray-load, on the ground underneath. The birds exhibited remarkable patience, and at last, with the aid of *Angophora* twigs, completed the nest.

Of the eggs sent, the pure white clutch marked "A" is a gift from Mr. Bettington to the R.A.O.U. collection. Had this set been taken near the coast a suspicion might have arisen as to its

belonging to *Haliæetus leucogaster*; but Mr. Bettington personally verified the find, and states the female bird to be one of the darkest he has seen; the nest was robbed three times, the clutch upon each occasion being white.

Clutch "B" represents abnormally large eggs—(1) 3 inches 1 line by 2 inches 6½ lines, (2) 3 inches 1 line by 2½ inches—the cubic contents being greater than any other I have seen recorded. The coloration is peculiar also, if not characteristic.

Clutches "C" and "D," each containing a dark egg and a light one, were taken (together with a third set) during the present season from the same nest, and apparently laid by the same bird. These are extremely interesting and most puzzling. The fact of the bird laying three clutches all showing the combination of dark and light eggs shows there must be some cause for the variation. Unfortunately, it was not noted which egg was laid first. I had previously noted this variation in a clutch from Tasmania. It is the exception to find a well-matched pair of Eagle's eggs, but, on the other hand, nearly all the clutches of three I have examined were very well matched in size, shape, and coloration.

Clutch "E"—small, round eggs, a well-matched pair, with light lavender underlying markings. I thought at first that heavy incubation might account for the pale colour, but Mr. Bettington has a similarly coloured pair, taken fresh, from the same nest.

Clutch "F" represents a new phase in markings (bluish-white ground—one specimen fairly marked, other almost free from markings). I have seen nothing similar previously.

I could exhibit many more variations, but as there is some risk in sending eggs so far, I thought this exhibit would give some slight idea of the variations in eggs of *Uroæetus audax*.

Two Singing Species of *Gerygone*.

BY A. H. CHISHOLM, R.A.O.U., BRISBANE.

Gerygone is undoubtedly one of the most engaging genera of Australian birds. The remarkable activity of the little creatures, their highly-insectivorous qualities, and, in particular cases, their sweet songs, all combine to make them both valuable and lovable.

The question of the origin of this generic name has interested me of late, and, being unable to determine it from ornithological sources, I invited the opinion of a member of the staff of the Queensland University. From this scholar came the suggestion that the title is a compound of the Greek words *gerus*, "a voice," and *goné*, "the offspring of." Theocritus, in a poem called "Syrinx" (280 A.D.), speaks of "maidens *gerugonai*"—i.e., "born of sound." Gould first called the genus *Psilopus*, but later found this to be pre-occupied.* Is it, then—lacking other suggestion or explanation—too much to assume that, when

* "Handbook," vol. i., p. 265.

reflecting on the characteristics of the bird for the determining of a new generic name, the mind of the English ornithologist reverted to the airy, unbodied melody of *G. albogularis*, and that he echoed (perhaps unconsciously) the words of a greater English nature-lover—"Shall I call thee bird, or but a wandering voice?" and so *Gerygone*,* "born of a voice"?

I did not see much of any species of the genus when living in the south—indeed, only one record of the occurrence at Maryborough (Victoria) of that delightful bird, the White-throated Fly-eater, came under my notice. That was during the exceedingly stormy period of the early spring of 1909, when a lone male bird fluttered into an upstairs room of a business establishment.† The impression that the species was very rare in Victoria was not based on my own experience, however, so much as on the general silence of Victorians in regard to the bird, on Mr. Robert Hall's failure to record it in areas 4 or 6 of his "Key," and on Mr. A. G. Campbell's note‡ to the effect that his discovery of a nest in the Grampians in November, 1909, was only the third record of the bird's presence in the southern State. Since that time, however, I have come to know that the White-throated Fly-eater is not, and probably never has been, rare in certain parts of Victoria.

During January last I was on a visit to the Beechworth district (North-Eastern Victoria), and there saw any number of members of the pretty species in question. As a matter of fact, it was one of the most numerously represented avine families of the locality, and, throughout almost the whole of the daylight hours, its sweet, plaintive melody—"joy and sorrow intertwined"—could be heard stealing through the medley of more strident bird-voices. Local residents knew the bird well under the colloquial title of "Bush Canary," and many also were familiar with its nest. At that particular period, however, *Gerygone*'s home-keeping duties were over for the season, and there was naught to do but "sing and be merry." The species, I am told, keeps more or less closely to those North-Eastern hills the whole year through, but is a good deal quieter during the winter, which is sometimes severe in that locality.

In Queensland our little friend of the yellow vest and white collar appears to be more generally distributed, though it probably does not at any time wander very far from the seaboard. Occasionally one hears its melody in the thick scrubs (rain forests) of the north coast, but the class of country chiefly favoured is open forest—*Eucalyptus* or *Melaleuca* areas. There is one glade outside East Brisbane where I can always be sure of hearing the small melodist warbling from the tops of the paper-bark tea-trees. In the spring, when the beauteous little "Blood-Birds" (*Myzomela sanguineolenta*) are there to keep the Fly-eaters company, the spot is a riot of bird-song and colour. Sometimes *Gerygone* forsakes the tree-tops; on one occasion I saw a pair working a

* *Ge-ryg'-o-né.*† *Emu*, vol. ix., p. 247.‡ *Emu*, vol. ix., p. 164.

small *Acacia* in company with a pair of Rufous Whistlers (*Pachycephala rufiventris*), a pair of White-shafted Fantails (*Rhipidura albiscapa*), and several White-throated Honey-eaters (*Melithreptus albogularis*). It was a pretty sight.

It is an anomalous fact that the recently "discovered" member of the genus, *G. cantator*, is one of the commonest birds about Brisbane. Originally, of course, this small grey melodist figured as *G. fusca*, but, whereas the latter bird keeps chiefly to the scrubs, the Singing Fly-eater's merry voice rarely resounds away



Nest of the Singing Fly-eater *in situ*.

PHOTO. BY A. H. CHISHOLM, R.A.O.U.

from the fig-trees and other native vegetation of the city, or the mangroves of the watercourses of the Southern Queensland seaboard. In my experience, it is very seldom indeed that *G. cantator* frequents the open forest country favoured by its White-throated relative; only once, in fact, have I met the two species in company. And it is a curious thing that the notes of the grey bird seem to vary, in a remarkable degree, according to locality. Not only do the songs of the representatives of the species living along country creeks differ from those of the city birds, but it seems to me that there is quite a distinct difference between the warbling of the Fly-eaters at East Brisbane and those stationed

in the Botanic Gardens, less than two miles away. In all cases, however, the songs are most melodious. The chattering prelude to one bar is akin to that of *G. albogularis*, but the songs themselves have naught of plaintiveness; they are sprightly, varied, and moderately continuous, and place their author among the best of Australia's small bird-singers.

The precise distribution of the Singing Fly-eater has not yet been determined locally. Mr. J. Colclough, of the Queensland Museum, reports having seen the bird at Gympie (100 miles north of Brisbane), and I have listened to it at Maroochydore (60 miles north of Brisbane), but Mr. E. M. Cornwall has not noted the species so far north as Mackay.

The breeding season is probably indeterminate. Personally, I have only found the bird nesting in the springtime, but Mr. R. Illidge has had nests in his fig-trees at Bulimba (a suburb of Brisbane) both in November and June. Incidentally, the female of the species, who seems to do by far the greater part of the work of nest-building, is one of the most rapid little workers that ever I have watched. Both birds, in fact, seem possessed of much of the high vitality of their ecstatic kin-spirit, *Dicaeum hirundinaceum*, the Australian Flower-pecker.

Bird Notes from New South Wales.

COMMUNICATED BY DR. E. A. D'OMBRAIN, M.D., R.A.O.U.,
SYDNEY.

THE following notes were made by my son, A. F. D'Ombraïn. When one considers that the locality is but 8 miles from the G.P.O., Sydney, and within an hour's walk from a suburban railway station, the facts become more interesting.

The area referred to in these notes, except where otherwise stated, is that lying to the north of the northern shores of Middle Harbour, and bounded on the east by the Manly coast-line, to the west by the Milson's Point-Hornsby railway line. The country is all of the heathy kind loved by Honey-eaters and typical of the Hawkesbury sandstone areas, and composed of huge masses of grey sandstone tumbled and tossed into all sorts of shapes, forming overhanging shelves, caves, crannies, &c. (ideal places for the Rock-Warbler), which go to form the walls of the gullies, at the bottom of which the streams find their way to the waters of Middle Harbour. These gullies are not very thickly timbered, though, judging by the relics left by the timber-getters, some "giants there were in those days," and there are still some fine trees to be seen, but these gullies are quite unlike those, say, in the Dandenong Ranges (Vic.), and such as are in that State associated with the haunt of the Lyre-Bird.

The area covers many thousands of acres of country, and is so vast, and the ramifications of the "arms" of the harbour so intricate and numerous, that, though Sydney city is only half a dozen miles away to the south, it is quite an easy thing for the

unwary, and those who are not good bushmen, to find themselves "bushed"—at least for the time being.

This introduction is necessary in order to explain the reason of any Lyre-Birds, or, indeed, any large birds, being found so near the city.

NOTES MADE IN THE VICINITY OF GORDON.

LYRE-BIRDS CLOSE TO SYDNEY.

28/11/1914.—Went down Stony Creek towards Middle Harbour, and saw Lyre-Birds there for the first time, though we had often seen scratchings. The male ran away, but the female was so tame that she remained on a fallen tree, which was lying across the gully, which is here very narrow, and allowed us to get right under her and have a good look at her.

20/12/1914.—Up very early in the morning, and went down the creek again. Heard the Lyre-Bird mimicking other birds, amongst which we identified:—Butcher-Bird (*Cracticus destructor*), Mountain Magpie (*Strepera graculina*), Grey Shrike-Thrush (*Colluricincla harmonica*), Dollar-Bird (*Eurystomus pacificus*), Coachwhip-Bird (*Psophodes crepitans*), Yellow-faced Honey-eater (*Ptilotis chrysops*), White-eared Honey-eater (*Ptilotis leucotis*), Yellow-eared Honey-eater (*Ptilotis chrysotis*), and Yellow-breasted Shrike-Robin (*Eopsaltria australis*).

15/5/1915.—Found nest of Lyre-Bird just near where they were seen the previous season. It was built in an overhanging ledge of rock, near the creek. When first found it was only a mass of sticks; four or five days later it had only to be lined; then about two weeks later one egg was found in the nest. The egg was purple, with black blotches. The nest was lined with feathery down from the birds.

In January, 1915, saw a Drongo Shrike (*Dicruropsis bracteata*) at Gordon. This is rather an unusual locality for it. It was seen afterwards near Gordon feeding a young one which had evidently been reared here.

RECORD CLUTCH.—Pymble, 14/11/16.—Found a nest of the Warty-faced Honey-eater (*Meliphaga phrygia*); it contained four eggs. The clutch is stated by most authorities as two, rarely three. This clutch, therefore, is a record one. The nest was built about 50 feet from the ground.

21/4/17.—A female Red-capped Robin (*Petroica goodenovii*) was obtained at Lindfield, five miles from Sydney. This seems an unusual locality for this Robin.

GRALLINA'S PECULIAR NEST.—Nest of *G. picata* found by G. Anderson, R.A.O.U., was composed of a pile of seven nests (six old ones underneath). The mass weighed 3½ lbs. The nest on top contained five eggs.

Pardalotus punctatus in this locality frequently lays clutch of five eggs. A nest on one occasion was found in a hollow stump by G. Anderson, R.A.O.U.

Having noticed that the White-bellied Sea-Eagles (*Haliæetus*

leucogaster) frequented one of the branches of Middle Harbour, G. Anderson and I went in search of their nest on 6th July, 1917, and were rewarded by finding two nests, one evidently an old one. Saw one of the birds fly on to the other nest, so concluded this was to be used this season. The nest was situated in the fork of a fairly stout eucalypt, some 60 feet up. On climbing up an adjacent tree we found the nest was repaired, and apparently ready for eggs. Re-examined nest on 21st July, and could see one egg, which was left, in the hope of another being laid. Nest visited again on 22nd; still only one egg. 28th July.—G. Anderson again climbed up, and, as only one egg was seen, he decided to take it. Incubation had commenced. The nest was a huge structure of sticks and lined with fresh eucalyptus leaves. Dimensions:—Whole structure, 7 feet across by 5 feet deep; egg cavity, 18 inches in diameter by 9 inches in depth. In the body of the structure, and just where the sticks were resting on one of the branches of the fork, the nest of *Pardalotus punctatus* was found—surely a curious site for this little bird. In connection with the discovery of the Eagle's nest, a curious action of both birds was noted. Whilst soaring around, the birds were seen to suddenly "drop" one leg for a few moments. On one occasion one of them was seen to reach one foot forward and scratch its head. On another occasion we watched one of the birds make a sudden drop from mid-air into the waters of the harbour, making a great splash, and reappear with a fine mullet, which both birds devoured on a reef close by.

SHINING FLYCATCHER (*Myiagra nitida*) is quite frequently seen in this locality, and a specimen secured (Gordon, 2/3/15), and a clutch of three eggs was secured in 1915 by G. Anderson. In conversation with the late Mr. North, he seemed to doubt the identification of this bird for this locality. This was prior to my son obtaining the specimen. In his last work, "Nests and Eggs of Birds Breeding in Australia and Tasmania," the author states that it is rarely found near Sydney, and that one specimen was taken here in 1867. The birds are certainly not numerous, but, as stated above, they are to be found here.

Ptilotis leucotis (White-eared Honey-eater).—Whilst looking for the nest of this bird among the heaths of Middle Harbour (Duffy's Forest), 4/8/17, in company with Master E. Pratten, of Pymble, we noticed the female bird fly almost to our feet, and we decided she must have young ones close by. Suddenly, however, it alighted on my stocking and began pulling out the wool; then it flew to the legs of my companion and did the same thing, and flew away, only to return in a little while with the male bird. The latter did not come close, but the female perched on our heads. She then flew off and returned again and took material from our caps, coats, and my woollen jersey and stockings. Again, she perched on my ear and pulled hairs out of the back of my head, which made me call out, but she took not the slightest notice of this. At last she flew away about 50 yards, with us in pursuit.

We soon found a half-finished nest in a dwarf-apple bush (*Angophora*). We left, and returned to where we were at first, and the bird quickly followed. After remaining here for thirty-five minutes we had to move on, and she very reluctantly had to leave us. A Fulvous-fronted Honey-eater (*Glyciphila fulvifrons*) had come within a yard of us, and as soon as the White-eared left for its nest the former bird flew at the latter and tried to rob it of the nesting material.

NOTE BY E. A. D'OMBRAIN.—All the forest country is singularly devoid of domestic quadrupeds, and it is evident the scarcity of hair or fur for nest-construction was the cause of the determined action of the bird to commandeer the necessary and desired material from the first thing offering. The same experience occurred to a colleague of mine, Dr. C. Shepherd, whilst his party were having a rest and afternoon tea during a motor drive through another part of this region (French's Forest).

Acanthiza reguloides (Buff-rumped Tit).—Pymble, 11/10/16.—A nest of this Tit was found in a cleft of bark; under the nest were four old ones. The new nest contained two eggs and one of the Bronze-Cuckoo (*Chalcococcyx basalts*).

Correspondence.

SPECIES *versus* SUB-SPECIES.

To the Editors of "The Emu."

DEAR SIRS,—While appreciating the article "The Birds of Rockingham Bay," by Mr. H. G. Barnard and myself, my friend, Mr. W. B. Alexander, in the October issue of *The Emu* (p. 112), is inclined to support Mr. G. M. Mathews in his (Mathews's) division of the Australian Bee-eater into two races or sub-species. Seeing that this bird varies in seasonal plumage, Mr. Mathews's description (*Nov. Zool.*, vol. xviii., p. 290) is not convincing.

Again, Mr. Alexander thinks there may be two Drongos. All Mr. Mathews states regarding his sub-species is—"differs in its larger wing—161 mm." Not much of a peg (new description) for one to hang one's (ornithological) hat upon (*Nov. Zool.*, vol. xviii., p. 437). The late Mr. A. J. North gives the average measurement of the Drongo's wing as 6¼ inches, practically the same as Mr. Mathews gives for that of his new sub-species.

Both the Bee-eater and Drongo migrate from New Guinea Archipelago and distribute themselves to a greater or lesser extent over Australia to breed. The interesting instance of the Common and the Northern Willow-Wrens being seen in company in Britain, which Mr. Alexander mentions, is, I think, hardly an analogous case, because the common Willow-Wren breeds in Britain, while the sub-species is only an occasional visitor on migration. The other case of the Chiffchaff and Siberian Chiffchaff is still weaker, because, in addition to the latter being only an occasional visitor, some authorities state it is a distinct species and not a sub-species.

However, is it not almost an ornithological axiom that two *subs* of the same species cannot exist, much less breed together, in the same locality or region? Either they are the same species, or, if there be difference, then it is specific, not sub-specific.—I am, &c.,

A. J. CAMPBELL.

Surrey Hills (Vic.), 18/10/17.

To the Editors of "The Emu."

SIRS,—*Re* your footnote, "Why this licensed slaughter?" (*Emu*, vol. xvii., p. 109). It seems that the Acclimatization Society, having introduced game birds, notably Quail and Pheasants, felt bound to protect them in the interests of sportsmen. As *Circus gouldi* is plentiful, and almost the chief enemy of the game birds aforesaid, there is a bounty on their destruction. For a few months lately the Hawks were protected, at the instance of some farmers whose grass-seed suffered at the hands of the Quail, but the society was successful in getting the protection removed—in part, at least.

T. J. ICK-HEWINS.

Taranaki, N.Z., 18/11/17.

To the Editors of "The Emu."

SIRS,—In the July *Emu* (vol. xvii., pp. 2-38, 1917) there has appeared an excellent essay on the "Birds of the Rockingham Bay District, North Queensland," by Messrs. A. J. Campbell and H. G. Barnard. Numerous papers of a similar character are necessary, and are urgently desired by systematic workers on this side of the world as well as in Australia. Too many cannot be written, and it is to encourage such that I forward this commentary on that essay. Questions are constantly put forward which I am desirous of answering, as they show an imperfect knowledge of some important items in bird study and record. To answer these *seriatim* would occupy a lot of space and make this letter appear controversial, which is exactly what it must not do. I have no desire to enter into controversy, but am most delighted to explain items which have apparently puzzled the authors, but which are capable of easy and satisfactory explanation. I had elsewhere written that nomenclatural friction has been completely dissipated, and it is gratifying to find my conclusions so amply confirmed in this essay, for, notwithstanding the apparent discrepancies, the whole tenor of the paper justifies my actions.

The main point in the paper is concisely summed up by the authors themselves on page 37. "The questions, then, are, what constitutes a species and what a sub-species? The Check-list Committee of the R.A.O.U. would do well to settle these questions before attempting to wade into the technicalities of nomen-

clature." This is good advice, but unnecessary. I have already dealt fairly completely, and, I hoped, satisfactorily, with both matters in *The Emu*, but, apparently, my efforts have been left unstudied by the authors, though they were considered worthy of special distinction by extra-Australian scientific workers. I do not feel inclined to go over the ground again, but would refer the authors to my published papers, which would have made many of the queries propounded in Messrs. Campbell and Barnard's paper unnecessary. To instance, they refer to my disusage of *Casuarinus australis*, Wall. It is recorded in my List (quoted by them) that the name was unavailable, as it had been previously used in another sense. If the writers did not understand such a simple nomenclatural question they should have postponed criticism altogether on such matters until they had mastered the first rules connected with the subject. In a similar case they are amazed at my rejection of *Megalurus galactotes*, Temminck, proposed for an African bird, urging that Gould's misusage of the name claimed acceptance. Such ignorance of the laws governing nomenclature simply prohibits any discussion, and it seems very urgent that these authors should not attempt to wade into "the technicalities of nomenclature." It is impossible to deal with the many little queries of like quality put forward, as the majority are answered beforehand in my List. If these petty and querulous items had not been interpellated, there could have been nothing but praise for the paper, and, notwithstanding the above remarks, I consider this to be one of the most helpful papers from the systematic viewpoint we have recently had. The field notes are comparatively scant, which is to be regretted, as the field observations of such experienced workers as the authors should have been valuable, and worthy of publication. Certainly, they would not have displayed the lack of knowledge of the subject treated as their nomenclatural notes do. A good instance of how *not* to write ornithological results may be cited. On page 22 they wrote:—"We had the opportunity of proving that Ramsay's *Eopsaltria inornata* and Hartert's *Pachycephala peninsulae* (both shown on the Union's "Check-list," p. 65) are the same species." No proof is then put forward, and as the identity of these species has been recorded and accepted some years ago, their statement reads strangely, and cannot be understood.

A matter of broader interest is brought under review on page 17 by the note:—"Bee-eaters have been observed passing to and from New Guinea during migration. How can it be possible, then, that there are two races of these birds in Australia, as Mathews infers?" There is no evidence that all the Bee-eaters that are met with in Australia pass through New Guinea, which is the suggestion of the authors, and it is tolerably certain that the western birds do *not*. Consequently, there is no reason why the eastern and western forms should not be sub-specifically different. As the subject is referred to more than once in the

paper, I might state that it is possible to have sub-species of migratory birds, and in my "Birds of Australia" I will give details of an extraordinary case with regard to *Micropus pacificus*, for the benefit of Australian workers. Under *Merops*, in that work, I will also fully discuss the above particular item, and I would refer those interested to that place. In justice to myself, I would remark that some of the items Messrs. Campbell and Barnard refer to have been already dealt with in my larger undertaking, and these authors have not considered my latest and most particular studies.

As above stated, I have no wish to belittle the valuable paper presented by Messrs. Campbell and Barnard, but I would have been more pleased had they confined themselves to the field work, in which they were past masters, rather than dabble in a study so foreign to their efforts and so unknown in its usages. I have continually bemoaned the lack of full field observations, and now complain of an apparently lost opportunity, while they have added little to the nomenclatural side, though fully confirming the majority of the sub-specific distinctions bestowed upon the birds of the district they collect in. Many more "collecting and observing excursions to the region" are still necessary, and the "last judge" will not appear for centuries, so that we need not think yet of the "best judge." It only is necessary for each of us to add his iota to the best of his ability to our congenial study.—Yours, &c.,

GREGORY M. MATHEWS.

Foulis Court, Fair Oak, Hants, England.

The H. L. White Collection.

MR. H. L. White, as a boy, when at Goulburn, New South Wales, possessed a small egg collection of side-blown specimens. Some seventeen years ago he set about forming a scientific collection of eggs and nesting information pertaining to every known Australian bird. Some of the results and successes of the enterprise are mentioned in *The Emu*, vol. xiii., pp. 65-74 (with three coloured plates), under the title "A Commonwealth Collection." It was easy enough, with the assistance of enthusiastic friends, to procure the commoner kinds, but to obtain the rarer sorts, and to discover the eggs of birds specimens of which were still *desiderata*, Mr. White spared neither pains nor expense; consequently, he had such reliable collectors in the field and forest as Messrs. S. W. Jackson (New South Wales), H. G. Barnard (Queensland), L. G. Chandler (Victoria), F. L. Whitlock (Western Australia), G. F. Hill (North-West Australia), W. M'Lennan (Northern Territory), and others.

When the egg-collecting was proceeding apace, and nearly all species were represented, Mr. White determined to utilize his collectors at the birds themselves. Since the inception of the R.A.O.U.

ornithology had made immense and rapid strides. With research, new forms, so-called "sub-species," were being multiplied and designated; more material was needed to settle many scientific points. Mr. White, in a very practical and patriotic manner, threw himself into the breach, and undertook to procure sufficient material to enable ornithologists in this country to settle their own disputes, instead of these differences being settled in Europe, America, or, forsooth, in Japan. The late Professor Alfred Newton, of Cambridge, once, in writing to one of our members, said that disputed points about purely Australian birds should be settled in Australia, and by Australians themselves—for the obvious reason, no doubt, that Australians were on the spot, with information and material at first hand.

In order not to destroy unnecessarily beautiful bird-life, Mr. White commenced by acquiring a few small, carefully made private skin collections, notably those of Messrs. Lancelot Harrison, Harold Blakeney, Robert Grant, A. G. Campbell, and others. These, with the consignments from the field-workers, soon built up an important and valuable collection. Especially important were the various specimens collected by Mr. W. M'Lellan near the Gilbert "type locality," Northern Territory. It will be recollected that the original Gouldian-Gilbert types went to America. In an honorary capacity Captain S. A. White has also added to the H. L. White collection.

This splendid and unique mass of material Mr. White has generously and unostentatiously donated to the nation, to be housed in the National Museum, Melbourne. As the headquarters of the R.A.O.U. for the time being are Melbourne, the donor's primary idea was to have the material in such a place that it could be available for ready reference by members of the Union, and, of course, for ornithological students in general. And not the least encouraging is Mr. White's magnanimous announcement—"I hope to add materially to the collection from time to time."

The majority of the skins have been excellently prepared, those made by Mr. Robert Grant especially being object lessons in the taxidermist's art. In the general collection there is affixed to every skin a convenient-sized label showing name of collector, locality, date, sex, measurements, &c. This is preferable to the old-fashioned method of numbering, with the registration of details in a separate book. Nevertheless, there is a complete "Key" to the collection, and any specimen (which bears its own history) can be referred to at a minute's notice. The "Key to H. L. White Collection"—the work of Mr. S. W. Jackson—for carefulness and neatness could not be surpassed.

On Friday, 12th October, 1917, a large company of ornithologists and naturalists accepted the invitation of Sir Baldwin Spencer, Director of the National Museum, Melbourne, to view officially this priceless collection. Those present saw for the first time many of the rare birds of Australia. Light refreshments terminated a memorable evening.



H. L. White, Esq., M.B.O.U., Life Member R.A.O.U.
(Donor of the £1,000 and other handsome gifts to the R.A.O.U.)

The Royal Australasian Ornithologists' Union.

ITEMS FROM SEVENTEENTH ANNUAL REPORT, 1916-17.

THE Council has again unanimously decided to postpone the annual congress and camp-out fixed for Queensland, as they consider that all our energies and spare cash should go towards helping our country in its time of need.

Since the last annual meeting the Council has rented a room at No. 2 Temple Court, Collins-street, Melbourne, where it can hold its monthly and other meetings, and where the library of the Union, and the cabinets for bird-skins, eggs, &c., have been placed. The room has been furnished, the tables, chairs, cabinet for bird-skins, &c., having been presented by various members.

During the year 38 new members have been enrolled, 11 have resigned, and we have lost 4 members through death—Mr. E. A. Petherick, C.M.G., Mr. O. W. Rosenhain, Mr. D. B. Fry, and Mr. G. P. Kay, the two latter having been killed at the front whilst bravely fighting for their country. Our president, Captain Macgillivray, has also enlisted, and is now absent in Europe.

A splendid collection of birds' eggs has been most generously presented to the Union by Mr. H. L. White, of Belltrees, Scone, N.S.W. It consists of 365 species, with full data, and these are now being placed in the cabinet in the Union's room. A complete list will be published shortly in *The Emu*, and the Council trusts that members will endeavour to fill the gaps as they are able. The Council has appointed Mr. A. C. Stone as curator of the egg collection, assisted by Mr. F. E. Howe and Mr. J. A. Ross. Mr. White has also generously presented to the Union over 100 bird-skins, as well as a complete set of Gould's magnificent "Birds of Australia." Mr. T. P. Austin also presented a valuable collection of 212 sets of eggs not represented in Mr. White's gift. Mr. Bellington added 30 sets, Mr. Stone 20, Mr. Howe 10, and Miss Fletcher 6 sets of eggs.

A collection of over 2,000 bird-skins was purchased by the Council, and these have now been placed in a cabinet, and are a great help at the conversaziones. A catalogue will be published later on. Mr. A. J. Campbell has kindly consented to act as curator of the skins, assisted by Mr. F. E. Wilson and Dr. Brooke Nicholls. Mr. White kindly presented his duplicate skins.

The splendid reference collection of Australian birds' skins belonging to Mr. H. L. White, and numbering over 5,000 specimens, has been generously presented by that gentleman to the National Museum, Melbourne, and can now be inspected at any time. The Union can hold a monthly meeting in the bird room of the Museum.

During the past year the Union has been registered under the *Companies Act* 1915 of Victoria as a company, limited by guarantee, and not having a capital divided into shares, and without the addition of the word "Limited," but with the addition of the word "Royal" to its name. This was found to

RECEIPTS AND

For Year ended

RECEIPTS.				£	s.	d.	£	s.	d.
To	Balance	...	...				85	1	9
"	Subscriptions—Arrears	...	...	53	7	0			
"	"	Current	...	147	5	6			
"	"	Advance	...	12	15	0			
				<hr/>			213	7	6
"	Sales— <i>The Emu</i>	...	...				18	7	0
"	Donation, £10; Blocks, £5 os. 8d.; Exchange, £1 18s. 6d.; Interest, 19s. 11d.; Special, £1 6s.; Postage, 4s. 9d.; Covers, £2 15s.	...	...				22	4	10
"	Coloured Fund—Donations, &c.	...	...				54	19	3
"	Trust Fund—Interest	...	...	45	0	0			
"	"	Donations	...	4	6	0			
				<hr/>			49	6	0
							<hr/>		
							£443	6	4

ASSETS AND

At 30th

ASSETS.				£	s.	d.	£	s.	d.	
Savings Bank—Cr. Balance	...	...	...				34	13	5
Subscriptions in Arrears	...	...	...	30	0	0			
Less in advance	...	...	...	26	10	0			
				<hr/>				3	10	0
Library and Furniture	...	...	...				395	0	0
<i>The Emu</i> in Stock, say	...	...	...				200	0	0
Illustration Blocks	...	...	...				20	0	0
Tent, Material, Punch, and Register	...	...	...				3	17	6
Commonwealth War Bond (Trust Account)	...	...	...				1,000	0	0
							<hr/>			
							£1,657	0	11	

Z. GRAY, L.C.A., *Hon. Treasurer.*

MELBOURNE, 1st July, 1917.

The President, Royal Australasian Ornithologists' Union, Melbourne.

Sir,—I have completed the audit of the books and accounts of the

The books and accounts were presented in excellent order by the

Messrs. Hedderwick, Fookes and Alston have stated to me that the pending completion of the arrangements for it to be taken over by the

EXPENDITURE

30th June, 1917.

		EXPENDITURE.						
		£	s.	d.	£	s.	d.	
By	<i>The Emu</i> , vol. xvi.—Printing, &c. ...	183	8	8				
"	" vol. xvi.—Blocks ...	42	17	4				
"	" vol. xvi.—Coloured Plates ...	30	5	6				
"	" vol. xvi.—Articles Association ...	9	7	0				
		<hr/>			265	18	6	
"	Licence Fee ...		5	5	0			
"	Postage, £7 8s. 5d.; Stationery, £6 18s.; Election, £3 os. 6d.; Lecture, £3 7s.; Library, £3 1s. 3d.; Covers, £3 3s. 2d.; Insurance, £2 9s. 1d.; Exchange, £1 18s. 9d.; Commission, £1 5s. 2d. ...		32	11	4			
"	Room—Furnishing, &c., £17 7s.; Sundries, 17s. 2d.; Skins, £13 2s. 6d. ...		31	6	8			
"	" Gas, 12s. 7d.; Cleaning, 8s.; Fire, 1s.; Freight, 13s. 10d. ...		1	15	5			
"	" (Trust Account)—Rent, £32 10s.; Bookcase, £25 18s.; Chairs, £13 8s. ...		71	16	0			
			<hr/>			408	12	11
"	Savings Bank—Cr. Balance ...		34	13	5			
			<hr/>			£443	6	4

LIABILITIES

June, 1917.

		LIABILITIES.						
		<i>Nil.</i>						
		£	s.	d.				
By	Balance ...	1,657	0	11				
			<hr/>			£1,657	0	11

42 TEMPLE COURT, COLLINS-STREET,
 MELBOURNE, 14th August, 1917.

Union for the year ended 30th June, 1917.
 treasurer, Mr. Z. Gray, and I have certified them correct.
 Trust Account War Loan Bond for £1,000 was held by them on 30th June,
 trustees.—Your truly,

JAMES BARR, A.I.A.V., A.C.P.A., *Hon. Auditor.*

be necessary in order that the R.A.O.U. could hold legally the munificent gift of the £1,000. Memorandum and articles of association were carefully drawn up by Messrs. Hedderwick, Fookes and Alston. The Union is deeply indebted to this firm of solicitors for all the work they have done, and that in a purely honorary capacity. The Union is now on an entirely new footing. A copy of the articles of association, together with an historical sketch of the old Union, has been sent out to every member, and the Council trusts that the career of the new Union will be in every way as successful as the old.

The Union would be glad of any cabinets that members may have to spare, as additional room is required for their bird-skin collection.

In conclusion, the Council finds it difficult to express its deep appreciation of the whole-hearted generosity of Mr. H. L. White, who is doing so much to advance in every way the interests and study of ornithology, and the debt of gratitude owed to him by the Union can never be repaid; and the position of the Union, as it now is, as a registered company with assets, is entirely due to the splendid gifts to the Royal Australasian Ornithologists' Union by Mr. White.

The election of office-bearers resulted as follows:—President, Dr. W. Macgillivray; vice-presidents, Dr. J. A. Leach, A. F. Basset Hull; hon. secretary, W. H. D. Le Souëf; hon. treasurer, Z. Gray; hon. librarian, W. B. Alexander; hon. editor of *Emu*, Dr. J. A. Leach; hon. assistant editor, R. H. Croll; hon. press correspondent, Dr. Brooke Nicholls; hon. auditor, J. Barr; printing committee, A. J. Campbell, A. H. E. Mattingley, W. B. Alexander.

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[Pressure on our space prevented the printing of the full report.—EDS.]

REGRET will be expressed for the author and publishers of Mathews's "Birds of Australia" that part 3 of volume vi. was sunk in the *Mongolia*. However, contributors will be glad to know that the publishers (Witherby and Co.) have arranged to reprint a sufficient number to supply Australian orders. Part 4 has been received in Australia, but subsequent parts of the work will be retained in London until after the war. The missing part dealt with the Galah, Cockatoo-Parrot, Green-Leek, Black-tailed Parrot, Alexandra Parrot, Red-winged Parrot, and King Parrot.

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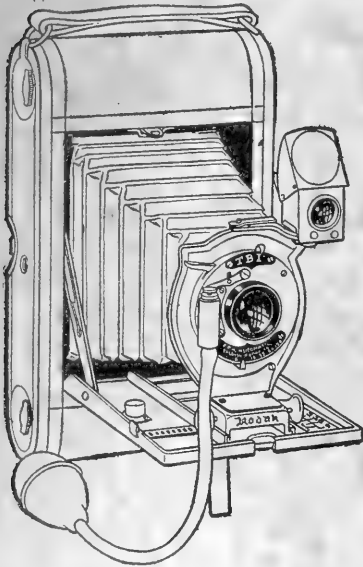
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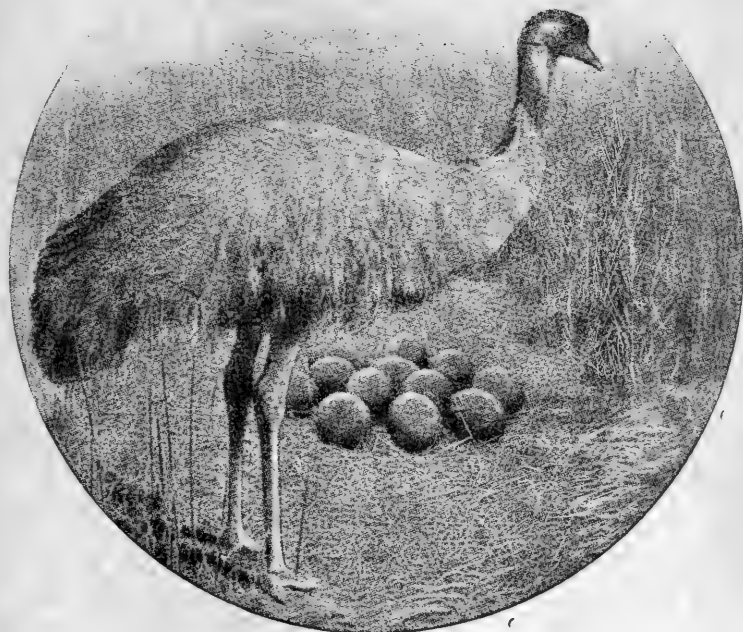
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GREY-THROATED WHISTLER.
Pachycephala pennisulæ.

The Emu

Official Organ of the Royal Australasian Ornithologists' Union.

"Birds of a feather."

VOL. XVII.]

1ST APRIL, 1918.

[PART 4.]

Grey-throated Thickhead (*Pachycephala peninsulæ*, Hartert).

BY A. J. CAMPBELL, C.M.B.O.U.

To accompany the plate in this issue, I cannot do better than reiterate, in part, what was stated regarding this species by Mr. H. G. Barnard and myself in connection with "The Birds of Rockingham Bay" (*ante*, p. 22).

We found this Thickhead fairly plentiful in the coastal scrubs, and obtained examples of both sexes for museum purposes, together with the nest and eggs. In quest of food this bird resembles all the *Pachycephalæ*, and was often observed feeding in company of other smaller birds. One nest inspected contained fledgelings, rufous-coloured, like those of *P. gutturalis*. The bird ranges up to Cape York, a similar bird appearing in New Guinea. (See Dr. Macgillivray's remarks, *Emu*, vol. xiii., p. 167.)

This species is listed under two names on the Union's "Check-list" (p. 65)—No. 421, *Eopsaltria inornata*, Ramsay; No. 427, *Pachycephala peninsulæ*, Hartert. But, in view of our field evidence, we venture to recommend the adoption of the latter name, or, if a difference of genera be established, then Mathews's *Mattingleya (griseiceps) inornata*, with the vernacular Grey-throated Whistler or Thickhead.

Dimensions in mm.—Length, 145-150; wing, 76-78; tail, 64-70; tarsus, 17-19; culmen, 10.

Notes on North-Western Birds.*

By F. LAWSON WHITLOCK, R.A.O.U., CHILTERN, TUDOR, *viâ*
ALBANY (W.A.)

(With criticisms by A. J. Campbell, C.M.B.O.U., on certain skins collected.)

WHITE-WINGED WREN (*Malurus cyanotus*).

DURING my travels in Western Australia I frequently met with the White-winged or Blue-and-white Wren. It has an extensive range. I have met it as far south as Lake Dundas, on the Norseman goldfield, and in our great North-West up to the De Grey River. Generally speaking, it is an inhabitant of the hot, dry interior, being very plentiful around Lake Austin, on the Murchison goldfield, and, again, further east, around Lake Way, 150 miles farther inland. In these latter localities its favourite haunts are samphire flats around the shores of these vast salt lakes. In latitudes farther south it inhabits the sand-plains, but the nearer the latter approach the forest country the scarcer this Wren becomes. It approaches the coast-line the farther north its range extends, and may be found adjacent to the seashore in many parts of our North-West.

With such an extended habitat it naturally shows some variation in plumage. This is most apparent in the brilliance or otherwise of the blue coloration, the brightest birds being found, according to my observations, in the hot interior, where the species is most plentiful. On the sand-plains of the south-west, where it is far from common, the blue appears to be of a deeper shade, and the white not so pure. Again, in the far north, amongst the spinifex, where its range must about reach its limit in that direction, the general appearance of the White-winged Wren is less striking. It is smaller, has a deeper-toned plumage, and the ear coverts do not differ much in tint from the remainder of the blue plumage.

It is a hardy little bird, and one wonders how it can hold its own in localities where rain is often absent for over twelve months at a time, and where the summer temperature for lengthened periods exceeds 100° Fahr. in the shade. Even in the driest seasons pairs are found breeding. Near the coast the heavy morning dews would afford sufficient moisture for drinking purposes, but in the sweltering interior, around the salt lakes, dew in the early morning is unknown. How these and other small birds exist without water is a mystery. I can only suggest that the sappy leaves of the samphire are eaten for the sake of the moisture they contain.

I have observed many nests of this little Wren. In the interior

* There are two divisions in North-Western Australia—the North-West proper and the Farther North-West, known as Kimberley. These two divisions are separated by the Great Sandy Desert—a natural barrier to some species, or varieties, as the case may be. The present paper refers to the North-West division proper.

the favourite situation is in some small salt-bush or in the branches of the woody samphires. The breeding season varies according to locality. The earliest nest I have found was on 3rd August; others, again, were not completed before October. The nest is of the usual *Malurus* type, the eggs varying in number from two to four. In one instance of four there was a fifth egg—the produce of a Bronze-Cuckoo (*Chalcococcyx basalus*). The latter species is very partial to nests of this Wren. Recently I observed a nest perched on the top of a clump of spinifex (*Triodia*) standing in a clear, open space. On my near approach a male bird flew off. It had either been feeding or was brooding a nearly full-grown Bronze-Cuckoo. This Wren ran (not hopped) like a small blue-and-white mouse, crouching low, and trying to lure me away from the nest.

In the spinifex country one often finds the nest just perched on the top of the big clumps, and with the flower-stems interwoven with the walls of the nest. But a still more favoured situation is in the slender branches of some small bush growing through the spinifex, the bottom of the Wren's nest just reaching the top of the clump.

At nesting time the male is generally near at hand, usually with only the female in his company, but not uncommonly two or three brown birds may be present. The female is a close sitter, and comes within a few feet of the observer when near the nest. At all times the adult male is very wary and difficult of a near approach. In old males the bill, once it attains its full coloration, is always black. Males frequently breed in the brown plumage. Full nuptial plumage, as a rule, is not attained until the third year.

With regard to a supposed blue White-backed Wren (*Malurus leuconotus*), there is much doubt whether it may have been a sport or the white back has been produced by the contraction of the skin between the shoulders when the specimen was made up. I have searched in many localities for this supposed white-backed species without success.

[The White-backed Wren (*M. leuconotus*) was always considered a doubtful species; that is why it was omitted by the compilers from the Union's "Check-list."

Mr. Tom Carter, M.B.O.U., in a most attractive article in *The Ibis*, October, 1917, "On the Birds of Dirk Hartog Island and Peron Peninsula," and dealing with the subject of the White-winged and the White-backed Wrens, states:—"Some years ago I noticed that the blue feathers in the interscapular region in these birds are merely long pendent feathers growing on the *base of the back of the neck*, and if these feathers are raised by a pencil white feathers will be observed growing beneath them right across the back. The pendent blue feathers overlap them in triangular form, and hang down over the mid-lower back. Many specimens obtained in various parts of mid-west Australia have been examined in the flesh immediately after shooting, and all had

white feathers underneath the blue, varying in amount according to the season, as these white feathers largely fall out at the moult. Much depends, too, on the making of a skin as to whether these white feathers show or not. At certain stages of the moult the pendent blue feathers may be very scanty, causing more white to show. After examining a long series from various parts of Australia, Mr. G. M. Mathews and myself are agreed that there is but one species, which must stand as *Hallornis cyanotus*, Gould, and of which *Malurus leuconotus*, Gould, is a synonym.*

It is satisfactory to have this point so thoroughly cleared up, and to know that Messrs. Mathews and Carter's decision is practically in agreement with the Union's "Check-list" name for the White-winged Wren—namely, *Malurus cyanotus*.

Regarding eastern and western races, it is very difficult to divide them. Birds taken in New South Wales are similar in all dimensions (wing, 46 mm.) to some examples from, say, Carnarvon (North-West). The males of the former locality are darker blue, while the females are decidedly browner compared with western birds in general. Mr. Mathews reverses the colour of the male of his western sub. (*exsul*)—"Differs from *M. c. cyanotus* in having the blue coloration darker above and below" (*Nov. Zool.*, xviii., p. 359). This is not so according to test by Prof. Ridgway's "Colour Standards" for naturalists. The eastern bird assimilates the tone "small blue"* (pl. ix.), whereas the western bird more assimilates "phenyl blue," a tone lighter than small blue. However, hues or tones may vary in the birds according to season, or age, as well as situation. For instance, there are in the "H. L. White Collection" three Carnarvon skins taken the same month (October); two are the darker shade of blue, more like that of eastern birds, while one has the lighter tint (phenyl), and resembles birds from Lake Way, East Murchison (*perplexus*, Mathews). Again, a Cossack skin collected by Mr. Whitlock shows small blue under parts and the phenyl hue about the head. In any case, *exsul* and *perplexus* are practically the same birds from the same faunal region. Students will, no doubt, accept one western geographical race—namely, *exsul*.—A. J. C.]

DESERT-BIRD (*Eremiornis carteri*).

I first encountered the Desert-Bird near Marble Bar during the spring of the year 1908. Unfortunately, I left its haunts before I had the opportunity of learning about its breeding habits. Three years ago I again visited its haunts, and saw much of the birds, but the season was unfavourable, and, in common with most other species, Desert-Birds did not breed.

At the request of Mr. H. L. White, Belltrees, New South Wales, I made another trip to the Coongan River, near Marble Bar, in the spring of last year (1917). I soon picked up a pair or two of the birds, and before September I had more than half a dozen

* Small blue resembles ultramarine blue, with a violet tinge. To be more accurate, small blue is an equal blend of spectrum blue and violet.

pairs under observation. In the Upper Coongan district this species cannot be called rare; it is very local, and shows a decided preference for haunts where observation is difficult.

Before the breeding season actually commences pairs may be met with in the small gullies at the foot of the ranges; but I think at nesting time they retire to the open flats adjacent to the larger creeks, where the spinifex (*Triodia*) grows to a large size, and where the big clumps are very numerous and close together. When observing the Desert-Bird, I always think that "Spinifex-Bird" would have been a more appropriate trivial name. Our North-West coast at its worst can hardly be regarded as a "desert," considering its numerous rivers and creeks, the majority of which are well timbered with eucalypts and other trees of respectable dimensions. On my last trip I found the best place for observing the Desert-Bird was a large flat of fairly rich alluvial soil not far from a large creek. The spinifex here was growing in great profusion and size, many clumps measuring as much as 10 feet in diameter, with occasional larger ones; others of from 5 to 8 feet in width were innumerable. Small bushes were frequent, with occasional trees, the latter, as a rule, not giving much shade. Within a distance of a mile and a half I had five pairs of Desert-Birds under constant observation.

To find these birds one must learn the call-note, and learn it, too, so well as to be able, when heard at a distance, to distinguish it from the call of the common Pipit (*Anthus australis*) and also from distant calls of the Wood-Swallows (*Artamus*) and accidental notes of other species. After listening at close quarters to a male perched on a small bush, I cannot render the sound better than by the French words "*Je suis, à vous*" (pronounced *Je swee, ah voo*). More often than otherwise only the first syllables are uttered; then the call closely resembles that of the Pipit. One, as a rule, rarely sees the female, but her presence may be ascertained by carefully listening. Almost simultaneously with the liquid notes of the male, she adds two or three rather grating sounds, somewhat resembling two stones being rubbed together. The sound is difficult to render on paper, but the syllables "Thrip-thrip" will give some idea of its character.

I put in much time watching these birds, hoping to get a clue to the time of building and character of nest and eggs; but, despite eventually finding two nests, I failed to get eggs.

From experience gained in 1908 I was inclined to look upon the species as rather a late breeder; but no doubt the character of the season—or, what amounts to the same thing, the early or late incidence of the rains—will have great influence on the nesting period. It was not until the first week in October that I got a clue to the nest. I felt pretty certain it would be found in the densest and largest clumps of spinifex. All I had to guide me was the affinity of the species to *Megalurus*, with which the Desert-Bird has much in common. On going my rounds one morning I observed a pair which appeared anxious and uneasy

at my presence. One bird, which I identified as the female, was uttering frequent calls resembling the syllables "Tchut-tchut," the notes being very guttural. She was obviously trying to lure me to follow her. This I did, and soon lost her in the spinifex. I returned to my post of observation and sat down. Presently she reappeared with a spray of flowers in her beak. These flowers I subsequently identified as *Trichinium onotum*. It is a greyish-green herbaceous bush growing to a height of 18 inches or 2 feet; the stems are very slender, and the flowers small but very downy. The female was carrying a piece about two inches long, with several flower-heads on it. She disappeared into the top of a large clump of spinifex, and presently came out again with her beak empty. This was repeated a number of times during the hour I watched. The male, in the meantime, was similarly occupied, but he was not so anxious, and was quite silent. I observed all these facts with the aid of a field-glass, about a chain away. I was partly hidden by a small bush. I was fairly justified in concluding that this pair was building, or at any rate lining the nearly completed nest with vegetable down. Observations on other pairs revealed a similar state of affairs in progress. I gave the above pair a full week before examining further, keeping an eye on them at the same time. In about three days the apparent building operations had ceased. After a week I decided on a closer inspection. The clump of spinifex was a large one, and about 4 feet 6 inches in height—a densely-matted growth, and quite impenetrable to vision from any point of view. Armed with a bill-hook, I cautiously commenced at the bottom of the clump; I cut away about a third of it until I was able to part the stems a little with my hands. I could then—looking up from below—make out the shape of a small nest, about 18 inches from the top. Further opening up revealed an open, cup-shaped nest, rather shallow, but with thick walls, built entirely of dried grasses. It was empty. Where was the vegetable down the parent birds were carrying? I was both puzzled and much disappointed, and, despite constant efforts of search and watching of other pairs, I could not at first clear up the mystery.

However, about a week later, by dodging from cover to cover, I was able to approach another pair unseen. These birds, too, were carrying sprays of *Trichinium* into the spinifex. I waited my chance until both birds were away, and then walked over to the clump into which they had been carrying flowers. I gave the clump a kick, and out fluttered a young bird, which I vainly attempted to catch. Both parents were soon around, and I shot the female with a spray of flowers in her beak. The mystery was solved. I was too late for eggs, and the flowers, or the half-formed seeds they contained, were destined for feeding the young. I carefully dissected the shot bird. The gizzard contained a few very small black seeds, fragments of tiny beetles, and much vegetable matter. Carter's Desert-Bird is, at any rate for some time of the year, a vegetable feeder. I found the flower-stems

of the *Trichinimum* very easily broken, so that, despite their soft beaks, the parent birds had no difficulty in nipping off the sprays.

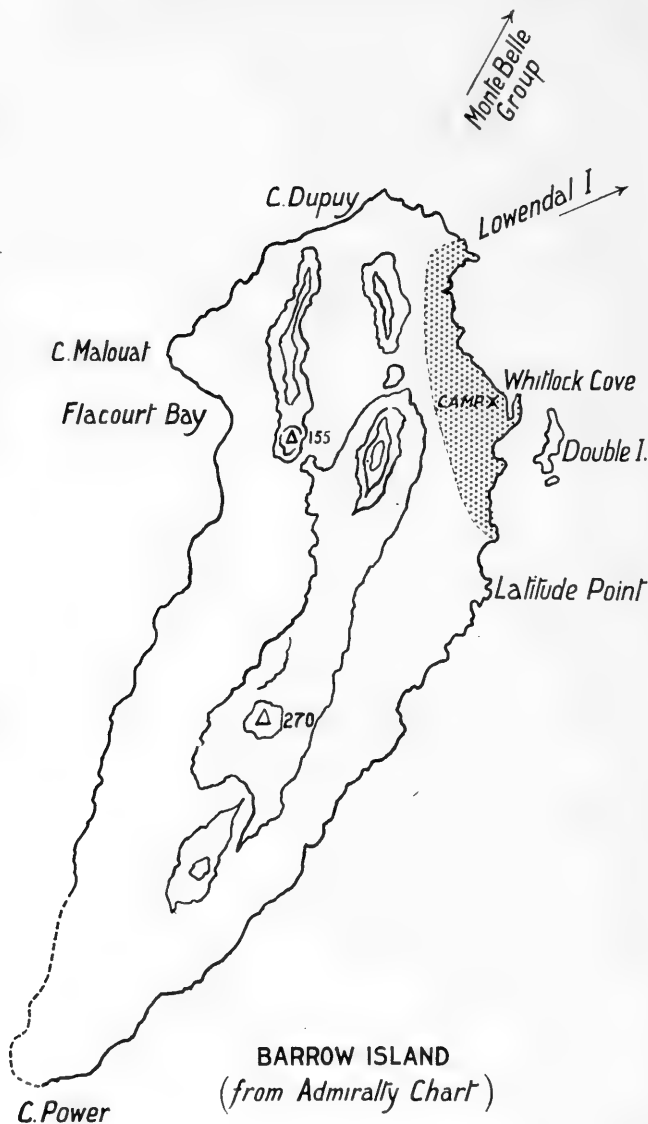
September is evidently the breeding month. I procured two nests, the counterpart of one another. I am of opinion only two eggs are laid at most; possibly in some seasons only one. It is hazardous to prophesy, but I venture the opinion that the eggs, when discovered, will be true ellipses in shape, ground colour white, and nearly obscured by fine stripes of earthy brown or reddish-brown. I was able to photograph a nest *in situ*, and also a general view of the haunt.

[Mr. Whitlock collected both sexes of *Eremiornis carteri* on the Coongan, also a fine series on Barrow Island (see his narrative later). Both lots are now in the "H. L. White Collection," National Museum, Melbourne. The latter birds are undoubtedly a good island variety or sub-species (*E. c. assimilis*, Mathews), as the author points out, by its "smaller size, larger bill, and in having the head darker reddish-brown, while the whole plumage is darker" (*A.A.R.*, i, p. 181). But, judging by two other skins in the "H. L. White Collection" from St. George's Range, Kimberley, and named *E. c. rogersi*, they are not convincing enough to be considered another sub-species, if Mr. Mathews will pardon my presumption. They too much resemble the typical *carteri*, although the Great Sandy Desert rolls between the two respective habitats. But the *Eremiornis* is called the "Desert-Bird."—A. J. C.]

TRIP TO BARROW ISLAND.

Barrow Island is the largest of the Dampier Archipelago. It is situated in S. lat. 21° and 25 miles west of 116° E. longitude. The climate is tropical as regards temperature, but the mean annual rainfall does not exceed 12 inches. At times deluges of rain fall in a few hours. These heavy falls are usually accompanied by gales of cyclonic character, locally known as "willy-willies." One of these occurred the second week in March last year. A heavy fall of rain in such a dry climate has naturally much influence on the time birds select for breeding.

Geographically, Barrow Island is best reached from Onslow, but, owing to the dislocation of shipping due to the war, boats have only been calling at Onslow at infrequent intervals. I had, therefore, to make my arrangements for reaching the island from Cossack, the old port for the Pilbarra goldfield. There was difficulty in procuring a suitable boat; but, through the kindness of Messrs. Jiro Muramats and J. Ramsarny, I was able to engage an eighteen-foot cutter—rather a small craft for a voyage of 300 miles—and two Japanese boatmen. We left Cossack on Wednesday afternoon, 24th October, and reached our destination on Saturday, 27th October. Our course from Cossack was along the coast until we made Cockatoo or Eaglehawk Island, where we anchored until about 4 o'clock a.m., when, the wind being favour-



○ Pasco I.

SKETCH MAP OF BARROW ISLAND

(Shaded part, Whitlock's Beat).

Scale, one inch = 3 miles.

able, we put out to sea. Our boat proved a rapid and good sailer, and in about three hours land could be dimly discerned ahead. A nearer approach, however, proved this to be Lowendal Island, but, more to the westward, the low-lying coast of Barrow Island was just visible. Our course was accordingly altered, and in a couple of hours we were near the shore.

Viewed from seaward, Barrow Island presents a desolate and most uninviting appearance. The highest point of the island is but 270 feet above sea-level. This altitude, on an island 17 miles long by about 5 miles wide on the average, is insignificant. As we sailed along to our appointed anchorage the coast-line presented few features of interest. Occasionally we passed a length of low cliffs, with an isolated rocky promontory, tenanted by a pair of Sea-Eagles or Ospreys, but more often the coast was a mere fringe of low sand-hills, with infrequent and small patches of mangroves. The land rose a little towards the interior, but bushes or trees seemed to be conspicuous by their absence. Small patches of what looked like scrub on closer investigation proved to be a variety of stunted mangrove, or other tree closely resembling it. Tracts of bare rock, some of considerable extent, were visible, and with the aid of a field-glass could be seen extensive areas covered by very dwarfed spinifex (*Triodia*).

Our anchorage was a natural little port, easily entered at high tide, and well protected from a heavy sea by its very narrow entrance. Immediately to the east, and not more than a half-mile away, was Double Island. Fresh water was obtainable both on Double Island and near our anchorage by digging in the sand above high-water mark. On a sandy peninsula forming the southern side of our harbour were a few large bushes of snake-wood, inhabited by the common Singing Honey-eater (*Ptilotis sonora*), and also by a few "Mangrove-Pigeons" (*Geopelia tranquilla*), with a pair or two of White-rumped Wood-Swallows (*Artamus leucogaster*). Land-birds, other than the larger birds of prey, were scarce, both as regards numbers and species. An interesting species, however, was present in a variety of Desert-Bird (*Eremiornis carteri*), which I found more frequent than in any other locality I have visited in the North-West.

The main object of my trip, however, was to learn all I could of the little-known Black-and-White Wren of Barrow Island (*Malurus edouardi*), and also to procure a few specimens for museum purposes. My beat was the before-mentioned sandy peninsula, and also about five miles of coastal country on the north side of our harbour. I also made several trips half-way across the island, but the bird-life of the interior was so sparse and uninteresting—apart from the presence in low-lying spots of a pair of Desert-Birds—that I gave but little of my time to its further exploration.

I was on the island for a fortnight, and also put in a day on the neighbouring Double Island. During this period the weather was very hot, and, as a rule, a strong warm wind was blowing.

There was no shade or shelter apart from an awning over our boat and a small patch of mangroves a hundred yards away. Skinning small birds under such conditions was difficult, and, after trying various expedients, I finally did my work on board the cutter, despite the strong wind. I tried camping ashore, and erected a tent-fly furnished with mosquito netting, but this was soon torn off by strong winds. Small black ants were in myriads, and it was impossible to sleep on shore on their account. They even invaded the cutter at low tide by running along the mooring rope, which had to be kerosened to keep them away. Burning the grass above their nests proved of little use. Mosquitoes and sand-flies and other stinging insects were not much in evidence, and gave no real discomfort.

Barrow Island is a faunal reserve (see map), created chiefly in the interest of the local kangaroo (*Macropus woodwardi*), which is said to be peculiar to the island. It appears to be holding its own pretty well, as I nearly every day saw individuals, and on one occasion put up six within a very short distance. Other marsupials identified were *Isoodon barrowensis*, a small bandicoot (I often saw one in the spinifex); *Lagorochestes hirsutus*, too, was in the spinifex, but appeared to favour the low-lying tracts of the interior. In a Sea-Eagle's nest were the remains of a small wallaby with rather long, soft fur. I think this was *Lagostrophus fasciatus* (the banded wallaby). Fish were abundant in our little harbour, and there was no difficulty in catching a large supply with a small cast net. Turtle were plentiful, and my Japanese boatmen brought many eggs back to the cutter.

The following notes on Barrow Island birds may be of interest:—

White-bellied Sea-Eagle (*Haliaeetus leucogaster*).—Pairs observed as we sailed along the coast in making our port. At almost the extreme north-east point of the island I examined an eyrie. Both the parent birds were sitting on rocks near, and a fully-fledged young bird was seen a little distance away. The nest was on a rocky point a few feet above high tide level, and very easy of access. It was a mere platform of sticks lined with seaweed, and had probably been used for years.

White-headed Sea-Eagle (*Haliastur leucosternus*).—Only a pair seen, in a small tract of mangroves near our anchorage.

Wedge-tailed Eagle (*Uroaëtus audax*).—An immature bird seen several times.

Osprey (*Pandion leucocephalus*).—This was the most numerous of the birds of prey in the Dampier Archipelago. Every island of sufficient size had its pair or more. I examined about a dozen empty nests. This species—and, in fact, all land-birds—had bred after the torrential rains of last March. A large proportion of birds of this species were immature, and it was usual to see one or two perched on rocks or other points of vantage near the nesting-site. Usually, when our cutter approached an island, one or two young Ospreys flew off to meet us, and on one occasion a fine example actually perched on the peak of our mainsail. Some nests were on rocky points, but more often they were on the summit of a sand-hill; others, again,

were amongst the *débris* cast up by the big blow of last March. An exceptionally situated nest was quite 200 yards inland, on perfectly flat country. All were similar in construction—mere platforms of dry sticks lined with seaweed, and often containing a collection of bleached sea-shells.

Common Harrier (*Circus assimilis*).—A pair used to annoy me by driving all birds to cover in front of me when I was searching for an adult male of *Malurus edouardi*. On Double Island I observed one of this species carrying some small animal. An Eagle swooped at it and the Harrier dropped its prey. The animal, which was found to be a common house-rat, had a severe wound in the throat, and was dead.

Nankeen Kestrel (*Cerchneis cenchroides*).—This species was uncommon. Individuals looked very small and slender, but this may have been due to the greater numbers of the large birds of prey, the contrast in size being so very striking.

Singing Honey-eater (*Ptilotis sonora*).—Fairly common amongst the large snake-wood bushes, where I found two empty nests. In a low-lying tract of country about two miles from the coast was a small thicket of old and gnarled *Brachychiton* trees. Though almost devoid of leaves, the blood-red flowers were opening. Many birds of the present species were feeding on the nectar they contained.

Spiny-cheeked Honey-eater (*Acanthogenys rufigularis*).—A single example of this species both seen and heard in the mangroves near our harbour. Its presence on Barrow Island was no doubt due to accident.

White-rumped Wood-Swallow (*Artamus leucogaster*).—Rather uncommon, and confined to the small patches of mangroves.

Welcome Swallow (*Hirundo neoxena*).—Pairs observed in various parts of the island, but I saw no young birds.

Black-and-White Wren (*Malurus (leucopterus) edouardi*).—To learn all I could of the habits and present status of this scarcely-known species was the chief object of my visit to Barrow Island, for Mr. White.

It was not until the second day of my exploration that I encountered it. I was examining a valley about a mile from the coast when I observed a party of small birds fly from the spinifex into a patch of low scrub. They looked very brown—much like the colour of the surrounding soil, in fact—and when they hopped or ran amongst the spinifex were very difficult to follow with the eye. I watched them quietly for some time without seeing any signs of a male in nuptial plumage, and an hour's subsequent search throughout the neighbourhood failed to discover one. I came to the conclusion that this party was led by a male which had not yet acquired nuptial plumage. I have often found the same state of things prevailing with parties of the common blue White-winged Wren (*Malurus cyanotus*). According to my observations, it is not until the third season that males amongst the *Maluri* assume full nuptial plumage, though exceptional cases of early hatched males assuming a partial nuptial garb late the following season undoubtedly occur. Later (5th November) I procured a male in change. This is a late date for such an occurrence, and bears out my contention as above. Males in brown plumage, too, undoubtedly pair with adult females, and become the parent of a brood of young.

My first impressions of *Malurus edouardi* pointed to the fact of its being the smallest of the genus I had hitherto met with. Compared with its nearest congener, *Malurus cyanotus*, it seemed less robust in build, had a shorter tail, and rather a feeble voice. The trill-like notes are similar to those of the blue White-winged Wren, but not so sustained or frequently uttered. The brown males and females and immature birds I found by no means timid, and if chirped to would come out of cover and allow of observation at a distance of a few feet. Once I began to follow them, however, from bush to bush, they took longer and longer flights, and the party broke up into twos and threes, finally disappearing amongst the spinifex. The favourite haunt proved to be the shore, well above high-water mark, amongst the low sand-dunes, where a coarse sea-grass was growing amidst the large clumps of spinifex. If any half-dead bushes were about, so much the better; when followed a party would always make for the nearest one.

It was not until my fourth day on the island that I saw the first male in nuptial plumage, though I had found several parties of brown birds on the previous days. This male was certainly not in close company with any party, but females and immature birds were not far away. I found him exceedingly wary and quite unapproachable in a locality devoid of adequate cover. Even viewed at a distance through field-glasses he was constantly in motion, and only for a few seconds in full view, as he rapidly flew from bush to bush. He took longer and longer flights until I finally lost him. It might be thought that a bird with such strikingly contrasted plumage would be easily visible, despite its small size, but I found the glare of the tropical sun on the dancing waters and sandy coast-line very trying to the eyes. Possibly during the pairing or nesting time males would be less wary and more easy of observation. I was out one morning for nine hours before I secured my first male specimen in nuptial plumage. I fairly tired this bird out. A freshly-killed male is beautiful, despite its simple coloration, the velvety black plumage being in sharp contrast with the pure white. The central tail feathers are distinctly shot with blue; flight feathers earthy-brown; bill black; legs hazel-brown; iris very deep brown.

On Barrow Island this Wren can hardly be called rare, but it is distinctly local. My regular beat consisted of about 6 miles of coastal country to a distance inland of half a mile. The Wrens frequented only certain portions of this tract, but I have no doubt similar localities all around the island would be equally favoured. No land-birds were breeding on the island during my visit, and no birds I dissected appeared to be less than six months old. The latter fact points to birds having bred immediately after the heavy rains the second week in March of last year. I found, however, two empty Wrens' nests. One appeared to be two seasons old. It was perched on the summit of a large clump of harsh spinifex, and was much weather-beaten. A second and more perfect nest was placed about 2 feet from the ground in the coarse shore grass of the sand-hills. It was of the usual *Malurus* type, but prettily decorated on the outside with a reddish-brown substance. The walls of the nest appeared to be rather thin, and the lining not so profuse as in nests of other Wrens.*

In sailing to and from Barrow Island I landed on several other

* For detailed description see page 179.

islands of the Dampier Archipelago, the majority being much nearer the mainland (Barrow Island is distant about 30 miles), but, though I kept a very sharp look-out, I could discover no species of Wren on any of them. But I observed a blue-and-white Wren with a party of brown birds near Cossack, and on my return from Barrow Island I secured a specimen, as well as a brown bird accompanying him. A second party met with the same day, unfortunately without a nuptial-plumaged male, closely resembled females and immature Black-and-White Wrens. The easiest guide under such circumstances is the more feeble appearance of the birds and the shorter and darker central tail feathers when compared with females and immature forms of *Malurus cyanotus*. I have little doubt in my own mind that two specimens secured should be referred to the Black-and-White species.

Mr. H. L. White kindly lent me No. 4, vol. iii., of the *Austral Avian Record*, containing Mr. Tom Carter's notes on the Black-and-White Wren (*M. leucopterus*) of Dirk Hartog Island, a locality some 500 miles south of Barrow Island. I can fully endorse all Mr. Carter's field notes, which agree with my experiences on Barrow Island.

[Skins of the Black-and-White Wren procured by Mr. Whitlock, which Mr. H. L. White kindly permitted me to examine, may be briefly described thus:—

Adult Male.—Primaries brownish-black edged with greyish-blue; side of breast, scapulars, inner (upper) secondaries, and upper wing coverts pure white; tail bluish, transversely minutely barred with black; rest of plumage glossy steel or bluish black. Eyes deep brown; bill black; feet nearly black (Whitlock).

Adult Female.—Fawn colour or cinnamon-drab above; under parts whitish, except flanks and tibia, which are light brown; tail bluish-grey, primaries edged with same colour. Eyes deep brown; bill horn colour, paler at base and under mandible; feet dark brown (Whitlock).

Dimensions in mm. :—

♂—Length, 115–118; wing, 45; tail, 60; tarsus, 17–18; culmen, 8.
♀— „ 113–117; „ 43; „ 55; „ 16–18; „ 8–9.

The following are the measurements given by Mathews of a male from Dirk Hartog Island (*A.A.R.*, iii., No. 4, p. 87):—

Length, 112; wing, 44; tail, 55; tarsus, 19; culmen, 9.

There is no tangible difference in coloration of the female of the Blue-and-White Wren of the mainland (opposite) and the female of the Black-and-White Wren from Barrow Island. The latter may be a sensation darker.

Length, 115; wing, 40–42; tail, 60; tarsus, 17; culmen, 8–10.

I originally described the Black-and-White Wren from Barrow Island in the *Victorian Naturalist* (xvii., p. 203, 1901) as *Malurus edouardi*. Subsequently I was inclined to agree with the late Mr. A. J. North's opinion that I had re-described Quoy and Gaimard's long-lost *M. leucopterus* (see *Emu*, i., pp. 26 and 65, 66, with figs.) If so, I fear my friend Mr. Carter's claim to re-discovery has been anticipated. Nevertheless, Mathews cites (*A.A.R.*, iii., p. 88) what he considers sub-specific differences:—“The former (Dirk Hartog

specimen) has a distinctly stouter bill, recalling the original figure,* which appears to have exaggerated that feature to call attention to it. The white markings on the scapulars extend to the secondaries, which are pure white, while in the latter they are brownish with white edgings; the wing in the Barrow Island form is noticeably longer. As no series is available, these characters may not be constant, but, as Campbell emphasized, the localities are five hundred miles apart, and consequently the forms must, for the present, be regarded as sub-specifically separable."

The present "Check-list" shows one black-and-white species—namely, *Malurus leucopterus*. It must be left to the new "Check-list" Committee to say whether *M. edouardi* should be added as a sub-species. There is no reason why a species on separate islands should change. Take, for instance, the New Zealand "Tit" (*Petroica macrocephala*), found on both Chatham Islands and Auckland Islands (double the distance apart than Dirk Hartog and Barrow); it has not varied ("Animals of New Zealand," Hutton and Drummond, p. 323).

Owing to bright blue feathers occasionally occurring in the male Black-and-White Wren (Carter, *Ibis*, October, 1917, p. 597) and the similarity of plumage in the female of both black-and-white and blue-and-white birds, tend to prove that the former (island bird) has evolved from the latter (mainland bird). If these premises be reasonable, Mr. Mathews is hardly warranted in splitting the genus into two—respectively *Nesomalurus* and *Hallornis*. Why not adhere to the ornithological and original name, *Malurus*, for both? If simplicity is the highest in art, it should also be in science.—A. J. C.]

Allied Desert-Bird (*Eremiornis (carteri) assimilis*).—Fairly common on Barrow Island, and frequenting the coarse shore grass of the sand-hills, but more often the dense and very harsh spinifex both near the coast and in the low-lying interior valleys. Its habits were much the same as I have observed and recorded from the Upper Coongan River. I spent many hours searching amongst the coarse herbage for a nest, and only discontinued when I found by dissection this species was not breeding. I could see but little if any difference in plumage from mainland birds. The Barrow Island specimens may perhaps be a little darker in tone on the mantle and upper parts generally.

Australian Pipit (Ground-Lark) (*Anthus australis*).—A few pairs only. Specimens shot were unfortunately too damaged to make presentable skins.

Ground-Dove or "Mangrove-Pigeon" (*Geopelia tranquilla*).—A few pairs in the mangroves and amongst the snake-wood bushes at feeding time.

Sacred Kingfisher (*Halcyon sanctus*).—A single bird seen several times near the cutter, but very wary of a near approach.

Carnarvon White-eye (*Zosterops balstoni*).—Fairly common amongst the small patches of mangroves. I was struck by the richness of the coloration when fresh killed.

This completes the list of strictly land-birds, but I observed pairs of Reef-Herons, Little Mangrove-Bitterns, and another still smaller Bittern. The latter would not allow of a near approach. I also saw several times a single Little Egret.

* *Vide Emu*, vol. i., p. 66.—EDS.

Shore-birds were not plentiful, and only comprised species common to our North-West coast.

The only sea-birds were a pair or two of Caspian Terns (*Hydroprogne caspia*) and a flock of the common Silver Gull; but on Double Island a colony of the Wedge-tailed Petrel (*Puffinus sphenurus*) were breeding, and I obtained a few eggs after much laborious digging out of burrow nests.

The smaller islands and islets of Dampier Archipelago, though very numerous, closely resemble one another in physical features. As a rule they are very low, long, and narrow. The shore on the land side is generally sandy, and on the ocean side rocky and often wild, low cliffs. The cliffs on one or two islands are tenanted by the Dampier Cockatoo (*Cacatua sanguinea*) during the breeding season. I was informed that two eggs only are laid in holes and recesses in the cliffs, but occasionally pairs will breed in hollow spouts where there are large mangroves. On several of the islands I saw pairs of the Long-billed Stone-Curlew, but I failed to find eggs, despite much systematic searching. Terns were seen in small flocks, apparently travelling to some breeding-grounds further north. At one island near Cossack a party of Frigate-Birds was sailing about overhead. Black-breasted Gannets, too, were seen plunging after their prey in the neighbourhood of other islands, but no breeding colonies of any sea-birds were discovered.

Black-and-White Wren of Barrow Island, W.A.—With Government sanction, I commissioned Mr. F. L. Whitlock to visit Barrow Island for museum specimens of the Black-and-White Wren; also, if possible, to procure its nest and eggs. Unfortunately, he did not succeed in finding eggs, but the following is a description of a nest:—Dome-shaped, with side entrance near top; composed of broken blades of dry grass, grass rootlets, and profusely matted with light-coloured, brown, fine silky substance, probably portions of spiders' egg-cocoons. There is also a sprinkling of similar white material and a small, single, white downy feather. Dimensions.—Six inches long by 3 inches broad; entrance, $1\frac{3}{4}$ by $1\frac{1}{2}$ inches across; depth, inside, from lower lip of entrance, about $2\frac{1}{2}$ inches.—H. L. WHITE. Belltrees, N.S.W.

* * *

Long Flights by Birds.—A Thrush was caught at Southport, England, recently with a ring on its leg marked "Inform Witherby, High Holborn, London." Mr. H. F. Witherby, who is the editor of *British Birds*, has, since 1910, had 75,000 birds so marked in the hope of learning something about their travels. A Swallow ringed in Lancashire was found seven months later at Grahams-town, South Africa, 6,000 miles away. A Lesser Black-backed Gull, ringed at the Farne Islands, off Northumberland, was found eight months later at St. Louis, Senegal, and a Blackbird, ringed at London, was found in Moscow a few weeks afterwards. It would seem that birds are greater travellers than most of us imagine.

Ornithologists in North Queensland.

BY CAPTAIN (DR.) W. MACGILLIVRAY, PRESIDENT OF THE R.A.O.U.

PART III.

Sula cyanops (*Parasula dactylatra personata*).—I have little to add to my description of this species which appeared in *The Emu* of December, 1910, as a result of the visit paid to Raine Island by Dr. Dobbyn and myself a month previously. We then found numbers of fresh eggs, hatching eggs, and young in various stages of development.

When Mr. M'Lennan visited Raine Islet in July, 1911, he found this species commencing to nest. When we spent a week there in December, 1913, nesting had just about finished; only one nest contained eggs. We also found this species nesting on the large sandbank on the Barrier Reef, about 12 miles north-west from Raine Islet.

During our stay on Raine Islet our attention was frequently arrested by a rushing sound, which we found to be due to a peculiar habit of this species. When returning from a distance they do so high up until over the edge of the island, when they suddenly swoop down with half-closed wings to the nest or young, after the manner of a Falcon stooping to its quarry, and at an equal, if not greater, rate of speed. This is possibly done to evade the attentions of the Frigate-Birds, who are always hovering aloft on the watch to relieve incoming Gannets of their cropful of fish. The fully-fledged young bird has the head, neck, and breast white, mottled with brown, and the wings brown.

Sula piscatrix (*Sula piscator rubripes*).—The nesting season of the Red-legged Gannet on Raine Islet seems to extend from June until December. When the islet was visited by Mr. M'Lennan, in July, 1911, he found that nesting operations had not long commenced, only a few nests containing either the single egg or a newly-hatched young bird. It was just about over when Dr. Dobbyn and I examined the islet on 30th October, 1910, and only a few stragglers were nesting when we visited it in December, 1913. A few nests contained an egg; more contained young at varying stages of growth, but there was a great number of young birds that had left the nest either still being cared for by their parents or fending for themselves. These, together with adult birds, roosted all together in larger or smaller communities—a habit not resorted to by either of the other species.

The nest, a substantial interwoven platform of sticks, 8 to 12 inches in diameter, depressed to about 1 inch in the centre for the single egg, is, unlike that of the Brown or Masked Gannets, always built a foot or more off the ground, on a low, shrubby growth common on the islet, or on some small trampled-down bush. The egg is smaller and more of a long oval than that of the other species. It is white, with a limy coating, which is soft when the egg is first laid, and then easily receives impressions from the nest or birds' claws, but soon hardens on exposure. It is easily removed when wetted, exposing a pale greenish shell. An average egg measures—axis, 60 mm.; diameter, 40 mm.

The nestling is hatched out blind, with a pale leaden-coloured skin, only an indication of down on the head, back, humeral and femoral tracts, and on each side of the breast. The bill is shorter and the

mask much darker than in the nestling of either the Masked or Brown Gannets. The eyes soon open, and the bird becomes thickly covered with white down, which is worn until the bird is almost fully grown. Then the feathers begin to appear, the primaries and rectrices being the first, then those of the head and back. These birds go through several stages before reaching maturity.

No. 1 stage.—When first feathered, the bill, mask, and feet are black, and the rest of the body dark smoky-brown.

No. 2 stage.—A lighter brown all over the feathering, with a dark brown bill and lighter brown feet.

No. 3 stage.—Light brown all over, with a white tail, horn-coloured bill with a pink tinge round the base, legs and feet and bordering of gular pouch reddish. This stage was found breeding and mated with mature birds.

No. 4 stage (maturity).—Pure white, with dark primaries, light horn bill bordered with pink, and gular pouch bordered with bright pink; red legs and feet.

Birds in all these stages of plumage may be seen roosting together in the groups before mentioned. When asleep the beak is tucked in under the scapulars.

The duties of incubation are shared by the parent birds, one sitting during the night, the other by day.

Sula fusca (*Hemisula leucogaster plotus*).—I can add little to the description of the nesting habits of this bird which appeared in *The Emu* of December, 1910.

Mr. M'Lennan found this species starting to nest when he visited Raine Islet early in July, 1911; only a few nests then contained eggs, and there were no young.

When Dr. Dobbyn and I visited it on 30th October, 1910, eggs and young in all stages of growth were in thousands all over the place. When I again visited the islet, early in December, 1913, nesting was finishing, as there were very few fresh eggs or nests, though incubating eggs were plentiful and young birds were everywhere. This species was also nesting on the Ashmore sand-banks and on a large turtle-infested sand-bank on the Barrier Reef, about 12 miles north-west from Raine Islet.

The young when feeding puts its beak down the parent's throat. They seem able to accommodate fairly large fish; one large downy young one disgorged a flying-fish 10 inches long by $1\frac{1}{2}$ inches in diameter.

The small, naked young feel the heat very much, and the mother bird shelters them by standing over them during the heat of the day. The white downy covering of the larger young sufficiently protects them from the rays of the sun.

Fregata ariel (*Fregata ariel ariel*).—When Mr. M'Lennan visited Raine Islet in July, 1911, he found eight nesting-colonies of these birds of from three to thirty nests each, there being 150 nests in all; several of them contained one egg each—two of these were hatching. The rest of the nests contained one young bird each, in all stages of plumage, from birds a couple of days old to those ready to fly. At Bramble Cay, ten days later, he noted a pair of birds, but none was nesting.

At Raine Islet in December, 1913, nesting had finished, but numbers of fully-fledged young birds roosted all over the islet, and,

though able to fly quite well, were being fed by the parent birds. Many were soaring overhead with adult birds, and these latter were very numerous, and constantly on the watch to deprive incoming Gannets of their fish. All three species of Gannets are made to disgorge, and we frequently witnessed encounters between a Frigate-Bird and a home-coming Gannet. The Gannet often manages to elude its adversary by flying low to the ground, but even then they are sometimes forced to drop the fish on the ground, when the Frigate-Bird will alight, pick it up and swallow it, and rise again into the air. They find no difficulty in rising from the ground. They sometimes soar at a great height, and I have counted as many as 40 at different elevations directly over our tent, and there were many more all round the islet. Mr. Kershaw and I kept our eyes on one that passed overhead, sailing with outstretched wings, without any perceptible movement. He sailed down to the other end of the islet, gradually rising higher, then went round several times, and once half-closed his wings to descend about 50 feet; then spread them out and resumed his sailing flight, never at any time flapping his wings. The only time that they do so is when they are buffeting a Gannet to make it disgorge, or on rising from the ground. When flying the tail is mostly closed like a large pair of scissors with in-curving blades meeting at the base and tips. The legs are carried on either side.

To show that, powerful fliers as they are, they are not equal to a war with the elements, I will quote the following note from Mr. H. G. Vidgen, made on 31st December, 1913, at Paira, Cape York:—“The wind was of hurricane force; it blew down trees in numbers and covered the ground with a *débris* of limbs and twigs. For two days it was so bad that the Frigate-Birds were knocked out. They used to rest on the mangroves in a sheltered spot in our bay by spreading out their wings and lying across twigs and leaves. The birds were present in hundreds—a thing I have not seen before.”

The fully-plumaged young on Raine Islet were dark brown, with a dirty whitish patch on the chest, the head of the male being fawn-coloured, and of the female rufous. In both the iris is brown, bill and gular pouch bluish-white, feet fleshy-white.

Female.—Total length 790 mm., wing 570 mm., culmen 110 mm.
Male.—Length 790 mm., wing 565 mm., culmen 100 mm.

Three eggs collected by Mr. M'Lennan in 1911 measure as follows in mm. :—

- | | | | | |
|-----|------|------|----------|-----|
| (1) | Axis | 65 x | diameter | 44. |
| (2) | „ | 65 x | „ | 43. |
| (3) | „ | 67 x | „ | 46. |

Phaethon rubricauda (*Scaophaethon rubricauda novæhollandiæ*).—When Dr. Dobbyn and I visited Raine Islet, in October, 1910, we overlooked this species, the few hours that we spent on the place not permitting of an examination of the caves and crevices. These caves are under the margin of the coralline rock which caps the islet; some are of respectable dimensions, but the entrances are small, and one has to crawl or wriggle in on one's stomach in order to examine them. The Tropic-Birds are, however, more often found in small crevices not more than a foot or two in under the rock ledge facing the sea, or in one of the pits or trenches that have been excavated in the centre of the islet.

Mr. M'Lennan, who examined all these on visiting the place in July,

1911, found several nests. The first, containing an egg, was a depression in the sand at the back of a fair-sized cave, 20 feet long, 12 feet broad, and 4 feet high, the opening being 9 feet across by $1\frac{1}{2}$ feet high. Seven nests were found, three containing each one fresh egg, and there were young in the others; two contained small young, the other half-grown young.

When I visited the islet in December, 1913, these birds were still nesting; only one nest, however, contained an egg, the others young birds, from downy young to fully-feathered birds. The down of the nestling is long, fluffy, and smoky-grey. The feathers showing first are the primaries and scapulars; these are black and white, in transverse bars. When fully feathered this barring is general on the upper surface. No nest is made, the birds simply sitting in a depression in the soft sand forming the floor of the cave or recess.

On one occasion, when we were examining a sitting bird, another bird flew up, and, after circling round near us several times, flew into the pit and alighted at the mouth of the cave. The birds cannot stand or walk, but shuffle along the ground; they can, however, rise readily from the ground by means of their wings alone. When flying the tail is outspread, the two red central tail feathers kept apart, and the feet kept outspread on either side of the tail. The plumage of the male is of a more distinctly beautiful roseate hue than that of the female; this tinting fades from cabinet specimens.

They only come out of their caves to fly about the island at certain times of the day, and then only for an hour or more; this seems to be about noon and at about 4 p.m. Their flight reminds one somewhat of that of a Pigeon. They utter a grunting call when flying about the island, but this is much harsher when they are disturbed on their nests. The young seem able to swallow fairly large fish; a downy young one that we handled disgorged a fish 6 inches long by $1\frac{1}{2}$ inches in width. Flying-fish seem to be the usual food of this bird.

Pelecanus conspicillatus (*Catoptropelecanus conspicillatus conspicillatus*).—When on our return journey we noted, on the 3rd February, numbers of these birds nesting on one of the Howick group of islands.

Circus gouldi (*Circus approximans gouldi*).—Mr. M'Lennan notes the common Harrier as occasional about the Archer River swamps.

Astur novæ-hollandiæ (*Leucospiza clara cooktowni*, *Leucospiza novæhollandiæ novæhollandiæ*).—On the 7th November we examined a nest of the White Goshawk placed high (about 120 feet) on a deciduous tree in the scrub. Mr. M'Lennan went up 70 feet on a rope ladder and then climbed by means of steps cut with a tomahawk. This nest contained two eggs. A Sulphur-crested Cockatoo had her two young in a hollow, and several Shining Starlings were starting their nests in the same tree. On the following day we flushed a Grey Goshawk from her nest high in a paper-bark (*Melaleuca*). Two days later Mr. M'Lennan pointed out another Grey Goshawk's nest in a tall scrub tree, in which there was a *Calornis* colony and a hollow occupied by *Electus*; this nest was at a height of 92 feet, and also contained two eggs. The bird was flushed from the nest. On the 14th November Mr. M'Lennan and I went to get a Goshawk's nest 70 feet up in a *Melaleuca* on the edge of the scrub; two eggs were also in this nest. We waited and shot the female, a grey bird, then waited on for a long time for the male, until our patience gave way

before the mosquito onslaught. On skinning this female several fine parasitic worms were found under the nictitating membrane of the eye.

Another nest examined on the 15th November was placed high in a large fig-tree in the scrub. A colony of *Calornis* were busy with their nests in this tree, and the Hawk had not laid.

We were not able to throw any further light upon the vexed question as to whether the grey and the white bird are only phases of the one species or two distinct species. So far, Mr. Barnard's evidence is all that we have in favour of the one species, and even that is not conclusive, as we know from other instances that nearly-related species inhabiting the same district often interbreed in a state of nature. To sit still and watch for the return of the second bird is no easy task. Mr. M'Lennan's observations have shown that the male rarely returns to the nest before dusk, and then one has to watch from close below the tree, which is usually the tallest one in the neighbourhood, stretching up above the roof of the jungle. This means lying on the ground and keeping still for hours where ants of all kinds and many other creeping things luxuriate, with an ever-increasing horde of hungry mosquitoes in constant attendance—a severe test for the most ardent field naturalist.

We saw only one white bird during our visit to the Claudie. On the Archer River Mr. M'Lennan noted a few pairs.

Astur approximans (*Urospiza fasciata fasciata*).—On the 8th November we flushed an Australian Goshawk from a nest placed high in a eucalypt in open forest. Later on Mr. M'Lennan climbed to another nest of this species; it contained two young birds and the half-eaten remains of a Superb Fruit-Pigeon. On the Archer River these birds were fairly common.

Accipiter torquatus (*Accipiter cirrhocephalus cirrhocephalus*). Collared Sparrow-Hawk.—Noted on the Archer and Pascoe Rivers. From the Claudie River he made this note on 31st October, 1913:—"Saw a small Hawk fluttering on the ground; thought that its wing was broken, but soon saw that it was in the clutches of a small monitor lizard. I caught and killed them both. The lizard had a mouth hold at the base of the three outer tail feathers, its front feet gripping the skin and feathers on each side of the base of the tail, the hind feet gripping each wing near the body, and tail coiled once round the neck of the Hawk, which was just about exhausted."

Uroaëtus audax (*U. audax audax*). Wedge-tailed Eagle.—Noted on the Archer River.

Haliæetus leucogaster (*Cuncuma leucogaster*). White-bellied Sea-Eagle.—When at Haggerstone Island we saw one of these birds soaring above it. A feeding-place on a large stranded log had many fish remains on and about it, and also portion of a Torres Strait Pigeon. When out with a blackfellow on a rainy day on the Claudie I saw one of these birds sheltering from the rain in a low tree in open country.

Mr. M'Lennan noted this species at the mouth of the Archer River.

Haliastur leucosternus (*Haliastur indus leucosternus*).—We occasionally noted the White-headed Sea-Eagle on the Claudie and at the mouth of the Archer River. An untenanted nest was high in a tree which was being rapidly covered with *Calornis* nests.

Haliastur sphenurus (*H. sphenurus*). Whistling Eagle.—Occasional on the Claudie, but plentiful on the Archer River.

Milvus affinis (*Milvus korschun korschun*). Allied Kite.—Occasionally seen flying high on the Archer River.

Lophoictinia isura. Square-tailed Kite.—A few were seen on the Archer River, and one specimen was obtained.

Gypoictinia melanosternon (*Gypoictinia melanosterna melanosterna*).—We saw only a few of these birds on the Claudie. Mr. M'Lennan found them on both the Archer and Watson Rivers.

Elanus axillaris (*E. axillaris axillaris*). Australian Black-shouldered Kite.—Mr. M'Lennan noted a pair on the Watson River.

Baza subcristata. Crested Hawk.—On the 17th November we had crossed a stretch of grass land, and were entering a strip of tall paper-bark trees, when we disturbed a pair of Hawks unfamiliar to us; the binoculars, however, enabled us to settle their identity. Very soon one returned to a small nest high up in a tree. On the following day Mr. M'Lennan, using a rope ladder, climbed to the nest, which contained three eggs; it was placed at a height of 70 feet in a fairly well concealed position. The nest was small comparing it with most Hawks' nests; it measured 12 inches across the top by 5 inches in depth, the egg cavity being 5 inches in diameter by 1½ inches in depth. It was composed of dry twigs and branchlets of eucalypts and tea-trees, and lined with green leaves. The eggs, pure white in colour, were slightly incubated. The gizzard of the female contained the remains of a small bird, beetles, and grasshoppers.

Falco melanogenys (*Rhynchodon peregrinus macrops*).—We first saw the Black-cheeked Falcon on the day of our arrival at Lloyd's Island, sitting on a termites' mound. On the 12th January, when lying off Lloyd's Island, in the early morning, we watched one stooping at a Lorikeet (*Trichoglossus novæhollandiæ septentrionalis*); it missed, and the Lorikeet escaped by dodging past our cutter. The Falcon then turned his attention to another Lorikeet, which also avoided him by rising high in the air. Mr. M'Lennan, previously to our visit, had seen this Falcon kill a Pigeon and fly off with it to a small island in the bay.

Falco lunulatus.—The Little Falcon was several times noted on the Claudie and Archer Rivers.

Hieracidea occidentalis (*Hieracidea berigora berigora*).—The Striped Brown Hawk was noted on several occasions on the Claudie and Archer Rivers.

Pandion leucocephalus (*Pandion haliastur cristatus*).—When at the Hannibal Islands, in June, 1913, Mr. M'Lennan saw a pair of White-headed Ospreys circling round, and found their empty nest in a bushy tree at the edge of the scrub.

On the 1st July, on the Macarthur Islands, Mr. M'Lennan noted:—"Did one of the coral ridges before dark; found an Osprey's nest in the same mangroves as in 1911. It now contained three eggs. Another nest in a mangrove contained one fully-fledged young one."

We noted this species on the Claudie River, over Lloyd's Island, and at Haggerstone Island. Mr. M'Lennan noted two pairs at the mouth of the Archer River.

Ninox boobook (*Spiloglaux boobook macgillivrayi*).—Mr. M'Lennan repeatedly heard a Boobook Owl calling after dark on the Pascoe River, but did not obtain a specimen. We did not hear any on the Claudie. On the Archer River Mr. M'Lennan also heard its call. This bird is probably the same as those obtained by Mr. M'Lennan on the Jardine River and at Lockerbie.

Ninox rufa (*Rhabdogastra queenlandica*).—On first arriving at the Claudie, Mr. M'Lennan wrote of the Rufous Owl:—"Heard an Owl calling on the river below the camp about 9 p.m. I imitated the call, and the bird flew into a tree near by. I shot it and identified it. The call is a soft, low-pitched, measured, and deep 'Hooo-hooo,' repeated at intervals." He heard the call frequently after this, and came across the bird in the scrub. Almost every night after our arrival on the Claudie we heard this bird calling, and by imitating the call Mr. M'Lennan could bring the bird by degrees, answering his call each time and in a softer tone. On one occasion it flew right into the tree over our tent, but left quickly on detecting our presence. It, however, soon replied to the imitated call, but would not venture as near again. One day we flushed a pair roosting together in the scrub, and obtained one for skinning; its stomach contained the remains of a mantis. Under the skin of the head and in the orbit were worm-like parasites; Mr. M'Lennan obtained two specimens on the Archer River in 1914. On the 30th July, 1914, he made this note:—"Ninox rufa was calling again this morning. It came across the river near the camp after daylight, and was hunting for food about the mangroves and scrub. After breakfast I hunted round to see if I could find the nesting hollow; examined all trees within a mile radius of the camp, but did not see a suitable one."

Strix delicatula (*Tyto flaminea delicatula*).—Mr. M'Lennan found the Delicate Owl fairly common on the Archer and Watson Rivers. He noted on the 25th April, 1915, on the Watson River:—"Went out at 8 p.m. to look for Owls; heard one call, and located it on a dry tree at the edge of the mangroves. Kept uttering the call at intervals, and another bird came along and tried to perch on my head."

This bird has another call besides the harsh, hissing screech—a sharp, grating note similar to that of a tame Hawk when you try to take his food away.

Tyto galei.—This specimen, obtained by Mr. M'Lennan on the Pascoe River on 16th July, 1913, may prove to be only a variation of *T. flaminea delicatula*. His note on it is as follows:—"Heard an Owl (*S. delicatula*) scream about 9 p.m. I imitated the call a few times; the bird came along and perched on a dead tree near the camp."

Strix novæ-hollandiæ (*Tyto novæhollandiæ*).—We heard the call of the Masked Owl on our first night at our top camp on the Claudie, and three weeks later we obtained a specimen flushed from a tree in an open tea-tree and *Pandanus* flat. A second one, flushed on the following day, sought refuge in the scrub. We heard their call on several nights afterwards.

Trichoglossus septentrionalis (*T. novæhollandiæ septentrionalis*).—We arrived at Lloyd's Island at night, and early on our first morning we were witnesses of the extraordinary number of the Blue-bellied Lorikeets flying off from the mangroves which border the sheltered side of the island, where they roost for the night in company with

numbers of Torres Strait Pigeons and Shining Starlings. The Parrots are the first to leave for the mainland, many going off in semi-darkness; they keep flying off in increasing numbers for quite a time before the Pigeons make a start. They feed on the flowering eucalypts and *Melaleucas* on the mainland. Mr. M'Lennan found a nesting-hollow on the 31st October, 35 feet from the ground, in a swamp mahogany in open forest; it contained two eggs.

On the Archer River in June he noted "large flocks flying north daily."

Trichoglossus chlorolepidotus (*Eutelipsitta chlorolepidota chlorolepidota*).—We did not meet with the Scaly-breasted Lorikeet in the extreme north, but found it feeding on the blossoms of a fine rain-tree (*Pithecolobium saman*) in the Townsville Botanic Gardens.

Ptilosclera versicolor.—On the Archer River Mr. M'Lennan noted large flocks of Varied Lorikeets flying north daily in June, 1914.

Geoffroyus personatus maclennani.—This was one of Mr. M'Lennan's discoveries on the Pascoe River, where he found it to be fairly plentiful. The first specimen was obtained on the 14th July, 1913. He came near to finding the nest on two occasions. On the 7th August a pair were prospecting a hollow in a paper-bark at the edge of the scrub. Although he watched them for some time, examination of the hollow a day or two later did not disclose any attempt at using it for nesting purposes. On the 21st September, on the Claudie River, he disturbed a couple at the edge of the scrub; they flew into a tree about 100 yards further on. The male started to feed the other, which Mr. M'Lennan took to be a fully-fledged young bird, and shot both. On skinning the birds, the one which he took for a young bird proved to be a female with enlarged ovary and a greatly enlarged and dilated oviduct. It had evidently just finished laying. She was very fat, but not so the male. Mr. M'Lennan searched all the trees near where the birds were taken for a likely hollow, but without success.

When we came to the Claudie we could hear and see the bird any day from our camp, in the scrub on the opposite side of the river or feeding in some of the trees along or just outside the edge of the scrub. A favourite food tree was the *Alpinia*. The ground under the trees was strewn with the broken-up seed-vessels, from which the seeds had been extracted, and we frequently flushed them from these trees. They are not gregarious; we rarely saw more than two or three together, though Mr. M'Lennan has seen as many as eight. When leaving a tree the birds usually scream in an alarmed manner, but when feeding in a tree they are quiet.

On the 19th December Mr. M'Lennan saw an immaturesly-plumaged male feeding a young one which had not long left the nest. The plumage of the immature male resembles that of the female. If this male was the parent of the young one, it is reasonable to suppose that the males take two years or more to attain their full colouring. The breeding season would seem to be the three spring months.

Microglossus aterrimus (*Solenoglossus aterrimus macgillivrayi*).—We often heard or saw these fine Palm-Cockatoos. They were feeding on the hard seed-capsules or nuts of various open forest trees. We occasionally flushed them from the ground where they were splitting up *Pandanus* nuts. Their call was a familiar one about our camp. My boy and I watched one in the scrub on one occasion

as it called and walked backwards and forwards along a horizontal branch with erect crest, nodding its head and indulging in a number of evolutions until a mate appeared and perched in an adjacent tree, when they both flew off.

Mr. M'Lennan found this bird on the Pascoe, and before our advent he found several nesting-hollows on the Claudie. A large hollow in a tree or stump is usually chosen, the single egg resting on a bed of cut-up sticks. Few were seen on the Archer River.

Calyptorhynchus, sp. ? (*C. banksii northi* ?).—On the 27th June, 1914, Mr. M'Lennan noted on the Archer River :—"A flock of about twenty Black Cockatoos (*Calyptorhynchus*) flew past the camp at sunrise heading towards the coast."

Caecata galerita (*Caecatoes galerita queenslandica*). White Cockatoo.—Fairly common, usually flying over or about the tall nesting trees in the scrub. One nesting-hollow containing young birds was in the same tree in which a Grey Goshawk had her nest. Three other nests containing young were found in trees in which *Euclestes* was also nesting. This bird was not seen feeding on the ground ; it is here a tree feeder, no doubt because of want of opportunity, the ground being mostly covered with grass, climbers, and other herbage, even where it is most open. Common also on the Archer River.

Euclestes pectoralis macgillivrayi.—Every day this splendid Parrot could be seen or heard flying over or past our camp.

On the 7th November Mr. M'Lennan took us through the scrub up the river to see a nesting-tree. The female was in possession, with her head looking out of the hollow. She had been in possession for about a month, and had not yet laid. In a near-by tree was the nesting-hollow of another pair, from which Mr. M'Lennan has taken the type set of eggs. On the 9th November we went to our top camp, seven miles further up the river, to investigate two nesting-trees. The birds were at home in each, so we cleared the scrub to enable the rope ladder line to be thrown up next day. The first hollow was 63 feet from the ground, in a large leafless tree with an entrance 2 feet by 8 inches and a depth of 2 feet. Two eggs rested on a bed of chippings from the hollow. These eggs were slightly incubated.

When we went to the other tree the birds made a great outcry. The hollow was 53 feet up, 2 feet 6 inches deep, with an opening 12 inches by 9. The hollow was 2 feet in diameter at the top and 20 inches at the bottom ; it contained a hatching egg. One male and three females were in attendance. They were a beautiful sight, the bright green male contrasting with the three red females as they flew screeching round and round over the tree. Down the river from this camp, in a large patch of scrub, was another nesting-tree, a chestnut, with a colony of Shining Starlings and a Grey Goshawk nesting in the same tree. The *Euclestes* hollow, at a height of 72 feet, was 2 feet 6 inches in depth, and contained two slightly incubated eggs. An *Euclestes* hollow near our main camp contained two eggs. The males kept flying round the top of the tree uttering their harsh cries, the female only coming occasionally.

The lowest nest was 45 feet from the ground, with a hollow only 1 foot deep and an entrance 5 inches by 8 inches.

In one hollow examined after our return from Raine Island, and from which we had taken a pair of eggs six weeks previously, were

two young birds about a week old; their eyes were open, and they had dark grey down on femoral, humeral, and dorsal tracts.

The large deciduous trees mostly chosen for nesting purposes by these birds lose their leaves in the dry season—that is, the winter and spring—and regain them after flowering at the commencement of the wet season. It is when they are bare that the birds start to nest in them. The cry of the *Eclectus* is a harsh scream, and they feed on the seeds and nuts of various trees.

Cacatua gymnopsis.—Mr. M'Lennan noted a large flock of Bare-eyed Cockatoos on the Archer River in June, 1914.

Cacatua roseicapilla.—On the Watson River Mr. M'Lennan found Galahs (Rose-breasted Cockatoos) in numbers round the edge of the swamp in April, 1915.

Aprosmictus erythropterus yorki. Red-winged Parrot.—Heard and seen occasionally only. Mr. M'Lennan noted them on the Archer and Pascoe Rivers.

Platycercus cyanogenys (*P. adscitus amathusiæ*).—We only saw Blue-cheeked Parrots once, in open forest, not far from the tea-tree swamps behind the mangroves. The note of these birds is a very subdued one, and is very much like that of the Red-browed Pardalote.

On the Archer River Mr. M'Lennan noted a few scattered pairs.

Psephotus chrysopterygius. Golden-shouldered Parrot.—On the 14th April, 1915, Mr. M'Lennan made the following notes when on the Watson River:—"On reaching the river a pair of strange Parrakeets was flushed from the thin fringe of mangroves; they flew off up the river, and disappeared in a big patch of mangrove. I followed, and searched for about an hour, but did not see them. Returning along the edge of the mangrove, I saw one of the Parrakeets flying in from the plain. It alighted in the mangroves, and I managed to secure it."

Podargus papuensis.—We frequently heard the weird, guttural laughing of the Papuan Frogmouth at night, though we did not often come across it during the day. Two nests were observed, each containing a young bird—one in a forest tree not far from our camp, the other in a bushy tree outside a large patch of scrub. Occasionally met with on the Archer River by Mr. M'Lennan.

Podargus marmoratus (*Micropodargus ocellatus marmoratus*).—The note of the Marbled Frogmouth soon became familiar to us, as it was to be heard every night, though the bird was seldom seen by us. It is more a bird of the scrub than *P. papuensis*, and occasionally one was flushed from its resting-place in a tangled mass of lawyer vines or other climbing, parasitic, or epiphytal plants. The note is a soft yet loud "Kooloo kooloo kooloo," repeated several times. One specimen which we obtained had been feeding on beetles, and had a tape-worm in the subcutaneous tissue of the abdomen. Like nearly all night-feeding birds, it is only heard at dusk and dawn on dark nights, but all night long when it is moonlight. It is my experience that few if any of the so-called nocturnal birds get about when it is really dark.

Total length, 395 mm.; wing, 185 mm.; culmen, 40 mm.; tarsus, 22; middle toe and claw, 31. Irides yellow.

Ægotheles novæ-hollandiæ (*A. cristata leucogaster*).—The Owllet-Nightjar was only heard calling once, and one specimen was obtained,

which proved to be a breeding bird. This was on the 24th December. It was, however, more often noted on the Pascoe and Archer Rivers by Mr. M'Lennan.

Eurystomus pacificus (*Eurystomus orientalis pacificus*).—We noted the Australian Roller on our way up, at Brisbane, at Townsville, and on many occasions at the Claudie.

Alcyone pulchra (*Alcyone azurea mixta*).—There were always a few Purple Kingfishers along the banks of the Claudie and along the small creeks that run into it through the scrub. On the 15th January, whilst Mr. M'Lennan and I were examining a nesting-burrow in a bank of the Claudie, the parent bird arrived to feed her young with a small fish in her bill, and sat on a twig within two yards of the boat.

On the Archer River Mr. M'Lennan noted this bird as "fairly plentiful along the river."

Alcyone pusilla (*Micralcyone pusilla pusilla*). Little Kingfisher.—We first noted this little gem on a small creek running into the Claudie through thick scrub, and afterwards on the Claudie itself, at the sandalwood landing, and lower down, where the river is lined with mangroves. We afterwards found some of their holes drilled into dead mangroves or tea-tree stumps in the swamps. To find these required prolonged searching under most trying conditions—wading in tea-tree swamps, where progress was difficult owing to the depth of the water, the uneven character of the muddy and oozy bottom, and the number of submerged logs and branches, our view all round being obscured by clumps of Nipa palm, tall-growing grass, or young tea-tree. The tracks of crocodiles on every sand-bank also did not tend to give one a very comfortable feeling, let alone the constant attention one got from hordes of mosquitoes and March-flies (gad-flies) of every size and colour. On the Archer River Mr. M'Lennan found this species to be numerous in the mangroves.

Syma flavirostris (*Syma torotoro flavirostris*).—The note of the Yellow-billed Kingfisher is a melancholy ascending and trilling whistle frequently repeated, something like that of the Bronze-Cuckoo (*C. plagosus*) of southern parts, and at first to us indistinguishable from that of the Chestnut-breasted Cuckoo (*Cacomantis castaneiventris*), though, when they became more familiar, we were able to distinguish them. They are usually to be found inside the edge of the scrub, only occasionally in the open. On the 17th January we flushed one from a hole in a termites' nest 15 feet up on the trunk of a scrub tree with a bole about 12 inches in diameter. When Mr. M'Lennan was at the nest the bird flew at him with a scream, and then perched on a near horizontal twig, where in her anger she made a pretty picture, with all the feathers of her head raised and her neck and body feathers ruffled up. This nest, however, only contained one old, stained egg. Another nest just inside the edge of the scrub was, as usual, in a termites' mound, about 12 feet up in a tree; it contained three eggs, the usual complement. These birds feed upon lizards, beetles, butterflies, and other insects. Mr. M'Lennan heard only one on the Archer River.

No. 88, ♂.—Total length, 198 mm.; wing, 77 mm.; culmen, 35 mm.; tarsus, 14 mm.; middle toe and claw, 14 mm. Bill and legs yellow; claws pale brown; testes slightly enlarged; stomach contents, remains of beetles and butterflies.

No. 119.—Total length, 195 mm. ; wing, 76 mm. ; culmen, 38 mm. ; tarsus, 16 mm. ; middle toe and claw, 18 mm. Bill yellow ; terminal half of culmen black ; feet and legs yellow ; claws brownish ; irides brown.

Dacelo gigas maclennani.—A pair or more of Great Brown Kingfishers inhabited most of the larger patches of open forest. Their laughing note is very like that of the southern bird (*D. gigas*). We flushed one from its nesting-hollow on the 12th November. The hole was in a termites' nest 30 feet up a eucalypt, in open forest. It contained three eggs on the point of hatching. On the 4th January we found this same pair with a nest not far from the old one, also at a height of about 30 feet. It contained three young birds about a week old. One parent became very anxious when Mr. M'Lennan was examining the young, calling excitedly and flying from tree to tree. On the Archer River the birds are common in the forest country.

Dacelo leachi (*D. leachi kempi*). Leach Kingfisher.—Noted at Cooktown in possession of the same hollow from which Dr. Dobbyn and I took a set of eggs in 1910. At the Claudie they were occasionally met with, but were very silent before the wet season, when their noisy, loud shouting call was to be heard all day long. Common in forest country along the Archer River.

Halcyon macleayi (*Cyanalcyon macleayi barnardii*). Forest Kingfisher.—Fairly common in open forest about our camp, where they nested in termites' nests on the trees. Also noted on the Sir Charles Hardy Islands.

On the Archer River Mr. M'Lennan found them to be common in the forest country.

Halcyon sanctus.—When Mr. M'Lennan was making his way down the coast from Cape York to Lloyd's Island in July, 1913, he made the following notes about the Sacred Kingfisher at his various stopping-places:—Round Point, Cape York.—“Numerous in the mangroves.” Baird Island, near Piper Island Lightship.—“Noted.” Macarthur Islands.—“Numerous.” Stony Point, south of Piper Island.—“Numerous in the mangroves.” Lloyd's Island.—“Numerous.”

On the 30th August there were still some on Lloyd's Island ; by the 15th October they had all gone. This species seems to disappear from the Cape York Peninsula by October, and to reappear in March and April, when they soon become numerous. Mr. M'Lennan has no notes of their presence in May, and only one in June.

Halcyon sordidus.—Mangrove Kingfisher.—Frequently heard and seen by us in the Lloyd's Island mangroves and in the mangroves bordering the first few miles of the Claudie. This fine Kingfisher has a note similar to that of *H. sanctus*, but much louder. It is seldom seen out of the mangroves.

Mr. M'Lennan noted a few on Lloyd's Island in July, more in August, and numbers in October.

Tanysiptera sylvia (*Uralcyon sylvia sylvia*).—The first White-tailed Kingfisher arrived at the Claudie on the 20th December ; after this they became more frequent. We found the first nest on 18th January ; this was in a termites' nest 4 feet up in a tree in thick scrub, through which we had great difficulty in making our way.

It seemed to be an entanglement of prickly and spiny climbers and shrubs, whilst we were beset by the usual swarm of mosquitoes and March-flies. Next day we found three nests, each containing the full complement of three eggs, after which they became everyday occurrences till we left. The birds were then common in the scrub, and their undulating flight through the trees was more apparent than real, owing to the waving of the two central tail feathers; these vary a good deal in length. The birds feed upon grasshoppers, beetles, and other insects. Not all termites' nests are suitable to burrow into; many show that the birds had tried them and given it up, some being too shallow, the birds only digging in a few inches before encountering the tree-trunk.

Merops ornatus (*Cosmærops ornatus ornatus*). Australian Bee-eater. — Noted on many occasions on the Claudie; became very plentiful about the 20th December, hawking for insects in the open forest and along the edge of the scrub. Mr. M'Lennan found this species to be quite common on the Archer River in June.

Mr. H. G. Vidgen writes from Paira, under date 10th November, 1915:—" *Merops ornatus* generally departs from here to the last bird. This year some thousands camped on the mangroves in our bay during May, June, and July, and then disappeared. August being the month on which they start to come over from New Guinea, I presume this lot then started for the south.

Caprimulgus macrurus (*C. macrurus yorki*).—We heard the "Chop-chop-chop" note of the Large-tailed Nightjars on the evening of our first day on the Claudie and almost every day afterwards. At the top camp they were all round the camp, and would come and perch on the tent pegs. They fly at dawn and dusk and on moonlight nights. We often flushed them during our wanderings from some roosting-place on the ground either at or just within the edge of the scrub in thin scrub bordering a creek or on scrubby hills. We found three nests—just depressions in the leaf-covered ground; the first was on the 19th November and the last on the 26th December. One evening, at dusk, when sitting by the tent listening to the voices of the birds and other creatures, a *Caprimulgus* that had been "Chop-chopping" in the scrub near at hand came and took possession of a small post three yards away, whence he would sally forth at intervals to capture a passing insect, sailing round again to his perch on widespread and noiseless wings. Our dog walked towards him, when he flopped down on the ground and flattened himself out, but on the dog coming nearer he was up and away. When hawking and waiting for passing insects the birds do not call. On the 26th January I flushed an old one accompanied by a young one from some tea-tree brush. They are common on the Archer River.

Collocalia francica.—Numbers of the Grey-rumped Swiftlets were often to be seen hawking for insects near our camp. They are very quick on the wing, darting here and there with great rapidity.

Chaetura caudacuta (*C. c. caudacuta*). Spine-tailed Swift.—Only noted on one occasion (7th November).

Cypselus pacificus (*Micropus pacificus pacificus*).—On the 22nd December a great flock of these White-rumped Swifts were soaring over our camp, and made off in a south-easterly direction. They were about on the 24th and 25th December. On the 26th numbers were hawking for flying termites all round and over our camp. The mouth,

throat, and gizzard of a specimen obtained was crammed with the insects. On the 28th numbers had again come to the feast of flying termites, and we obtained several specimens. All were males, and the stomach and throats of all were full of the insects. We last saw a number before we left hawking over the water front at Lloyd's Island.

Cuculus pallidus (*Heteroscenes pallidus pallidus*).—During all the time that Mr. M'Lennan spent at Cape York he saw no sign of the Pallid Cuckoo. We did not see or hear it on the Claudie. In June, 1914, on the Archer River, Mr. M'Lennan found it to be quite common.

Cacomantis flabelliformis (*C. rubricatus athertoni*).—Mr. M'Lennan found the Fan-tailed Cuckoo fairly plentiful on the Archer River in June, 1914, though he had not previously noted it on the Cape York Peninsula.

Cacomantis variolosus (*C. pyrrhophanus westwoodia*).—The Square-tailed Cuckoo was common, and its plaintive trilling call was often heard on the Claudie. The Cuckoo egg found in the nests of the Brown-backed Honey-eater (*Glyciphila modesta*), and bearing a close superficial resemblance to the egg of that Honey-eater, is, in my opinion now, undoubtedly the egg of this bird. The Honey-eaters' nests are usually found on small tea-trees in open tea-tree swamps. This Cuckoo has been noted in these swamps, and is usually a bird of the open, being very rarely seen in scrub. Whether the egg bearing a close resemblance to the Cuckoo egg in the nests of *G. modesta*, and found in nests of the Lovely Wren-Warbler (*Malurus amabilis*) and *Ptilotis notata*, in scrub, is also the egg of this species, or that of the Chestnut-breasted Cuckoo (*Cacomantis castaneiventris*) is doubtful, and the egg of the latter Cuckoo is, in my opinion, not certainly known up to the present time. No fully-formed egg has ever been found in the oviduct of *C. castaneiventris*; it has never been seen depositing its egg in any nest, and no Cuckoo egg in any nest has ever been watched until it hatched a young *C. castaneiventris*, and no description of the young stages of plumage has ever been published. I have handled two skins of young Cuckoos, which are the young stage of either *C. variolosus* or *C. castaneiventris*, but I cannot say of which.

When blowing a clutch of *Glyciphila modesta* eggs with an egg of *C. variolosus*, the shell of the Cuckoo egg is found, on drilling, to be much stronger, and the yolk is of an orange colour instead of pale yellow, as in the Honey-eater's egg.

Since writing the above I have received from Mr. H. G. Vidgen the skins of a young Cuckoo and its foster-parent, the Black-throated Fly-eater (*Gerygone personata*). This young Cuckoo, although undoubtedly a *Cacomantis*, differs altogether from the young Cuckoos mentioned above, and more nearly resembles adult specimens of *C. castaneiventris* than do the other two. This complicates the whole question still further, as all Cuckoo eggs that have been found in nests of *Gerygone personata* have been the same as those of the Rufous-throated Bronze-Cuckoo (*Chalcococcyx russata*) as usually found in nests of the Large-billed Fly-eater (*Gerygone magnirostris*).

Cacomantis castaneiventris. — Chestnut-breasted Cuckoo. — Not common; more often heard than seen. They keep to the tropical scrub. We did not see them further out than the edge. We obtained several specimens. They feed on hairy caterpillars, and their

gizzards are hair-lined. The call is a plaintive trilling one, which bears a close resemblance to that of the Yellow-billed Kingfisher (*Syma flavirostris*).

Chalcococcyx russata (*Neochalcites russatus*). Rufous-throated Bronze-Cuckoo.—The common Bronze-Cuckoo of the Cape York Peninsula, and easily distinguished from other Bronze-Cuckoos by the vermilion ring of bare skin round the eye. The note is very like that of *C. plagosus*. The stomachs of specimens obtained contained either beetles alone or beetles and bugs. Only one nest containing an egg of this Cuckoo was found—that of *Gerygone personata*, in a small tree on the bank of a creek in the scrub. This Cuckoo was occasionally noted on the Archer River.

Eudynamis cyanocephala (*E. orientalis flindersi*).—This Cuckoo (the Koel or Flinders Cuckoo) was heard nearly every night, and occasionally by day, but, as it finds its food high in the roof of the jungle, where it is almost impossible to see it from below, it is seldom seen. At times during the day the birds can be very noisy when disputing possession of a feeding ground with other birds. They feed mostly upon wild fruits.

Scythrops novæ-hollandiæ (*S. novæhollandiæ novæhollandiæ*).—The Channelbill was also more often heard than seen, its loud screaming call attracting our attention as it flew overhead. The call somewhat resembles that of Leach's Kingfisher, and is sometimes heard at night.

Centropus phasianus (*Polophilus phasianinus phasianinus*).—The Pheasant-Coucal was seen frequently, and was more often heard. It usually frequents lightly-timbered grassy flats, or the outside edges of the scrub, where the grass is long and rank. When disturbed it seeks refuge in the grass, through which it can make its way rapidly. One day, when approaching one in a small tree on a grassy flat, it dropped from the tree straight down, as though it had been shot, and disappeared.

Pitta simillima (*Coloburis versicolor simillima*).—When at our camp during the dry weather we did not hear anything of the Lesser Pitta. We first heard it calling on Haggerstone Island, and towards evening saw one feeding on the shore near some mangroves. On our return to the Claudie the wet season had started, and we could hear them calling every night, and often during the day, especially towards evening. By imitating the call and keeping quiet, we found it quite an easy matter to bring the bird within view in the scrub. On the 31st December one was noted carrying material for nest-building, but it was not till the 17th January that we found our first nest; this was placed on the ground, in the angle formed by the buttresses of a big fig-tree growing in thick scrub over the river. The nest was a dome-shaped structure composed of sticks and skeleton leaves, with a platform leading up to the entrance. It contained three eggs. Sometimes the nests are placed well above the ground. One was well hidden in a niche about 9 feet up on a big fig-tree. The call is a three-note whistle and a sharp "Keow," repeated at intervals.

Pitta mackloti (*Erythropitta mackloti yorki*).—The Blue-breasted Pitta was not seen nor heard until after our return from the Barrier Reef trip. On the 23rd December we first heard its melancholy call, and later on the same day we saw one. The call became more frequent every day until by the 28th it was constantly heard from

different parts of the scrub. Like the other species, it could be called up to within view by imitating the call. On the 22nd January Mr. M'Lennan found the first nest, artfully concealed at about 5 feet from the ground on a platform made by a dead bough which had fallen and caught on a tree. The female was flushed from the nest. We visited this nest again on the 24th, and, approaching it quietly, got to within two feet of the entrance. The sitting bird then looked out and remained with head and neck out watching us for several minutes. It was only when we moved nearer that she darted out and away. The base of the nest was composed of sticks, forming a substantial foundation; the upper part of leaves and fibres, skeleton leaves roofing it over; the lining was of fine fibres—these are mostly fine aerial rootlets, of which there is an abundant supply in the scrub.

On the same day Mr. Kershaw and I were together in the scrub, and I was explaining to him the usual situation of a Pitta's nest, pointing to the angular space between the buttressed roots of a fig-tree, when a Blue-breasted Pitta rushed out from one of the angles. This nest was on the ground, and contained three eggs. Another nest of this species was placed on a shelf on the side of one of the buttresses of a big scrub tree, and was two feet from the ground. At first glance the nest looked an old and dishevelled one, as a good deal of foundation material had fallen to the ground, and the skeleton leaves roofing it looked sodden and old from having been wetted during the recent heavy rains. The bird, however, flushed from the nest, which contained three eggs at an early stage of incubation. The call is a mournful whistle of two notes.

Petrochelidon nigricans (*Hylochelidon nigricans nigricans*).—Mr. M'Lennan noted a few Tree-Swallows about the Archer River swamps.

Petrochelidon ariel (*Lagenoplastes ariel ariel*).—At Albatross Bay Cape York Peninsula, on the 27th May, 1914, Mr. M'Lennan notes that "a large flock of Fairy Martins flew across at dusk."

Micrœca flavigaster (*Kempia flavigaster terrareginae*).—The Yellow-breasted Fly-catcher is quite a common bird in open forest about our camp, where on one occasion I watched one feeding a fully-fledged young bird. The parent captured a large caterpillar on the grass, flew up to a branch, beat it about, then to another branch, repeated the procedure, and finally flew to the young one and gave it the caterpillar. The young bird tried to swallow it, but dropped it; the parent bird skilfully caught it before it reached the ground, subjected it to another knocking before again giving it to the young one, who this time managed with an effort to gulp it down.

These birds are also common on the Archer and Watson Rivers.

Smicromis flavescens (*Smicromis brevirostris pallescens*).—Mr. M'Lennan noted a few scattered pairs of Yellow-tinted Tree-Tits in forest country along the Archer River. This seems to be their eastern limit, as they have not been noted at Cape York, but are numerous in the Gulf country.

Gerygone magnirostris (*Ethelornis magnirostris cairnsensis*).—The long, pendent nests of the Large-billed Fly-eater were common objects all along the Claudie, hanging well over the water. Most of these could be reached from the boat, but several were well up out of reach even at high tide. Many were built so low that they became submerged when the river rose in flood when the wet season set in.

Nesting had commenced a month before our arrival, and continued till we left at the end of January. A few pairs were noted by Mr. M'Lennan on the Archer River.

Gerygone albogularis (*Gerygone olivacea flavigaster*). White-throated Fly-eater.—Mr. M'Lennan notes from the Archer River:—"A few scattered pairs in the forest."

Gerygone personata (*Pseudogerygone personata personata*).—The Black-throated Fly-eater is usually found in the scrub, hunting about amongst the leaves and branchlets for insects. The nest, though pendent, is pear-shaped and compact, quite unlike the elongate structure of *G. magnirostris*. One pair was seen building high up in the underscrub. A nest examined on the 18th January was hanging about 12 feet up in a small bushy tree; it contained one egg of the Fly-eater and one of the Rufous-throated Bronze-Cuckoo (*C. russata*). A few pairs were noted by Mr. M'Lennan on the Archer River.

Pœcilodryas superciliosa (*P. superciliosa superciliosa*).—The White-browed Shrike-Robin was found usually at the edge of the scrub, where the vegetation was thinned out, or else in small isolated, scrubby patches in open country. We found the first nest at the edge of a patch of scrub below our camp; it was placed at about 3 feet from the ground on some dead hanging vines, and was a very frail cup-shaped structure composed of aerial rootlets and fibres, and contained two eggs. A deserted nest not far from this was 8 feet up in a small shrub, and was made of fine fibres and decorated on the outside with occasional patches of lichen. Several old nests were found in patches of tea-tree in open heathy and lightly-timbered country near the sandalwood landing. A few pairs were also noted here. Each pair seems to have its own locality. The pair whose nest we found on the 31st December nested again a few yards away from the site of the first nest, and had a pair of hard-set eggs by the 21st January. On the 27th a pair was noted with fully-grown young.

On the Archer River Mr. M'Lennan noted a few pairs along the river, and found a nest containing two eggs on the 11th July.

Pœcilodryas pulverulentus (*Quoyornis leucurus leucurus*).—We heard the White-tailed Shrike-Robin calling from the mangroves at the mouth of the Claudie. It should be known as the "Mangrove Robin," as it is the only Robin constantly found in the mangroves.

Pœcilodryas albigularis (*Tregellasia leucops albigularis*).—The White-throated Shrike-Robin, though rare at Cape York, is quite common in the scrubs along the Claudie. It is usually found low down in the scrub, and has the habit of clinging to the side of a tree-stem, after the manner of the Yellow-breasted Shrike-Robin of southern parts. One became quite used to us at our top camp, and would visit us at meal times, perching on tent peg or rope. The first nest noted was in the scrub over the river from our main camp. Mr. M'Lennan found it before our arrival, but the birds deserted it, leaving one egg. The next was in scrub down the river; this was only 3 feet from the ground, in a slender shrub. It was a compactly-built, cup-shaped structure, and then contained one egg; another was laid on the following day, the 27th December. Another nest in course of construction on the 20th December contained two eggs on the 2nd January. Another nest on the 18th January contained

two newly-hatched young at 5 feet from the ground. A nest found 30 feet up also contained two eggs. This nest was composed of fine strips of bark and fibres, was lined with fine fibres, and had several pendent pieces of white paper-bark attached to the outside. These birds feed upon insects, especially small beetles, and seeds. The call is a harsh, grating "Cheet-cheet-cheet," repeated rapidly.

Kempiella kempi.—This Flycatcher first came under my notice on the 22nd November in some scrub at our top camp. Another pair frequented the edge of the scrub not far from our main camp. We watched a pair high in the scrub for an hour, trying to locate a nest, during which time we were unmercifully harassed by hordes of mosquitoes and March-flies; we had finally to retreat.

This bird has the ways of a Flycatcher, making short flights from branchlet to branchlet, and occasionally into the air to capture a passing insect, all the time uttering a subdued piping call which resembles "Zzt, zzt, zzt," given out in a low tone, and repeatedly. The yellow of its gape is plainly seen when calling with open mouth. We watched other pairs after this, but the nest still remains to be found.

Eopsaltria inornata (*Mattingleya griseiceps inornata*).—This interesting bird is also a denizen of the tropical scrub, and is fairly often seen. We failed, however, to find its nest, and this is not to be wondered at when its usual haunts are taken into consideration; these are the smaller branches and leafage of the largest trees in the scrub, which often support an entangled mass of climbing plants. The height from the ground, the dull light, and the density of the foliage make it a difficult matter to follow a bird's movements. It seems to feed mostly by picking insects from off the leaves, and finds its living at a much higher level than *Kempiella*. The usual note is a loud, clear whistle of from five to ten notes, and, as a call, two short ones. The stomachs of specimens obtained contained mostly small beetles. Mr. M'Lennan, after we left, found a young bird that had evidently dropped from the nest; the bird was in a tangle of lawyer vines, but no nest could be located.

Pachycephala falcata (*Lewinornis rufiventris pallidus*).—We noted this bird (the Northern Whistler) on several occasions, feeding in the gums and other trees in the open forest, often quite near our camp.

Pachycephala robusta (*P. pectoralis robusta*).—This northern form of the Yellow-breasted Whistler is found on all the islands along the coast on which there is any scrub, but is never seen on the mainland. On Haggerstone Island we noted quite a number of these birds, and secured specimens. Dissection indicated that they were not then breeding. They probably nest in early spring, as several old nests were seen in the scrub. I have, however, a set of eggs in my collection taken on Darnley Island on 30th December.

Rhipidura phasiana (*Rhipidura flabellifera phasiana*).—The Pheasant Fantail was several times noted, and specimens obtained, on the Archer River by Mr. M'Lennan.

Rhipidura intermedia (*Howeavis rufifrons kempi*).—The Allied Fantail was occasionally met with in the scrub. One nest was found in a patch of scrub near our top camp, finished, and the bird in attendance, but was afterwards found to be abandoned. It was at about 15 feet from the ground, on a small horizontal twig of a small scrub

tree. The nest was the usual small cup-shaped structure of fine bark, cobwebs, and fibres, with a short tail. A few were noted by Mr. M'Lennan along the Archer River. He notes:—"These birds do not seem to breed at Cape York. They are numerous there in November, but by December they are all gone. They reappear in February, staying a couple of months, only an odd one being seen after April."

Rhipidura isura (*Setosura setosa superciliosa*).—The Northern Fantail is a bird of the open forest, frequenting the smaller trees. Near the sandalwood landing on the Claudie, where there were small clumps of tea-tree in open forest, we came across several pairs, and an old nest was noted about 20 feet up in a small tree. It was a small cup-shaped structure placed on a horizontal branch, and composed of fine bark and fibres bound together with spider webs. Mr. M'Lennan found a nest 5 feet from the ground in a small wattle in open forest on the 15th December; it contained two slightly incubated eggs. On the Archer River Mr. M'Lennan found this species to be fairly plentiful.

Myiagra concinna (*Myiagra rubecula yorki*).—The Blue Flycatcher was a very common bird, mostly found in open forest. They were nearly always feeding in the trees about our camp. They are on nearly all the islands off the coast. We noted them on Quoin Island, the Forbes Group, and the Sir Charles Hardy Islands. On our way out to the Raine Island opening in the Reef, and just before reaching the Ashmore Banks, one of these birds alighted on our boat for a few minutes, and then resumed its flight in the direction of the mainland; it seemed to have come from the north-east. On Raine Island we also found one sheltering in the tower, on the morning of the 10th December, a female; in the afternoon there were two females in the tower.

On our return to camp on the Claudie these birds were seen to be very busy in the trees, especially after a fall of rain.

Myiagra latirostris (*M. latirostris kempfi*).—The Broad-billed Flycatcher keeps near the shore, and is nearly always found in or near the mangroves. Several pairs were noted on Haggerstone Island. Mr. M'Lennan states that it is always found in the mangroves, finding its living amongst the leaves. They usually build on a dead twig about 2 feet above high-water mark, over a channel in the mangroves. When building the male sits on a chosen twig and calls all the time that the female is away getting material, and on her return he leaves to bring his share of it. Mr. M'Lennan noted this species in the Archer River mangroves.

Machærirhynchus flaviventer (*M. flaviventer flaviventer*).—Boat-billed Flycatchers live amongst the leaves of the scrub trees, and are difficult of detection. The small basket-like nest is usually placed in a slender horizontal fork amongst the leaves of a scrub tree. The two nests first found were at a height of 30 feet in thick scrub; one contained two eggs, the other was deserted before completion.

Mr. M'Lennan and I found two nests on the 20th January in some scrub up the Claudie. Both were at a height of about 60 to 70 feet, and the birds were feeding young in both nests. We noted that the parent bird after each feeding removed the excreta and carried it to some distance from the nest before dropping it.

Mr. M'Lennan noted a few pairs in the scrub at Archer River.

Ardea lorealis (*Oryzopsis lorealis*).—The Frill-necked Flycatcher was fairly common on the Claudie, a denizen of the scrub, where its frail, open, basket-like nest is usually seen suspended, hanging in mid-air between two parallel rootlets or vines. The eggs can usually be seen quite plainly from below through the fine network of the nest. One nest to which Mr. M'Lennan climbed was suspended 8 feet below the horizontal branch to which the vines were attached. The birds remained on the nest until the climber got opposite her on the tree, when she flew off. This nest, though open, was compactly built of fibrous rootlets and other fibres, bound together with a very little cobweb, which served to attach a few odd pieces of lichen. It was lined with fine fibres.

On the 22nd December, after heavy rain had fallen, this species was very busy in the trees in the open forest round and even over our camp. The heavy rains seem to drive a lot of the scrub birds out into the open; the scrub gets too dank and dark for them. They seemed to find their food amongst the branches and leaves, searching these assiduously, and going from branch to branch.

Mr. M'Lennan noted a few pairs on the Archer River. He also noted that these birds seem to find their food by searching the trunks of trees and stems of vines, and he has often seen them hopping up round a big trunk searching the crevices of the bark for insects.

The female of this species differs from the male in having a black instead of a white chin.

Piezorhynchus nitidus (*Piezorhynchus alecto wardelli*).—The Shining Flycatcher is a bird of the muddy edges of the river, the mangroves, and tea-tree swamps, only rarely seen at any distance from the river-bank in the scrub. Several pairs were always to be noted on our going up or down the Claudie in our boat, running on the mud or flitting up into the trees or shrubs overhanging the water, the glossy black dress of the male contrasting with the rich rufous plumage of the female. The young males resemble the female in colouring.

The first nest containing eggs was found on the 16th January. It was placed in a hanging loop of vine under sheltering leafage, 10 feet above the water. On the following day, when waiting in the boat for Mr. M'Lennan (who had gone ashore to get some Pigeons for the pot), a male bird of this species, moving about anxiously, directed my attention to a nest placed on a small branch of an overhanging tree at about 8 feet above high-tide mark. On Mr. M'Lennan's return we examined the nest, and found it to contain one egg. The male bird shares the task of incubation with the female. We found another nest on the 27th January in a tea-tree swamp; it was placed 2 feet above the water in a small upright tea-tree, and contained three eggs. On the following day we found another nest in thick mangroves down the river, with the birds in attendance. Several other nests containing either young or eggs were examined. The male always seemed to be more agitated than the female when the nest was approached. The call is a pretty whistling one. The bird was common on the Archer River.

Monarcha albiventer (*Symphysichrus trivirgatus albiventer*).—The White-bellied Flycatcher is a common bird in the scrub. Several nests were noted after the commencement of the wet season; these are usually placed within easy reach, the highest being 15 feet up. A small upright fork is usually chosen as a site for the cup-shaped nest, composed usually of fine bark and fibres well bound together

with cobwebs. The eggs are invariably two in number. The newly-hatched young have the skin blue-black, with a trace of dark slaty down on the head, back, femoral and humeral tracts. The sprouting primaries also appear to be bluish-black, legs and feet slaty, bill black, eyes just opening, gape pale yellow. There were a few in the scrub on the Archer River.

Monarcha leucotis (*Carterornis leucotis*).—The White-eared Flycatcher is a rare bird in the extreme north. Though the type came from Cape York, Mr. M'Lennan has only seen one specimen in that locality. He noted one on the Pascoe River and one again on the edge of the scrub on the Claudie.

Monarcha carinata (*Monarcha melanopsis melanopsis*).—Mr. M'Lennan noted the Black-faced Flycatcher on the Claudie River on the 1st October, but there was none there when we arrived. He notes:—"They seem to come from the south in February and remain for about two months, when they are numerous; they then disappear."

Monarcha canescens (*Monarcha melanopsis canescens*).—Though rare at Cape York, the Pearly Flycatcher is quite common on the Claudie. Found both in the open forest and scrub, we frequently watched it searching the trees over and about our camp for insect life. On the 8th December one of these birds came into our tent on Raine Island, but went on, and was soon lost sight of amongst the host of sea-birds.

Graucalus melanops (*Coracina novæhollandiæ connectens*).—The Black-faced Cuckoo-Shrike was fairly plentiful on the Archer River during June. Mr. M'Lennan speaks of this bird as "plentiful at Cape York during the winter months, leaving about September and returning again at the beginning of the winter." We saw none on the Claudie.

Graucalus hypoleucus (*Graucalus hypoleucus stalkerii*).—White-bellied Cuckoo-Shrikes frequent the open forest, where they are often met with. One pair had a nest high up on the horizontal fork of a slender gum quite near our camp. Two other nests were noted in similar situations. Fairly plentiful on the Archer River. Mr. M'Lennan states that this species is a resident one, and is common all the year round.

Graucalus lineatus (*Paragraucalus lineatus lineatus*).—Mr. M'Lennan noted Barred Cuckoo-Shrikes on the Pascoe River, where they were feeding on fruiting trees at the edge of the scrub.

Edoliisoma jardinii (*Metagraucalus tenuirostris obscurus*).—Great Caterpillar-eaters were noted on several occasions on the Claudie in open forest. According to Mr. M'Lennan, they are fairly common at Cape York, but he saw very few on the Archer River.

Campephaga leucomela (*Karua leucomela yorki*).—This species was often noted in the trees by our camp. At our top camp I watched one for some time feeding on the berries of a small tree growing at the end of our tent. A pair was frequently noted about our main camp, and a nest found that had been blown out of one of the trees. According to Mr. M'Lennan, these birds are resident in the north, and are found in scrub, open forest, and mangroves in fair numbers; He noted a few on the Archer River.

Campephaga humeralis (*Lalage tricolor tricolor*).—White-shouldered Caterpillar-eaters were numerous on the Archer River during winter months. They are never common at Cape York, and we saw none on the Claudie.

Drymodes superciliaris.—Northern Scrub-Robins were often noted in the scrub, but they were very shy, and ran out of sight or flitted off to perch on some low tree on the slightest movement on the part of the observer.

I found a nest one day by accident. Mr. Kershaw and my son were searching some tangle from which a *Podargus* (Marbled Frog-mouth) had been flushed when I walked over and stood watching them. Happening to glance at the ground, I saw, almost at my feet, a nest of this Robin, containing a pair of eggs. The nest was on the side of a depression in the scrub amongst the dead leaves which everywhere carpet the ground. It was a neat, open bowl of sticks lined with rootlets and fibres and built up on the lower sides with a compact layer of sticks.

The birds are easily called up by imitating their call note and keeping quite still. This note is a long-drawn-out whistle. They find their living on the ground turning over leaves and other *débris*. The female is the nest-builder. Uncommon on the Archer River.

Pomatorhinus temporalis (*Pomatostomus t. cornwalli*).—Small flocks of the Northern Babbler were several times noted in open forest on the Claudie.

Scattered parties were noted by Mr. M'Lennan in open forest on the Archer River.

Cisticola exilis (*Cisticola exilis mixta*).—Common on the grassy flats. One noted carrying building material on the 19th January. The nest was fixed in the leaves of a small plant amongst the grass. On the 23rd January, when making our way homeward across a long grassy flat in drenching rain, we flushed another from her nest containing four eggs; this nest was almost round in shape, 2 inches in diameter, the base formed of fine grassy fibres and cobwebs, the sides and top a canopy of leaves sewn together with fine fibres and cobwebs. They get more numerous on the flats as the wet season advances. Common on the Archer in June. They are usually absent from the north in the winter.

Megalurus galactotes (*Dulciornis alisteri dulciei*).—A female of the Tawny Grass-Bird was shot in the long grass in one of the open pockets on the 8th November, and several were flushed after this at different times up to the commencement of the wet season, when the grass began to grow longer and denser; it was then a difficult matter to disturb them. Occasional in swampy places along the Archer River.

Sericornis minimus (*Sericornis longirostris minimus*).—The Little Scrub-Wren is common in the scrub, frequenting the undergrowth and fallen branches. One nest was found on a small shrub growing between the buttresses of a large fig. This had evidently been torn open and its contents rifled by some creature. Before our advent to the Claudie Mr. M'Lennan, on 18th September, flushed one from its nest in a vine clinging to a tree; it was 2 feet from the ground, and contained two eggs. A few were also noted in the scrub on the Archer River.

Malurus amabilis (*Leggeornis amabilis amabilis*).—We found Lovely Wren-Warblers frequenting the undergrowth of the scrub and also the low heathy country behind the tea-tree swamps near the Claudie. At our top camp a male and two blue females inspected us when at breakfast. We found a deserted nest suspended from a small shrub at about 18 inches from the ground. The cause of the desertion was not far to seek; it was near a tree named by us the "bird-lime tree." The pods of this tree fall off in bunches and exude a tenacious material like bird-lime. One of these pods near the nest had adhering to it the tail feathers and many of the breast feathers of a female *M. amabilis*, probably the owner of the nest. Only a day or two previously we found one of these bunches with all the tail feathers of a Rufous Fantail adhering to it. On the 26th January I found a nest of *M. amabilis* in the heathy country at the sandalwood landing; it was pendent from a dead shrub at about 18 inches from the ground. The female flushed from the nest, which contained three eggs. A few pairs were noted on the Archer River.

Malurus cruentatus (*Malurus melanocephala cruentata*).—The Red-backed Wren-Warbler inhabits the long, coarse grass of the open forest. There was always a troop of these birds near the edge of the scrub down below our camp. It was common also on the Archer River.

Artamus leucogaster (*Artamus leucorhynchus leucopygialis*).—There were always several White-rumped Wood-Swallows flying about Lloyd's Island and other islands along the coast on which there was any scrub. At Haggerstone Island several old nests were found in the tea-tree along the shore. Common on the Archer River in June.

Artamus melanops hypoleucus.—The Black-faced Wood-Swallow was common on the Archer River.

Artamus minor (*Micrartamus minor minor*).—The Little Wood-Swallow was common along the Archer River.

Colluricincla superciliosa (*C. harmonica superciliosa*).—The White-browed Shrike-Thrush was fairly common in the open forest. The type of *C. superciliosa* was obtained at Cape Grenville, half-way between Cape York and the Claudie River, and is so far the only specimen obtained that has a broad white eyebrow. All specimens, however, obtained from different parts of the Cape York Peninsula are alike, and Mr. Mathews groups them all under this sub-specific title. Scattered parties of from two to five birds were common in the forest country about the Archer in June.

Colluricincla parvissima (*Caleyia megarrhyncha griseata*).—We often watched Allied Rufous Shrike-Thrushes from our tent door, quietly but very busily engaged in searching the leaves and branches of the trees about our camp. They are also commonly met with in the scrub. Their nest both in the scrub and in the open. Our first nest was in a scrub tree at a height of about 30 feet; it contained a pair of eggs. On the same day we found a newly-finished nest out in the open in a small clump of tea-tree. Several others were afterwards found both in scrub and in open forest, usually low down, and containing either two or three eggs. The nest is a cup-shaped structure, usually placed low down in a small shrub or single-stemmed slender bush. It is composed of fibres, leaves, and aerial rootlets, and lined with fibres and rootlets. The nesting cavity is deep, to allow of the

branch swaying to a certain extent without emptying the contents out. The note of this bird bears a resemblance to that of *C. harmonica* of southern parts. A few were found in the Archer River scrubs.

Grallina picata (*Grallina cyanoleuca cyanoleuca*).—Mr. M'Lennan saw big flocks of Magpie-Larks on the burnt country on the Archer River in June, 1914. On the 4th April, 1915, he noted at the mouth of the Archer River:—"A small flock coming in from due west as we were going into the river."

Neositta striata (*Neosittella striata striata*).—Striated Tree-runners were noted on many occasions on the Claudie, feeding, after the manner of their kind, in the open forest.

Climacteris melanota (*Whitlocka melanota*).—Black Tree-creepers were in scattered pairs in the forest on the Archer River.

Zosterops albiventris (*Zosterops albiventris albiventris*).—The type of the Pale-bellied White-eye came from Warrior Island, in Torres Strait. We first noted it and obtained two specimens on the Forbes Group. Both were females, and the stomach contents were insects and berries. There were many of these birds on Haggerstone Island, where they were busily engaged feeding amongst the branches of several flowering trees. Two nests were found—one just started, the other ready for occupation. This species is never found on the mainland, preferring the scrubs on islands off the coast.

Zosterops tephroleura (*Zosterops lateralis ramsayi*).—This is the mainland Silver-eye. It was quite common along the edge of the scrub, whether bordering the open forest or overhanging the river. The broad ring around the eye is a conspicuous feature in this species. Curiously enough, although this bird is so common on the mainland, the type is labelled as having been obtained on Palm Island, Torres Strait.

Diœum hirundinaceum (*Austrodiœum hirundinaceum hirundinaceum*).—The Mistletoe-Bird was noted once on the Claudie. A male in very brilliant plumage was investigating a bunch of mistletoe growing on a chestnut. It was occasionally noted on the Archer River.

Pardalotus rubricatus (*Pardalotus rubricatus yorkei*).—A few Red-browed Pardalotes were noted along the river flats on the Archer.

Pardalotus uropygialis (*Pardalotus melanocephalus barroni*).—The Chestnut-rumped Pardalote was also seen on the river flats of the Archer River.

Cyrtostomus frenatus (*Cyrtostomus frenatus macgillivrayi*).—We first noted Sun-Birds at Cooktown wharf, where one was collecting building material from amongst some bushes, and then at Lloyd's Island, where we saw a female plucking kapok from its pod for the same purpose. Later again, when going up or down the Claudie, their nests were often seen hanging from some shrub or bough overhanging the river. On our return journey, Mr. Olive, of Cooktown, showed us where one of these birds was sitting in a nest attached to the string that pulled the shower in his bathroom. So that the birds could rear their brood undisturbed, Mr. Olive cut the string with nest on it and hung it to a hook in the ceiling. The birds did not seem

to mind the people who came into the room, the sitting bird rarely moving even when the bath and shower were used.

This species is also common on the Archer River.

Melithreptus albogularis (*Melithreptus lunatus vinitinctus*).—The White-throated Honey-eater was a common bird on the Claudie. Often in the trees about our camp, especially after heavy rain, when the trees and shrubs of the open forest were alive with birds. One could sit at the door of the tent and watch these birds together with *Glyciphila modesta*, *Monarcha canescens*, *Myiagra concinna*, *Arses lorealis*, *Colluricincla parvissima*, and many others.

According to Mr. M'Lennan, this species is equally common on the Archer River, where he found a pair building a nest on the 6th July; this was finished and contained two eggs by the 14th. It was in a paper-bark at about 20 feet from the ground.

Melithreptus lætior (*Melithreptus gularis carpentarianus*).—A few Golden-backed Honey-eaters were seen on the Archer River.

Macgillivrayornis claudi.—On the day following our arrival at camp on the Claudie Mr. M'Lennan and I came across this species in the scrub. It was Mr. M'Lennan's keen ear for bird-notes that first detected one that was strange to him and led to his finding the birds feeding high up in the scrub, where their small size and subdued colouring made it no easy matter to make out what they were. We, however, soon had two of them in our hands, and immediately saw that they were new and quite unlike any other genus of Honey-eaters. We afterwards found them to be fairly common in the scrub, but always high up in the leaves, where only the trained eye of one accustomed to look for such things can be expected to find them.

Myzomela erythrocephala (*Myzomela erythrocephala kempi*).—The beautiful little Red-headed Honey-eater frequents the mangroves and the scrub growing on the islands near the coast. We first met with it in the mangroves 50 miles south of Lloyd's Bay. On Haggerstone Island numbers were feeding on some flowering trees.

On the Archer River Mr. M'Lennan found them to be plentiful in the mangroves. He found one building in a tea-tree near his camp on 3rd August; by the 7th the nest was completed and contained one egg.

A nest forwarded by Mr. Vidgen is a small cup-shaped structure suspended by the rim from a small horizontal fork. It is firmly but openly woven throughout of fine wiry fibres, with a few cobwebs binding it on the outside; there is no lining. It measures 50 mm. in diameter at the brim, 30 mm. in external depth, and 25 mm. internal.

Myzomela obscura (*Melomyza obscura hartverti*).—Dusky Honey-eaters were common birds in the trees about our camp, where they seemed to be constantly searching the twigs and leaves for insects. They are also common along the edge of the scrub. At our top camp they were numerous in the trees along the river, and again at the sandalwood landing there were many of them feeding on the blossoming gums. Together with several other species of honey-loving birds, they were often seen congregated on the flowering heads of the umbrella-tree. They vary greatly in size. They were common also on the Archer River.

Myzomela pectoralis (*Cissomela pectoralis*).—On the Archer River Mr. M'Lennan noted Banded Honey-eaters as numerous in the blossoming trees. On the 25th July he flushed one from its nest 18 inches from the ground in a small bush; it contained two eggs.

Glyciphila modesta (*Ramsayornis modestus subfasciatus*).—Brown-backed Honey-eaters were very common birds in the trees and shrubs in the open forest. They usually nest in the tea-tree—a few before the wet season, but the majority after it has started. We found a number of their nests, mostly commencing or half-built, in a tea-tree swamp on the 9th January. They are usually suspended from the ends of branches over the water. By the 21st January the nests mostly contained eggs, usually a pair. These nests are formed wholly of the fibrous bark of the tea-tree and lined with soft flaky bark from the same tree. On the 27th we waded through the tea-tree swamps near the sandalwood landing and examined numbers of these nests. The first swamp had tall tea-trees in it and clumps of small tea-tree saplings, all standing in about 2 feet of clear water. It is on the saplings that this Honey-eater suspends its nest. The first nest examined contained an egg of the Square-tailed Cuckoo; most of the others, incubating eggs of the Honey-eater. In a deeper portion of the same swamp we found two nests, the first containing a Cuckoo's egg and two of the Honey-eater, the other an egg of each bird. Next day, in another swamp, we found nests containing newly-hatched young. The eyes of the young birds were not open; the skin flesh-coloured and naked, and the gape pale yellow. This bird is also common on the Archer River.

Glyciphila fasciata (*Ramsayornis fasciatus inkermani*).—A few White-breasted Honey-eaters were found amongst the blossoming trees on the Archer River.

Conopophila rufogularis (*Conopophila rufogularis queenslandica*).—A few Rufous-breasted Honey-eaters were noted on the Archer River.

Conopophila albogularis yorki.—The Red-throated Honey-eater seems to me to be an immature stage of the above species.

Stigmatops ocellaris (*Stigmatops indistincta ovida*).—Brown Honey-eaters were common on the Archer River, where they were feeding on the flowering paper-barks (*Melaleuca*). On the 25th July Mr. M'Lennan flushed one from its nest 4 feet from the ground in a small-leaved paper-bark; it contained two eggs just chipping.

Ptilotis notata.—The Yellow-spotted Honey-eater was common both in open forest and scrub. A few were in scrub along the Archer River.

Ptilotis gracilis (*Microptilotis gracilis*).—Lesser Yellow-spotted Honey-eaters were very common in the trees about our camp, and especially so after rain, which drives them out of the scrub. They are fairly plentiful on the Archer River. Mr. M'Lennan found a pair building in a *Melaleuca* overhanging the river. The eggs of this Honey-eater are beautifully and richly coloured.

Ptilotis versicolor (*Meliphaga versicolor versicolor*).—This fine Honey-eater (the Varied Honey-eater) is never found out of the mangroves, where it is quite common either along the shore or on the islands. When staying at any time at Lloyd's Island we were in the habit of sleeping on one of the cutters, anchored opposite the mangroves, in

order to escape the attentions of sand-flies and mosquitoes. Here it was a great pleasure to wake at dawn and listen to the glorious whistling of these birds before the shrieking of the Parrakeets and the "Hoo-hooing" of the Pigeons began to obscure all other sounds.

Ptilotis flava (*Broadbentia flava flava*).—Yellow Honey-eaters were not common, and were only occasional in the open forest on the Claudie. They were common on the Archer. They have a bold, loud, clear whistling note.

Trichodere cockerelli.—We first came across the Cockerell Honey-eater out towards the ranges from our top camp, in hilly country covered with stunted tea-tree. At the sandalwood landing, and between it and the tea-tree swamps, the country is sandy, covered with a low growth of tea-tree and other small shrubs under a larger growth of eucalypts and other forest trees. It was here that we found them nesting under ideal conditions. The eucalypts and some of the tea-tree were in flower, providing a plentiful supply of nectar and insects attracted to it, with the smaller forms of insect life abounding everywhere, especially after the advent of the wet season. The first nest containing an egg was found on 10th January by our cook within a few yards of the camp. It was built in a small tea-tree 18 inches from the ground. On the 26th, 27th, and 29th January we found a number of these nests containing eggs. Nearly all were placed in low bushes from 18 inches to 3 feet from the ground. One was picturesquely situated in a tangle of wild grape vine, which here grows freely in the open forest along the ground when it cannot find a tree to cling to. On the 27th the first nest containing young birds was found. The nest, usually firmly placed, is cup-shaped, and constructed of fine fibres and grasses. The eggs are invariably two. The young, when newly-hatched, have the skin yellowish; feather tracts are bluish-black, with a small amount of smoky-coloured down on the dorsal, humeral, and femoral tracts; culmen blackish; gape and mouth pale yellow; legs pale slaty; eyes not open. The note of the adult is a clear, sharp whistle, much like that of the *Glyciphila*.

This species was uncommon on the Archer River.

Xanthotis filigera (*X. flaviventer filigera*).—Streak-naped Honey-eaters were always to be seen about the edge of the scrub, where the leafage comes down to the view; they also came out into the open forest trees, especially during the wet season, and were common in the trees over and about our camp. The roof of the scrub, where the trees and interlacing climbers flower and fruit in the sunlight, and where there must be a wealth of insect life, is the hunting-ground of most of the scrub birds. This is usually at a height of from 70 to 100 feet, and well out of sight of anyone on the ground, and it is only at the edge, where the trees and climbers come gradually down to the ground, or along the banks of the river where it runs through the scrub and the trees and shrubs festooned by climbing plants with leafage of every form and colouring and adorned by flowers and fruits of every hue that one can get an opportunity of watching many of the birds. The nests of this Honey-eater are not easily found, as they are usually placed high in some bushy scrub tree, where they are hidden from below. We several times found old nests when cutting down such trees in the scrub to enable us to use the rope ladder. One nest was, however, detected near our camp at the

sandalwood landing, high in a slender gum-tree. Here, also, the birds were plentiful in the flowering gums, and one frequently saw them with a company of other honey-loving birds revelling in the feast provided by the flowering tops of the umbrella-tree. The eggs were invariably two in number, and varied much in colouring, but all had a beautiful glossy surface.

Mr. M'Lennan noted a few on the Archer.

Entomyza harterti (*Entomyzon cyanotis harterti*).—The Northern Blue-faced Honey-eater was common on the Archer River.

Tropidorhynchus argenteiceps (*Philemon argenteiceps kempi*).—Mr. M'Lennan saw numbers of Silvery-crowned Friar-Birds on the Pascoe River in messmate and blood-wood country.

Tropidorhynchus corniculatus (*Tropidorhynchus corniculatus ellioti*).—The Friar-Bird common on the Archer River is quite distinct from Victorian and New South Wales specimens; it is a well-marked subspecies.

Tropidorhynchus buceroides (*Neophilemon buceroides buceroides*).—Helmeted Friar-Birds were common in the open forest on the Claudie, where they nested in company with Fig-Birds and Drongos.

Philemon sordidus (*Microphilemon orientalis johnstoni*).—Little Friar-Birds were common at Cooktown and also on the Archer River. Several young birds obtained by Mr. Vidgen at Paira had the yellow throat of immaturity.

Anthus australis (*Anthus australis queenslandicus*).—Australian Pipits were noted on the Watson River by Mr. M'Lennan.

Munia castaneothorax (*Lonchura castaneothorax castaneothorax*).—Chestnut-breasted Finches were first noted after the wet season had started, on the 24th January. As Mr. M'Lennan and I came out of a swamp (where we had been wading) into long grass we saw a male carrying grass to a nearly completed nest in the grass. The female was inside acting as builder whilst he brought the material. The nest, composed of dry grass, was somewhat spherical in shape, and supported in the upper part of the strongly-growing grass. The stems of this grass are stiff, and easily able to support a fairly heavy nest at 2 to 3 feet from the ground. The birds were common on the Watson River, where they were breeding in April.

Ægitha minor (*Ægitha temporalis minor*).—We saw Lesser Red-browed Finches on several occasions on the Claudie, and also saw their old nests. Mr. M'Lennan records them from the Archer River.

Bathilda ruficauda (*Bathilda ruficauda clarescens*).—Mr. M'Lennan met with the Red-faced Finch on the Watson River. On the 22nd April, 1915, he flushed one from its nest placed in a stunted gum sapling, 3 feet from the ground; the nest contained five eggs. The birds were quite common.

Poephila leucotis (*Neopoephila personata leucotis*).—White-eared Grass-Finches were common on the Archer River.

Poephila gouldiæ (*Poephila gouldiæ armitiana*).—Gouldian Grass-Finches were common on the Archer River in both phases of plumage.

Poephila cincta (*Poephila cinctus nigrotectus*).—Black-throated Grass-Finches were common on the Archer River, where Mr. M'Lennan found them nesting in June. On the Watson they were nesting

freely in April, and were mostly found frequenting the *Pandanus* flats.

Neochmia phaeton albiventer.—This new sub-species of the Crimson Finch we first found on 31st December in a small water-course running through long grass towards a large patch of scrub on the Claudie. We did not come across it again until the 19th January, when we first secured a specimen in *Pandanus* and long grass country near a swamp. Two days later we saw a few more, again in the same class of country. Mr. M'Lennan found it to be common on the Archer River, where it was nesting in April. He found his first nest, containing four eggs, in a *Pandanus*, and it was mostly in the *Pandanus* flats that he found them. He also noted them catching and eating flying termites.

Stizoptera bichenovii (Stizoptera bichenovii bichenovii).—When at Cooktown on our way up the coast we noticed several Banded Finches in some small trees near the wharf. They were common on the Archer River in June, where several nests containing eggs were found. They were also nesting in April on the Watson.

Erythura trichroa.—On the 11th January, whilst walking round between the side of Lloyd's Island and the mangroves, Mr. M'Lennan saw a new Finch. It was feeding in the grass, and took refuge in the mangroves. We all went along next morning to look for it, but only got a glimpse of it before it disappeared into the mangroves. We went along to the end of the island, and on our return Mr. M'Lennan secured the bird. It is grass-green in general colour, with a blue face, maroon tail and upper coverts. This species is found in the Moluccas, Papua, and the Caroline and Solomon Islands.

Oriolus flavicinctus (Mimeta flavocincta kingi).—The Yellow Oriole was a common bird on the Claudie. On a bright day in the scrub the pleasant liquid bubbling notes are heard on every side. On the 8th January we found a nest on a tree near the bank of the river at about 20 feet from the ground; it contained the usual clutch of two eggs. On the 28th of the same month, when wandering in dense mangroves down the river, we came across another nest hanging in a small horizontal branch at about 8 feet from the ground. The nest was constructed of strips of paper-bark and lined with fibres and rootlets. It also contained eggs. Judging by the stomach contents, the usual food consists of wild fruits. A few were noted in the scrub along the Archer River.

Oriolus affinis (Mimeta sagittata subaffinis).—The Northern Oriole was noted at Cooktown. A few were noted on the Archer River in June in the open forest.

Sphecotheres flaviventris (Sphecotheres flaviventris flaviventris).—The Yellow-bellied Fig-Bird was common all through from Cooktown. At the Claudie it frequented both scrub and open forest. This species usually nests in the same tree as the Drongo and Helmeted Friar-Bird, in the open forest. It feeds mostly upon wild fruits. A few were noted on the Archer River.

Chibia bracteata (Dicruropsis bracteatus bracteatus).—Spangled Drongos were first seen in the Townsville Gardens. On the Claudie they were common both in the scrub and open forest. Nesting com-

menced about the 23rd December, thence afterwards it continued until well on into January. These birds are insectivorous. A few were seen along the Archer River.

Aplonis metallica (*Metallopsar metallicus purpurascens*).—We first arrived at Lloyd's Island at midnight. On the following morning we were witnesses to the great numbers of Shining Starlings that left the mangroves for the mainland. The Lorikeets (*Trichoglossus novæhollandiæ septentrionalis*) are the first to make off, to be soon followed by the *Calornis* (Shining Starlings), who leave in larger and larger and more compact flocks, which whirl up and down and round before making off to the mainland. Their flight is very rapid, and before all have left the Pigeons begin to leave also. The way in which they leave the island is, however, not to be compared to the curious and wonderful manner of their return, which we were witnesses of on a later visit to the island.

We first noted these birds nest-building on the 6th November on a tall deciduous scrub tree on which was a deserted nest of the Red-backed Fish-Eagle. The tree usually chosen for the purpose is a tall one in the scrub. Here on the Claudie the tree is usually one that loses its leaves in the late winter and spring, which corresponds to the dry season, and comes into flower before the leaves are put out at the commencement of the wet season. Such trees are also the favourite nesting sites of *Ectectus pectoralis macgillivrayi*, *Cacatua galerita*, and *Astur novæ-hollandiæ*.

The Starlings are noisy creatures, keeping up an incessant chatter when building and flying to and fro to their nests. We could always tell when a Goshawk was returning to its nest by the sudden cessation of the chattering, which would not be resumed until the Hawk had either settled on its nest or taken its departure. The ground under these trees is carpeted with wild nutmegs from which the mace has been digested by the birds, and also by the stones and seeds of many other fruits. Even when in a nutmeg or other feeding tree the same constant chatter is kept up, the birds darting rapidly through the trees and frequently quarrelling with one another.

On our next visit to Lloyd's Island, on the 29th November, Mr. M'Lennan directed our attention to the manner of their return to their roosting-place in the mangroves at nightfall. It happened just before dark, after the main body of Pigeons and Parrots had passed over, and in a way that has earned for this bird the local name of the "Whirlwind-Bird." We first notice a quickly-moving, dark, cloud-like body on the horizon over the mainland. The cloud, a compact mass of these birds, moves high up into the sky, then down and forward with a rush, upwards and backwards again in ever-changing form. At first a compact body, it lengthens out into the sinuous form of a snake, then closes up again to assume the shape of an aeroplane, with two outspread wings and a central body, then as a spiral, going rapidly upwards like a willy-willy of the plains, to gather together again as a dumb-bell or some other fantastic shape, or to spread out until the whole mass becomes diaphanous and invisible, instantly to become a concrete form again. Going through these performances, the flock has come high up over the sea, and when within measurable distance of the island it dives down to the level of the water and rushes with incredible rapidity towards the mangroves, into which it seems to hurl itself, to roost. Whilst this is happening to one flock, others of larger or smaller dimensions have

appeared on the horizon, and all go through the same evolutions before finally seeking a resting-place in the mangroves.

Shining Starlings are not wholly fruit-eaters, as we noticed a number of them busily engaged in capturing flying insects in open forest. When at Raine Island, on the 10th December, one of these birds was found sheltering in the tower.

Ailurædus maculosus (*Ailurædus melanotus maculosus*).—We seldom saw the Spotted Cat-Bird in the scrub, but frequently heard its cat-like cries. When first we came to the Claudie dozens of old nests were seen in the scrub, but it was not until after our return from the islands that we found a fresh one; this contained a pair of eggs on the 21st December, and was 15 feet up in a small scrub tree. The nest was open, constructed of sticks, and lined with bark fibre.

Chlamydera cerviniventris (*C. cerviniventris cerviniventris*).—Fawn-breasted Bower-Birds are shy, and more often heard than seen. At the sandalwood landing an old disused bower was on the bank of the river right by our camp, with a still older one a few yards distant. Mr. M'Lennan found a new one a couple of hundred yards further back. It was a very compact structure of closely-interwoven sticks and twigs—so closely, that the inside walls were quite smooth, and so secured to the floor and platforms at either end that it could be moved *en masse*. On the platforms were collections of glossy green berries, and a number are also stuck along the top of the side walls. The old and withered berries had been removed to a place a couple of feet away from the bower, and formed quite a small heap. Every morning fresh berries are brought to the bower and the withered ones are removed. Two days after finding this bower Mr. M'Lennan and I, when out with two blacks looking for some wild bees' hives, heard a Bower-Bird calling, and found a fine new bower in a small clump of tea-tree in open forest country. It was very compactly built. The actual bower was 14 inches long by 13 inches wide; one wall was 6 inches high, the other 4. The passage was 3 inches in width, with perfectly smooth inside walls. The front platform was 14 inches by 12 inches, and was covered with fresh green berries, about 100 in all. These were also stuck in along the tops of the walls on the inner edge, and there were a few on the rear platform, which measured 10 inches by 7 inches.

When at Cape Restoration, on the 13th January, we listened to one of these birds giving voice to a great variety of notes, and found that she had a fully-fledged young one with her.

Mr. Kershaw had the first bower removed on the 9th January for transport to the Melbourne Museum. Seventeen days afterwards the birds had a fine new bower all complete a few feet from the old site.

Chlamydera orientalis (*Rogersornis nuchalis nuchalis*).—The Queensland Bower-Bird was fairly plentiful on the Archer River. In July Mr. M'Lennan found a bower in a small patch of scrub. Length, 2 feet; breadth, 18 inches; height, 15 inches; roofed over with a thin layer of twigs, forming a tunnel-like run 9 inches high by 6 inches wide, decorated with *Helix* shells and pieces of a white clayey stone. In the centre of the run was a circular depression about 4 inches in diameter, filled with fresh and rotting green fruit, $\frac{3}{4}$ -inch long by $\frac{1}{2}$ -inch in diameter.

Ptiloris alberti (*Craspedophora magnifica alberti*).—On my second day on the Claudie, when Mr. M'Lennan and I were on our way down the river in a dinghy, a female Albert Rifle-Bird flew across in front of us, closely followed by a fine male. On our way back we tied up the boat and entered the scrub. We soon found a ragged-looking nest 20 feet up in a fork of a thin tree. A female Rifle-Bird flew from it, and the nest was found to contain a pair of eggs. Later, a male perched near us, and was so intent on probing and examining the broken end of a dry limb that he took no notice of our presence. Soon after, Mr. M'Lennan, by imitating the loud, insistent whistle of the male, succeeded in calling up three females, and for an instant a beautiful male, with rustling plumage; they were, however, shy birds even here, where they had not been molested, and soon vanished into the recesses of the scrub. Such was my introduction to this species on the Claudie.

On the 7th November another nest was found 10 feet up in a small scrub tree. It was constructed of broad leaves and twigs wound round with a parasitic climbing plant pulled in its green condition. The lining was of fine midribs of leaves and fibres. Young birds were found in a nest on 9th November. One nest was found neatly placed on the top of a stump formed by a small tree having broken off at 3 feet from the ground; the stump had sprouted, the sprouts forming a canopy of leaves over the nest. A fully-fledged young bird flew from this nest, but was captured and conveyed to our camp. He escaped into a tree near by, where he was found and fed by the parent birds on the following day. The recently-hatched young are fed upon insects, grasshoppers and beetle remains being found in one that accidentally fell from a nest and was killed.

In Mr. M'Lennan's opinion, the note of this species on the Claudie differs remarkably from its note as heard at Cape York. The Cape York bird, for the greater part of the year, gives voice to two loud, sharp whistles. During the breeding season there are three loud, clear whistles and a long-drawn, diminishing note, whereas with the Claudie bird the note is the same throughout the year, and strikingly different from that of the Cape York bird.

Phonygama gouldi (*Phonygammus keraudrenii gouldii*).—The Manu-code—for no better or more euphonious vernacular name could be given it—is fairly common in the scrubs of the Claudie River. It keeps, however, to the roof of the scrub, and is not easily detected. With its double crest and shining black plumage it is a handsome bird. The irides are orange, bill yellow, gape black, mouth and throat blue-black, feet and legs black, and soles of feet greyish.

Corvus cecilæ queenslandicus.—On the 24th November, whilst Mr. Kershaw was skinning a wallaby at our top camp, a Crow's voice was heard—a harsh, short "Ahr, ahr." Two flew over, and one perched on a tree; we failed to get it for a specimen. Mr. M'Lennan had previously obtained specimens, and several since, both on the Claudie and on the Gulf side of the peninsula. All these have white irides, unlike the Crows of southern parts, whose irides are hazel. We saw more of these birds at the sandalwood landing, and over the beach opposite Lloyd's Island. Mr. M'Lennan found them to be quite numerous on the Archer River.

Strepera graculina (*Strepera graculina robinsoni*).—On several occasions on the Pascoe Mr. M'Lennan caught sight of a pied Bell-

Magpie, which he supposed was referable to the above species, but he did not succeed in getting a specimen.

Cracticus rufescens (*Melloria quoyi jãrdini*).—The Black Butcher-Bird is a very shy bird, and, though common, it is not often seen. It mostly keeps to the scrub. Mr. M'Lennan noted a pair on the Archer River, in the mangroves.

Cracticus nigrogularis (*C. nigrogularis inkermani*).—The Black-throated Butcher-Bird was fairly plentiful in the forest country bordering the Archer River.

Cracticus mentalis (*Bulestes mentalis kempi*).—The Black-backed Butcher-Bird was fairly plentiful in the forest country along the Archer River.

“Alike in Difference.”

By E. J. BANFIELD, R.A.O.U., DUNK ISLAND, QUEENSLAND.

FOR many years past notes have been taken of the dates of arrival and departure of Nutmeg-Pigeons and Metallic Starlings at Dunk Island, each observation confirming the opinion that these delightful birds, so unlike in appearance and character, have two conspicuous qualities in common: both are gregarious, both wondrously precise in habit; both come to these parts from regions nearer the equator early in August, and fly to warmer regions late in March. Though they have not, so far, been observed earlier than August, on two occasions during twenty years casual and embarrassed flocks have lingered after March, one being seen well on in April and another towards the end of May.

This season the first appearance of the heralds of each species were recorded on 8th August, during anything but welcoming weather. The atmosphere was cool and dull, with high winds and driving rain—just such conditions as seem to be abhorrent to sun-loving birds seeking rest and refreshment after long and turbulent flight. The Pigeons flew about excitedly, as if not too sure of locality, for had they not been taught by experience to expect serenity and light and warmth? The Starlings darted in droves through the forest, shrieking distractedly, and disappeared. Two days after, when the sun began to resume control of local meteorological affairs, the Starlings came again, to forthwith tear in haste and flurry the fragments of last year's nests attached to the Moreton Bay ash tree in the forest. Many new nests were built with all possible speed, and the love-making in the tall, slim tree which has been time out of mind the headquarters of the most neighbourly colony showed off the sprightly and beautiful birds in most engaging and fantastic attitudes. On 26th September dozens of broken egg-shells were found under the tree. There will be successive broods until the end of January. A pair of Sulphur-crested Cockatoos still nests in the Starling tree, and the Red-backed Sea-Eagles' eyrie close along-

side is bigger than ever. This one tree has therefore a motley and worthy annual output.

The Nutmeg-Pigeons, less vivacious, and more suspicious of man—for do they not represent easy sport to pot-hunters who raid their nesting resorts?—have crowded Purtaboi, the islet in the bay. Before sunrise a murmur arises from the islet, soon to develop into a loud and melodious sound which might be likened to that of water falling from a height into an echoing ravine among hollow rocks, and at the first gleam of the sun the swaying trees shed their snowy blossom as flock after flock swoops seawards and sails across the blue channel to accustomed feeding-grounds among the ranges of the mainland. The few that remain on the islet are silent during the day; but when the male birds begin to strut and to "Coo-hoo," and to fly with clicking wings, the sounds from Purtaboi, blended and mellowed, will contrast with the unrestrained shriekings of the black, burnished, red-eyed Starlings. An hour before sunset the Pigeons begin to return. The sighing casuarinas are soon overweighted by masses of plump white birds. The living snow settles at dusk and melts at dawn.

Diary records show dates of departure and arrival of Metallic Starlings and Nutmeg-Pigeons during recent years to be as follows:—

1912.—12th August, Starlings arrive; 13th, Nutmegs arrive. 18th December, two Red-backed Sea-Eagles roosting in Moreton Bay ash tree this evening; Starlings seem to have deserted the tree. 20th December, Starlings deserted Moreton Bay ash tree, after several half-hearted attempts to re-establish colony.

1913.—12th March, have not seen Starlings or Nutmegs since 10th. 4th August, heard first of the Starlings; 11th, Starlings have begun to lay in accustomed tree, Red-backed Sea-Eagles also begin housekeeping; 24th, Nutmegs in great numbers—must have missed observation of the first flocks.

1914.—26th March, Starlings manœuvring in great flocks, preparing for northward flight; have not seen Nutmegs since 16th. 10th August.—Starlings return; few in the "nestful tree"; first of the Nutmegs seen.

1915.—25th March, have not seen Nutmegs during last few days; note this day for departure. 1st April, saw flock of Starlings—last. 14th August, heard Starlings, about a week earlier than usual; 29th, Starlings begin to build; Nutmegs arrive in large flocks; probably the heralds came a fortnight ago, escaping notice.

1916.—25th March, Starlings depart; 28th, Nutmegs depart. 1st August, Starlings make their first appearance; 2nd, Nutmegs this afternoon on Purtaboi.

1917.—12th April, Nutmegs on Purtaboi, latest date on record save for the belated flocks specified. 4th July, Sea-Eagles begin

to build in Starling tree, Cockatoos occupying spout in same tree. 8th August, Starlings and Nutmegs arrive. 26th September, eggshells beneath Starling tree.

On the last day of September this year an attempt was made during a boating trip to compute the number of Nutmeg-Pigeons passing from the mainland to the Family Islands, a few miles to the southward of Dunk Island. The birds in each trailing flock, as well as the number of flocks per minute, were averaged, it being estimated that 20,000 passed in an hour over a strip of ocean a mile wide. Since the aerial pathway favoured by the birds from the mainland to the islets is about three miles wide, not less than 60,000 travelled over it. The parties to the estimate agreed among themselves that it had the merit of being conservative.

Metallic Starlings may be even more numerous than Nutmeg-Pigeons, for their colonies, though not so concentrated as those of the Pigeons, are more fruitful. The Nutmeg hatches a single egg at each successive brood during the season; the Starling's clutch averages four. The first brood may be born in September; the final as late as the end of February.

May both the beautiful and entertaining birds be long one of the most edifying features of the tropical coast!

Further Notes upon Cormorants, their Food, Temperatures, &c.

BY CAPT. S. A. WHITE, M.B.O.U., R.A.O.U.

ONE or two articles having appeared in *The Emu* from my pen upon this subject, it may be interesting to the readers of *The Emu* to see further information upon a subject the writer has been following up for some time past.

The Messrs. Rymill Bros. having most kindly arranged to take Dr. Morgan and the writer to a well-known Cormorant rookery in the mangroves, we left on the evening of 22nd March, 1917, in the motor yacht *Avocet*, and reached the mangrove swamps next day and at once started operations. Only two species of Cormorants were met with—*Hypoleucus varius hypoleucus*, the orange-faced bird, and *Microcarbo melanoleucus* (Little Pied Cormorant). Twelve specimens of the larger species were taken, and five of the smaller. I am indebted to my friend Dr. A. M. Morgan for the temperatures, and we spent Saturday morning taking measurements, dissecting, and making examination of stomach contents, which resulted as follows:—

Stomach contents, *Hypoleucus v. hypoleucus*.—No. 1, leatherjacket (*Monacanthus*, sp.), box-fish (*Aracana*, sp.), weed-fish (*Odax waterhousi*), trumpeter (*Atypechthys strigatus*); No. 2, many fish remains, most likely same as preceding one; No. 3, quite empty; No. 4, fish remains like weed-fish; No. 5, fish remains, parasitic worms; No. 6, portions of squid, one box-fish; No. 7, a small

shell, brown weed-fish, shrimps; No. 8, brown weed-fish, parasitic worms, box-fish; No. 9, fish-bones, particles of shells; No. 10, weed-fish, leatherjacket, box-fish, shell grit; No. 11, a species of flathead, 9 green weed-fish; No. 12, parasitic worms, seaweed, fish-bones.

Temperatures.—No. 1 106.2, No. 2 106.4, No. 3 105.2, No. 4 105.0, No. 5 106.2, No. 6 105.4, No. 7 109.0, No. 8 106.0, No. 9 109.0, No. 10 109.6, No. 11 108.6, No. 12 107.6.

Measurements and Weights.—All measurements are in centimetres and weights in lbs.:—No. 1, ♂, weight $5\frac{1}{4}$, length 83.50, spread 129.90, wing 58.25; No. 2, ♂, weight 4, length 79.75, spread 126.75, wing 55.60; No. 3, ♂, weight $4\frac{1}{2}$, length 81, spread 128, wing 56.75; No. 4, ♀, weight $3\frac{1}{2}$, length 74.75, spread 121/75, wing 53.25; No. 5, ♀, weight $3\frac{3}{4}$, length 75.80, spread 118.25, wing 53.25; No. 6, ♂, weight $3\frac{3}{4}$, length 82.25, spread 126.75, wing 56.75; No. 7, ♂, weight 5, length 81, spread 133, wing 58.75; No. 8, ♂, weight $4\frac{1}{2}$, length 78.30, spread 126.75, wing 56; No. 9, ♂, weight $4\frac{1}{2}$, length 81, spread 128.75, wing 56.75; No. 10, ♂, weight $4\frac{1}{2}$, length 83.50, spread 131.75, wing 58.25; No. 11, ♀, weight 4, length 78.30, spread 124.75, wing 55.25; No. 12, ♂, weight $4\frac{1}{2}$, length 81, spread 128, wing 58.

Microcarbo melanoleucus.—Stomach contents:—No. 1, Two weed-fish; No. 2, eight small crabs; No. 3, remains of small fish; No. 4, small fish; No. 5, one brown weed-fish.

Temperatures.—No. 1 105.2, No. 2 107.0, No. 3 107.0, No. 4 106.0, No. 5 105.4.

Measurements and Weights.—No. 1, ♂, weight $1\frac{1}{2}$, length 58.75, spread 87.25, wing 41.75; No. 2, ♂, weight 1, length 58.25, spread 87.25, wing 40.50; No. 3, ♀, weight 1, length 57.0, spread 89.25, wing 40.0; No. 4, ♂, weight $1\frac{1}{4}$, length 57.0, spread 88.0, wing 39.50; No. 5, ♂, weight $1\frac{1}{2}$, length 62.0, spread 97.50, wing 44.25.

As far as we could tell, neither species was nesting, but many specimens of the larger variety showed signs of breeding by having the bill black, bright green under the eye, and gular pouch purple.

Would like to draw attention to the fact that only one (and that doubtful) marketable fish was found out of 17 specimens examined. Where are all those quantities of splendid fish some fishermen tell us these birds devour? The fish here called a trumpeter is not the Tasmanian edible fish, but a non-marketable fish found in South Australian waters.

A Curiosity.—Lately Mr. Frank Mack, of Narromine, N.S.W., sent me a curiosity in the shape of a Welcome Swallow's (*Hirundo neoxena*) nest built upon the flat side of the bill of an Eagle-Hawk (*Uroaetus audax*). The Eagle's body had hung for some time in an outhouse, and the Swallows had evidently considered the head to be a suitable nesting-site.—HENRY L. WHITE. Belltrees, N.S.W., 5/10/17.

The Ground-Parrot (*Pezoporus formosus*).

BY A. H. E. MATTINGLEY, C.M.Z.S..

THESE beautiful birds are to be sought where the wind goes alternatively sobbing, soughing, whistling, and sighing through the harsh herbage, which renders the bird's light-timbred call difficult of segregation. This separation from other bird-calls and subsequent fixture of the position of the Ground-Parrot's voice is a requisite essential to successful observation and the discovery of the bird and its place of abode without its being startled by being forced to fly up to disclose itself, which act is contrary to its desire and usual habit of comporting itself.



The Ground-Parrot.

PHOTO. BY A. H. E. MATTINGLEY, C.M.Z.S.

This interesting bird is local in habit, and can usually be found in the same area of country—moorlands or coastal plains. To seek out a bird one should requisition the services of a well-trained pointer or setter, which can help one considerably to find and flush the bird when desired, or to "point" it out. These birds have a "scent," and dogs can readily "pick up" their trail, run them down, and "set" them. As they go singly or in pairs, and are sparsely distributed, a dog that "ranges" well will soon indicate their presence or absence.

In selecting its home, the Ground-Parrot naturally frequents a type of country that affords a close covert as a protection from observation from above, and in harmony with its own colour;

and as well it chooses a class of growth that permits of the free exercise of its habit of running rapidly through it, but free from observation; and a place which also contains its food supply, consisting mainly of the seeds of grasses and shrubs and tender shoots of plants.

The Ground-Parrot has been occasionally encountered in swampy places on uplands, and has also been found on open plains and swampy areas on mountains. Like its congener, the Night-Parrot (*Geopsittacus occidentalis*), the Ground-Parrot is doomed to early extinction on the mainland of Australia, especially in those parts whereon the foxes are encroaching, in the course of the next few years, as will be shown later on.

The call of the Ground-Parrot is issued in a somewhat warbling fashion, harmonious withal, but conveying a sense of sadness well befitting the nature of its environment. On windy days the note is rarely heard, no doubt on account of its want of fulness and carrying capacity. It appears to be used solely in calling to its mate. As far as could be ascertained, it uses its call as infrequently as possible. The following is the call set to music, and is repeated softly by the bird two or three times generally:—



Repeat three times.

The notes, therefore, of the last remnants of the *Pezoporus* are not easily detected.

Ground-Parrots lead a terrestrial life solely, and are never found in trees. I have seen a bird, however, climb up to the height of about one foot on a shrub after some seeds growing thereon. When flushed they fly rapidly away, somewhat after the whirring manner of a Quail, but not so direct, since they zigzag in their course. No fright screech is uttered either when rising from the ground during flight or on capture. When handled the birds bite savagely in defence of their liberty. When flushed they mount up in the air about 4 or 5 feet—usually a foot or two above the herbage—and proceed from 30 yards to even as far as 200 yards should the intervening ground flown over be too open or otherwise unsuitable to alight on as a covert. The late Mr. A. J. North records that on one occasion he noticed birds that he had flushed alight on a fence.

I am informed by an old Quail-shooter who lived by hunting that his retriever dog used, years ago, when the Parrots were plentiful, to run down these birds and frequently capture them. This evidences the fact that it is a difficult matter to flush the birds. I have noticed, once birds have been flushed, if there be plenty of cover available, the Ground-Parrot will not flush again, expose itself, and fly away, but it prefers to trust to its powers of running to place itself beyond danger. They sleep on the

ground at night, and are therefore easily caught by prowling foxes, since the strong scent emitted by them attracts the wily animal. As they nest on the ground, the fox and other predatory creatures, such as domestic cats gone wild, dingoes, native cats, snakes, and lizards have little difficulty in obtaining their eggs or young.

An old correspondent of mine, Mr. Percy Peir, a well-known aviculturist, of Sydney, has kept a pair of these Parrots alive for some years in an aviary where the conditions were more suitable than in the ordinary bird-cage, and where they could run about on the ground.

Ground-Parrots are exceedingly active and graceful in contour, and the colour of their plumage is as distinctive as the livery of many other Australian Parrots is gaudy. The adult plumage of both sexes is similar, being dark grass-green, or, to be more correct, a bright Rinnemann's green, barred alternately with black and yellow, on the upper surface, and a yellowish-green, barred also alternately with black and yellow, on the lower and abdominal surfaces. The forehead is surmounted with a distinct scarlet-tinged nopal red patch. The feet (which are somewhat large, and have four toes) and legs, adapted for running, are of a fleshy-pink colour tinged with blue-black.*

Their food consists largely of grass-seed, such as that of kangaroo-grass (*Anthistiria*), fruit of the tea-tree (*Melaleuca*), wattle (*Acacia*) seed, and tender shoots of grasses. I am informed by a Quail-shooter that the flesh of the Ground-Parrot is excellent eating, and equal to that of Quail.

The breeding period ranges through the months of September, October, and November. The eggs usually number three or four to a clutch, are round in form like most Parrots' eggs, and of a glossy white colour, with a shell of fine texture. It is somewhat remarkable that the eggs are not coloured, like those of most ground-nesting birds. Coloured eggs afford some modicum of protection from the prying eye of an enemy. This fact is all the more noticeable when we know that the nest of the Ground-Parrot is simply a somewhat deep hollow in the ground. The nest, which is composed of grasses, is placed in a grass tussock or in a mixture of heath and coarse grass, which, overlapping as a rule, forms an overhead canopy.

Three varieties or sub-species of the Ground-Parrot are recorded for Australasia, viz.:—*P. formosus*, Latham—range, South Queensland, New South Wales, Victoria, South Australia; *P. flaviventris*, North—range, Western Australia; *P. leachi*, Mathews—range, Tasmania.

*Little seems to be recorded with reference to the immature plumage of *Pezoporus*. The red patch on the forehead is missing in the immature birds during their infancy, but is represented as they develop by a small dull yellow patch, visible in both sexes. The plumage of the ventral surface generally is more suffused with yellow, whilst the dark marking of the feathers of the throat is much more pronounced.

Notes on Some of the Birds Met with in the Neighbourhood of Pungonda,

ON BORDER BETWEEN SOUTH AUSTRALIA AND VICTORIA, 25 MILES
SOUTH OF RENMARK, BETWEEN 11TH AND 14TH SEPTEMBER,
1917.

BY EDWIN ASHBY, M.B.O.U., WITTUNGA, BLACKWOOD, S.A.

THE neighbourhood visited was mostly "pine" country—that is, the country was undulating, extensive red sand-ridges running east and west, with broad flats between. The low-lying portions of the flats were covered with salt-bush, the sand-ridges with exceptionally fine, well-grown native pines (*Callitris*). On the South Australian side the pine ridges were well grassed, also the slopes and higher parts of the flats. The Victorian side showed a complete contrast, evidently badly eaten out. On the border there were many low hills of a form of gypsum called kopai; upon these mounds very little vegetation grew except tall mallee. One large patch of "bull-oak" (*Casuarina*), interspersed with native pine, was visited, the oaks attaining a height of from 30 to 40 feet, with trunks of considerable dimensions.

The pines were everywhere occupied with the very interesting Chestnut-crowned Babbler (*Pomatohinus ruficeps*, Hart.) Their huge nests, made of coarse sticks, were most common, but few were occupied, and those that were in use had young. The way in which these nests hung together was quite remarkable; a nest thrown down from the top of a tree was undamaged when picked up. The notes of this bird were very distinct from those of *P. superciliosus*, and so varied that one was continually going after apparently a fresh bird, which after all turned out to be *P. ruficeps*. A nest with young alongside of the camp was watched, and quite a number of adult birds took part in the feeding of the young.

An interesting find was the White-eyebrowed Tree-creeper (*Climacteris superciliosa*, North). One male was secured in the pine scrub close to Pungonda, and later a pair secured in the bull-oak on the Victorian side. They appear to be most silent birds; although the birds were about, only once or twice in an hour was a whistle heard. The one shot in the pine scrub uttered a low chattering noise very similar to that of *C. scandens*.

In the neighbourhood of the wheat stacks (now removed) a number of Parrots were seen, the most common being the Mallee Parrot (*Barnardius barnardi*) and Many-coloured Parrot (*Psephotus multicolor*). The latter birds are variable; one showed a double red band on the rump, others a single band.

Psephotus hæmatogaster (*Northiella hæmatogaster alter*, Mat.), the Crimson-bellied Parrot, were in small flocks, but no specimens were obtained on this occasion. Both morning and evening couples could be heard flying over on their way to and from their feeding-grounds, uttering the loud cry peculiar to this species, and so different from the calls of its near allies.

Myzantha flavigula, Gld. (the Yellow-throated Miner), was very numerous; nests with eggs were found. It was rather remarkable the Black-eared Miner (*M. melanotis*) was not to be seen; neither was the Southern Black-headed Miner (*M. melanocephala whitei*, Mat.) present, though this latter was common along the river a few miles away, near Loxton. Certainly, the Black-eared Miner would be met with a few miles further south; it was the only species I noticed near Karoonda. I would suggest that the respective habitats of these three species are determined by the vegetation; thus, the Black-headed Miner is not found any distance away from the large red gums along the River Murray, the Yellow-throated Miner in the pine and large mallee country, and the Black-eared Miner in the small mallee.

Ocyphaps lophotes, Tem. (Crested Pigeon), were most numerous. Their habit of flying to some dead branch and erecting their crest was most taking. Often three or four would lodge in the same tree, forming a very effective picture silhouetted against the skyline.

Malurus melanotus, Gould (Black-backed Wren) were most numerous on the flats. They seldom went far from the clumps of dense bushes, 3 or 4 feet high, being met with but sparingly amongst the smaller salt-bush. The habits of this lovely bird seem identical with those of the White-winged Wren. We did not find any nests during our brief stay, but think had we had more time we should have done so.

Myzomela nigra (*Cissomela nigra ashbyi*, Mat.), Black Honey-eater, were not uncommon. One's attention was usually called to them by hearing their warning call—a low but strangely penetrating whistle; at a little distance this whistle so closely resembles the call of the Scrub-Robin that at first I thought I was listening to that species. This was in large mallee, on the Victorian side of the boundary. During our stay we neither saw nor heard this bird. One nest with eggs of *Myzomela nigra* was found placed in a fork of dead mallee about 3 feet from the ground.

Corvus bennetti, North (Small-billed Crow).—Two nests of this bird were found, both with young; it seems the Crow of the district.

My companions on the trip were Messrs. F. E. Parsons and M. E. Saunders, both members of the R.A.O.U. The foregoing brief notes are only a few of the results of our mutual work. We were evidently too far north for the typical Mallee forms; only one *Hylacola* was noted, and that was in smaller mallee a few miles to the south. No Nightjars were either seen or heard.

Eggs of Corella.—8/8/16.—A Corella (*Licmetis nasica*) laid one egg in captivity. 19/8/16, a second egg laid. 23/8/16, a third egg laid (double yolk).—A. F. D'OMBRAIN. Sydney.

Birds about the Tanjil River and Ranges, Victoria, 1916-1917.

SEEN OR HEARD BY H. W. FORD, R.A.O.U.

BLACK Swans (*Chenopsis atrata*).—During July, 1916, these birds used to fly over our camp between 7 and 8 p.m. nearly every night, and always going west. On looking at the map, our camp was in direct E. and W. line between Gippsland Lakes and Western Port Bay. During July, 1917, no Swans were heard going over.

Emu (*Dromaius novaehollandiæ*).—In March, 1917, a pair of these birds came to eat the blackberries near camp, and were seen for some time about. They were fairly tame. Two rifle-shots heard where they used to feed; birds never seen after.

Black Ducks (*Anas superciliosa*).—A few pairs come up the river to the lagoons or flats in the breeding season. They are mostly shot before they rear their young. I have not seen any others of the Duck tribe about here.

Black-tailed Native-Hen (*Tribonyx ventralis*).—A few always to be seen about the lagoons. They breed every year about same place.

Black Cockatoo (*Calyptorhynchus funereus*).—Always about the ranges. Nest in the district.

Gang-Gang Cockatoo (*Callocephalon galeatum*).—Plentiful. Nests seen in high gum-tree spouts in October to January. They lay usually in October, and young leave the nests from December to middle of January. Saw young come from nest on 15th January, 1917. There are never more than two young as far as seen, and fully as often only one young one. During the time the young were growing they appeared to be fed on the seeds of the silver wattle, which were not quite ripe; in fact, the wattles down the gullies nearly always had parties of Gang-Gangs—parents and young—feeding in them. They were very quiet, and took no notice of me passing beneath the trees. On 30th January, 1917, in forenoon, a flock of these birds came up the gully going north, the flock being increased by other small parties coming in from the ranges. They all went over the range to north. On 30th August, 1917, saw two pairs cleaning out nesting-holes.

King Parrot (*Aprosmictus cyanopygius*).—Fairly plentiful. Called "Spud Parrot" by selectors, as they attacked the potatoes when dug and lying on ground, also maize crops and fruit (peaches).

Crimson Parrot (Red Lory) (*Platycercus elegans*).—Always here; nested near our camp in November, 1916. Birds very plentiful.

Rosella (*Platycercus eximius*).—Always here; a few compared to King Parrot and Red Lory. Nested in stump near our camp, November, 1916; laid six eggs, brought out five young, and reared the lot. Young birds left nest as under:—Two birds on 22/1/17, one bird on 24th, one on 26th, two on 27th—one in forenoon and one in afternoon. The nesting stump was 14 feet,

with 3 feet deep hollow in top. It was interesting to watch the old birds trying to get the young to leave the hollow after first two came out.

Sacred Kingfisher (*Halcyon sanctus*).—A few pairs of birds about. One pair nested near us. They are very pugnacious, and drive all other birds away from near their nesting-tree.

Blue Kingfisher (*Alcyon azurea*).—A few of these beautiful little blue and copper-coloured birds about the Tanjil River.

Grey Shrike-Thrush (*Colluricincla harmonica*).—Always here. Two that were about camp got very tame. They would fly on to my lap, back, or shoulder when I came to feed them, and would sit on my knee and feed out of my hands. They like cheese better than other foods—cooked meat, grubs, and fat; don't care for bread or rice.

Lyre-Birds (*Menura victoriae*).—Five birds seen, and some others heard. These birds are being killed out by foxes, I think, as they are in less numbers than 30 odd years ago here.

Scarlet-breasted Robin (*Petroica leggii*).—Several pairs seen. One pair about camp for four years; leaves in spring and returns in the autumn—twice with a young Fantail Cuckoo, once with a young Pallid Cuckoo, and last time no young of any kind, so in four years they have not reared any Robins.

Flame-breasted Robin (*Petroica phoenicea*).—Plentiful in winter.

Pink-breasted Robin (*Petroica rhodinogaster*).—One pair seen down in scrubby gully.

The following birds are always to be seen near the camp:—Wattle-Birds (*Anthochaera carunculata*), Butcher-Bird (*Cracticus destructor*), Mountain Thrush (*Oreocincla lunulata*), Welcome Swallow (*Hirundo neoxena*), Spotted Ground-Bird (*Cinclosoma punctatum*), Blue Wrens (*Malurus cyaneus*), Yellow-tailed and other Tits (*Acanthiza chrysorrhoa*, *A. mathewsi*, *A. pusilla*), Fire-tailed Finch (*Zonæginthus bellus*), Red-browed Finch (*Egintha temporalis*), Coachwhip-Bird (*Psophodes crepitans*) (saw young birds just left the nest on 24/12/16), Golden-breasted Whistler (*Pachycephala gutturalis*), Rufous-breasted Whistler (*P. rufiventris*), Yellow-breasted Shrike-Robin (*Eopsaltria australis*) (saw nest with young 20/12/16), Spine-billed Honey-eater (*Acanthorhynchus tenuirostris*), White-eared (*Ptilotis leucotis*), White-plumed (*P. ornata*), White-eared (*P. penicillata*), and White-bearded Honey-eaters (*Meliornis novaehollandiae*)—the Spinebill is the most plentiful; Zosterops (*Z. dorsalis*), White-backed Magpie (*Gymnorhina leuconota*), Bell-Magpies (*Strepera anaphonensis* and *Strepera graculina*), Brown Tree-creepers (*Climacteris scandens*), Satin Bower-Bird (*Ptilonorhynchus holosericeus*) (destructive in gardens to peas, vegetables, &c.), Wonga-Wonga Pigeon (*Leucosarcia picata*) (over a dozen seen), Bronzewing Pigeon (*Phaps chalcoptera*), White-shafted Fantail (*Rhipidura albiscapa*), Rufous-fronted Fantail (*R. rufifrons*), Black-and-White Fantail (*R. motacilloides*) (only saw one, on 12/9/17), Pipit (*Anthus australis*), Spotted Crake (*Porzana fluminea*), Pardalotes (*P. punctatus*) (saw

a pair of Spotted birds excavating in a bank on 25/9/17), Sparrow-Hawk (*Accipiter torquatus*), Boobook Owl (*Ninox boobook*), Frogmouth (*Podargus strigoides*), White-fronted Herons (*Noto-phox novæ-hollandiæ*), Pied Grallina (*Grallina picata*) (a pair about the camp, but the White-backed Magpies drove them away), Laughing Jackass (*Dacelo gigas*).

The following birds were only seen occasionally:—Nankeen Kestrel (*Cerchneis cenchroides*), White-winged Cough (*Corcorax melanorhamphus*) (two flocks seen, 1916 and 1917), Wedge-tailed Eagle (*Uroaëthus audax*) (noticed carrying stick for building nest), Whistling-Eagle (*Haliastur sphenurus*), Black-cheeked Falcon (*Falco melanogenys*), and Little Falcon (*F. lunulatus*). Also European birds, such as Starlings, Goldfinches, and Sparrows. Several species were in evidence during the summer only, such as Leatherheads (*Tropidorhynchus corniculatus*), Orioles (*Oriolus viridis*) (arrived in 1917 on 15th August), Pallid Cuckoo (*Cuculus pallidus*) (first heard in 1917 on 22nd August), Fantail Cuckoo (*Cacomantis flabelliformis*) (first heard in 1917 on 8th August), Bronze-Cuckoos (*Chalcooccyx basalis*) (first heard in 1917 on 22nd August), Wood-Swallows (*Artamus personatus* and *A. sordidus*) (come in flocks for nesting), Spine-tailed Swifts (*Chetura caudacuta*), and Fairy Martin (*Petrochelidon ariel*).

Tasmanian Notes.

Swifts and Weather.—The past summer was remarkable for the number of Spine-tailed Swifts (*Chetura caudacuta*) which visited North-West Tasmania. None came within my personal ken until 4th February, although a pioneer pair was reported by Foster Leek from the neighbourhood of Mersey Bluff as early as 6th December, 1916. When, however, these birds did begin to make their regular appearance, they were on view at frequent intervals until the third week of April. The first individuals which I saw, early in February, passed at intervals towards the west, then returned, and were apparently insect-catching, for the air was full of flying beetles, Tipulæ (crane-flies), and moths, the time being about 8 p.m., near dark. Numbers of flying ants were observed emerging from a decayed log and taking wing, so that the Swifts were well supplied with food variety. The evening was clear, with light breeze from S.E., but next day was cloudy and rain threatened. On 21st February there was a warm rain all day from the N.E., then a cool change, wind veering N.W. to S.W. Heavy fall of snow occurred shortly afterwards on the Tiers, in sight to the south. On the 23rd inst. the Swifts, which had not been seen since the 4th inst., came after dinner, and were seen heading to N.W. against a heavy squall. Between 3 and 4 o'clock a large party passed to N.W. against heavy wind and showers, flying very high—the highest could just be discerned against the thick squall-cloud. They were moving in circles,

but making steady progress to windward. On 25th the wind was fairly strong and cool from S.W., and numbers of Swifts were about Mersey Bluff all the morning, sweeping almost to the ground, then rising to a fair height, taking insect food. Next morning, between 7 and 8 o'clock, the wind was cold and from the S.W.; the sky was covered with fine interlacing cirrus, and numbers of the birds were circling very high from E. and S.E. towards the N.W. Later in the day, the breeze moderating and the sun becoming warm, the Swifts were all the afternoon between Don Road and Mersey Bluff, passing backwards and forwards, feeding, at a low altitude. After sunset the wind was again cold and from the S.W.; the birds, singly and in pairs, passed continuously towards the N.W., often tacking backwards and forwards while doing so. They were at varying heights, from 50 to perhaps 400 feet, but mostly high. They were still going over, sparsely, one in three or four minutes, at a height of 50 or 60 feet, as long as I could see, and there may have been numbers passing at a greater altitude. The following day, between noon and 1 o'clock, numbers were flying backwards and forwards at a great height, looking no larger than flies. The wind was N.E. and light, thundery clouds were passing over from the west. Their next appearance was recorded on 6th March, when from half an hour before sunset until after sunset there was a great company overhead. A large number, fully 300 feet up, were circling and wheeling, apparently for pleasure; others, much lower, were flying backwards and forwards capturing insects, for great numbers of beetles and ants were in the air. Some flew just over my cottage, "swishing" very distinctly with their long wings — sometimes gliding, sometimes fluttering the wings, turning on one side, then reversing, like a swimmer "changing arm" in side-stroke. There had been a thunderstorm in the morning, followed by a close, muggy atmosphere, which is very favourable for bringing flying ants, beetles, and other insects into the air. The birds were about until nearly dark; the wind was light and variable. The 14th March was very squally from the N.W., with heavy showers, and so on through the night. Next morning, at 8 a.m., large numbers of the birds passed over at a height of about 300 feet towards the N.W., not circling or feeding; the air had then changed to light southerly, with overcast sky. There was a cold change, with snow on the Tiers, on the night of the 21st. On the afternoon of the 22nd Swifts appeared at varying heights up to 150 feet, apparently taking food; the wind was squally, strong from S.W., heavy cumulo-stratus clouds spread over the sky. On 23rd and 25th Swifts again appeared; on 26th they were very high, gliding towards the west, the wind being S.E., and the birds just discernible against heavy cumulus clouds. There had been heavy showers at mid-day and early in the afternoon. Later in the afternoon the birds were seen near the beach, flying low and feeding. These appearances were noted every day or two until 17th April, when a few birds were seen

feeding at a height of 30-60 feet; next morning there was a change to drizzling rain, which seems to have heralded the departure for the season of the last of the Swifts.—H. STUART DOVE, F.Z.S., R.A.O.U. West Devonport, Tasmania, 18/8/17.

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Early Nesting of White-beard.—During the last week of August, 1917, my attention was called to a nest of the White-bearded Honey-eater (*Meliornis nova-hollandiæ*) situated in a prickly wattle (*Acacia verticillata*) which had sprung up in the grounds of a friend here. The nest was in a fork about 10 feet up, and on 1st September I got a step-ladder and investigated, to see whether incubation had started. To my surprise the contents were three fully-feathered young, snugly packed into their cup-shaped domicile. My friend saw them out with their parents two days afterwards. The nest must have been finished about the end of July, which is the earliest I have ever known for this species, or for any of the family, in this State. It was fortunate (or was it prevision?) that the pair selected August for the rearing of their brood, as that month was most unusually fine and sunny; the present month of September has, so far, been distinguished by rough winds and heavy, soaking rains. Inside the cup-shaped nest of small twigs was placed some fine bark, which the birds had pulled from a clematis stem, and upon this was a felted mass of white material. This was examined with a lens, and appeared to consist chiefly of long hair-like processes, resembling those from clematis seeds, and small white florets, probably from a native plant. The partiality of the White-beard to a floral lining is well known to ornithologists. Mr. A. J. Campbell, in his "Nests and Eggs," mentions one from Upper Werribee which was entirely lined with soft, yellowish-white seed-casings; and Mr. H. C. Thompson and myself, when investigating a nest some years ago, built into the fork of a paper-bark tea-tree (*Melaleuca*) at Distillery Creek, North Tasmania, found it lined with the soft downy seed-pods of the "Cotton Shrub" (*Pimelea nivea*).—H. STUART DOVE, F.Z.S., R.A.O.U. West Devonport, Tasmania, 8/9/17.

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Spring Migrants in Tasmania.—The notes of the Tree Diamond-Bird (*Pardalotus affinis*), or "Pick-it-up," were heard for the first time this season in the white gums at the Mersey Bluff on the morning of 27th August. The first Welcome Swallow (*Hirundo neoxena*) was seen on the afternoon of 26th August at Wood's Slip, on the Mersey, about a mile from the sea. The afternoon was beautifully warm and summer-like, with a breeze from S.W. On the morning of the 28th a Swallow was back at Leek's Gardens, Mersey Bluff, where Swallows build each year under the verandahs of the dwelling-house. On the same morning, which was beautifully sunny, with a light breeze off the sea, a Fantail Cuckoo

(*Cacomantis flabelliformis*) was trilling from a gum-tree, and some newly-arrived Pipits (*Anthus australis*) were sporting with one another on the track close to the beach. These birds seem to me lighter in tint when they first arrive, as if they had wintered on the sandy plains of Central or Western Australia, and their plumage had taken a corresponding tint. One or two stayed the winter with us, as did several Fantail Cuckoos and a pair of Summer-Birds (*Graucalus parvirostris*). The main body of *Graucali* are not here yet; they usually arrive in September and October, as do the large Pallid Cuckoos (*C. pallidus*).—H. STUART DOVE, F.Z.S., R.A.O.U. West Devonport, Tasmania, 30/8/17.

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Nesting of White-bearded Honey-eater (*Meliornis novaehollandiæ*) in Tasmania.—The pair of White-beards which I recorded as having fully-feathered young here on 1st September built again very soon afterwards in the fork of a cypress (*Cupressus macrocarpa*), about 18 feet from the ground, and on the morning of 18th September there were three eggs, which had evidently been laid a few days, as there were two newly-hatched young on the morning of 26th September. One of these was out with the parents on 8th October; the other left the nest the following day; the third egg was found cast out beneath the nest. The first nest of this pair, which was built at the forking of a branch from the main stem of a prickly wattle (*A. verticillata*), about 9 feet from the ground, was composed of tough brown rootlets, some nearly 12 inches in length, long pieces of string, and bark fragments. The thick felted lining, when re-examined, was found to consist mainly in the seeds of the aster, with the pappus still adhering, my friend, in whose grounds the nest was placed, being a large grower of these plants. When portions of the lining were pulled out, a number of lines like strong spider-web were seen connecting it with the side of the nest. Width of nest over all, 5 inches; depth of nest, outside, 3 inches; width of egg cavity, 2½ inches; depth of egg cavity, 2 inches. The second nest was similar, except that for the foundation lining the birds tore off portions of the circumference of tree-mallow (*Lavatera arborea*) leaves and placed them in the bottom of the egg cavity. The mallow was growing in the same garden, and certain of the leaves became whitish and semi-decayed at the edges. The Honey-eaters hung on to these, and tore off portions with their bills; after placing these in position, they formed a dense soft lining over them, consisting of hundreds of small, oval, woolly calices or seed-vessels, with a quantity of pappus-hair intermixed. A noticeable point about these Honey-eaters is their extreme pugnacity when nesting; they would not allow any others of the *Meliphagidæ* in the same grounds while breeding was progressing. The Crescent Honey-eater was formerly numerous in this large garden, but was completely driven out by the pair of White-beards, although still numerous in my own garden, about a mile distant,

which the White-beards have not frequented this season. When my friend was pruning his fruit trees with the long-handled scaccateurs, the male Honey-eater would come and attack the knives while they were working, probably attracted by the sharp "click," which much resembles his own alarm note. When the knives were held up, but not worked, he desisted from the attack.—H. STUART DOVE, F.Z.S. West Devonport, Tasmania.

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Harriers.—The Harrier (*Circus gouldi*) is, to my mind, after the Wedge-tailed and Sea-Eagles, our finest bird of prey, and I have been rejoiced to see a marked increase in its numbers during the past two seasons. In springtime it is a grand sight to watch a pair of these birds, with their great wing-spread, playing together high up in the "ethereal blue," turning at times a complete somersault, and uttering their wild cry as if permeated with the sheer joy of living. How a man can pay his bills with such "blood-money" as that derived from the slaughter of these harmless and beautiful birds, as related in the current *Emu* (vol. xvii., p. 109), passes comprehension. I was pleased to see the editor's comment—"Why this useless slaughter?" If the New Zealand Acclimatization Society will consider the case of the brave and accomplished Lord Lucas, who lost his life during an aeroplane ascent in Flanders, and had previously willed his fine estate in Norfolk as a bird sanctuary, but *especially for the breeding and preservation of the Harriers*, in whose aerial evolutions he took the greatest delight, it should go far towards inducing the society to abrogate its barbarous enactment.—H. STUART DOVE, F.Z.S. West Devonport, Tasmania.

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The Black Bell-Magpie (*Strepera fuliginosa*).—Last Christmas vacation I spent a week with friends (Wilson's) at The Steppes. I was much interested in the Black Magpies, which were regular visitants to the homestead. The original pair came about ten or twelve years ago, and many of their progeny are now about, and are particularly tame in winter, when snow is on the ground, and food, therefore, scarce. A pair of the old birds frequently brought their two young ones to the house during my visit. The latter were nearly as big as their parents, but whenever the camera was in evidence they kept under the shadow of a large willow tree overhanging the roof. Sometimes their rather petulant cries would be heard as early as 4 a.m. as they walked about the roof, evidently wondering why their tit-bits had not been placed out for them. There were several nests in the gum-trees near the house, where the birds build regularly. In my journey to The Steppes I noticed; as we drove along, fourteen nests of these birds, placed at varying heights. Some were in the dark-leaved cider gums, others in the ordinary white gums. Their nests were also seen in some of the trees near the road on the way to the

Great Lake. I questioned Miss Wilson about the behaviour of the Black Magpies, and she gave me the following information:—The tame birds prefer sweet food, such as cake, but when the ground is frozen hard they will eat anything. Sometimes they go into the stable loft and catch mice in the hay. They are very fond of chickens while they are small, and these have to be kept shut up till they are feathered, after which the Magpies will not touch them. They prefer young Ducklings to anything, and it is almost impossible to keep them. As the wild Ducks breed in this locality, I expect many of the Ducklings furnish a meal for the Black Magpies and their young. Young Turkeys are also favourites. When a Magpie attacked a Turkey and her brood, the mother would give the alarm, the young ones would lie flat beside a stone or tuft of grass, and the old Turkey would go and fight the Magpie. In their wild state these Magpies eat a great many common red berries which grow amongst the rocks. When the young ones are in the nest the old birds seem to have a hard time hunting for them, and get very shabby and rusty-looking. Sometimes they alight on the roof of the porch with a load of grubs and beetles in their bills. They put their load down and have a feed of bread or cake themselves, then pick up their load and fly straight off to their nest. They do a lot of good killing the grass-grubs. On the marshes some miles back, flocks of these Magpies gather, all hunting grubs. Those coming round The Steppes homestead seem rather more kindly disposed to each other than most wild creatures, judging by their treatment of a one-legged Magpie in their company. This one is always given a larger share of the dainties than the others, and in no way have they ever molested it.—(MISS) J. A. FLETCHER. Boat Harbour, Tasmania, 16/9/17.

Queensland Notes.

Finches.—I have reared young Gouldian (*Poephila gouldiæ*), Black-throated (*P. cincta*), Plumhead (*Aidemosyne modesta*), and Banded (*Stictopectera bichenovii*) Finches in my aviary, and was most interested in the markings in the mouths of the young Gouldians, or Painters, as we call them. I thought they might be for the protection of the young when disturbed, opening their mouths wide and wagging their heads and showing all their spots, with their naked neck behind, in a fearsome manner, which gave me the impression that they were reptiles peering out of the entrance to the nest, as I never saw other young Finches do this when alarmed; they usually cower down and remain still. I have never noticed any signs of bright spots or colouring in the other young Finches reared in captivity. Many Finches build family nests to play building with by day and sleep in in cold weather. I always keep a supply of dry grass for them, and after every rainy day they have a building fit, but when they mean to nest for young ones each pair builds separately, and fiercely

resents another coming near or even looking at their "very own wee home." My son found a Jabiru's nest in a *Pandanus* palm early in the year. This is the third nest we have heard of in this locality. One of the others was in the top of a big mistletoe on a box tree.—MRS. ADAM BLACK. Pajingo, Charters Towers, Queensland.

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Retirement of Dr. Hamlyn-Harris from the Queensland Museum.—According to the *Daily Mail* (Brisbane) recently (October), the members of the Queensland Museum staff met in the library to make a suitable presentation to Dr. R. Hamlyn-Harris, to mark his retirement from the directorship after seven years' service. Apologies were received from Dr. J. Shirley and Mr. A. B. Walkom. In asking the Director to accept a framed enlargement of himself, with the museum as a background, Mr. H. A. Longman said he would like briefly to refer to the valuable work which had been done under the direction of Dr. R. Hamlyn-Harris. The galleries had been reorganized, and both exhibited and reference specimens were now largely systematized. The Museum *Memoirs* published had won wide recognition for their scientific standing, and had resulted in enhancing the library of the institution through the accession of exchange material. The introduction of educational lectures, especially those to school students, had been a great progressive step. Dr. T. Harvey Johnston, hon. zoologist, in supporting the remarks of Mr. Longman, said it was to the credit of Dr. Hamlyn-Harris that the museum was to-day recognized as of genuine scientific value. Unfortunately, the director's health had been seriously affected, and he sincerely hoped, with all the members of the staff, that the complete change which Dr. Harris was about to make would result in a speedy recovery of his good health. They wished him every success in his enterprise on the land. Mr. B. Harrison, the veteran attendant, also spoke. In replying, Dr. Hamlyn-Harris said he was naturally self-conscious, as any man would be under similar circumstances. Of his work in the institution, all he could say was that he had served the museum and the State to the best of his ability. He realized the momentous step he was taking in severing his connection with scientific work. One of the main reasons was that he was making a bid to regain his health. He expressed the hope that the museum would maintain its position, and that every member of the staff would continue to render faithful service. He also paid a special compliment to the valuable assistance rendered to him by Mr. J. Douglas Ogilby, the well-known ichthyologist. Dr. R. Hamlyn-Harris leaves to-day for Stanthorpe, where he has secured interests on the land.

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Sundry Notes.—I found a Black Duck's (*Anas superciliosa*) nest a few days ago, and the little ones were just emerging from the eggs, of which there were eight in the nest. The Condamine

River is not far away, but is only a series of shallow pools just now, so they will probably fall a prey to the foxes, which have unfortunately reached us. Until their arrival, three or four years ago, there were always two pairs of Bustards (*Eupodotis australis*) nesting in the paddock, but they never come near now, and in many of the large station paddocks in this locality scarcely a bird now is to be seen where we used to see dozens. Kangaroo rats (*Bettongia penicillata*) have completely disappeared. Opossums (*Phalangeria vulpina*) are on the decrease; I find them frequently, when riding about, headless under the trees. The foxes have also taken to killing lambs in these parts, due probably to the scarcity of their natural food.

Two old friends of eight years' standing, in a pair of House-Swallows (*Hirundo neoxena*), have commenced to get their nests in order, but birds appear to be very irregular in their nesting habits in these parts. I saw a Chestnut-breasted Finch (*Munia castaneithorax*) building last week.

In spite of two weeks of frosts, we still have the Pallid Cuckoo (*Cuculus pallidus*) with us; he, however, is very silent, and appears to spend most of his time dodging other birds. The quiet and busy Caterpillar-eater (*Campephaga humeralis*) appeared in numbers about the beginning of the year, and cleared a small lucerne patch I had in the garden of green grubs; they stayed on for several weeks.

Regarding the fox, I do not think they would bother with a small Duckling; I really believe they would wait until they were a decent size before interfering with them. I notice here that, as the stream becomes shallow, the Ducklings about the "flapper" stage make for the long grass or any cover there may be on the banks, and are then, of course, an easy prey for the fox. A colony of Fairy Martins (*Petrochelidon ariel*) made their nest this year in a recess in the river-bank, and I kept a good look-out, expecting that when the eggs were laid the foxes would break them down, and, as I could trace the animals easily, I began to think that they were not going to molest the birds; however, about a week after the little ones were hatched I found one morning that every nest was broken down and nothing but feathers to be seen. This makes me think that these animals bide their time, and may therefore turn up their noses at a tiny ball of fluff in the shape of a young Duck. With the disappearance of the kangaroo rat and the scarcity of Bustards (*Eupodotis australis*), the monitor lizard (iguana) can be pressed on to the list. They may be a tough morsel, but apparently nothing comes amiss to the fox.

I once shot a Musk-Duck (*Biziura lobata*) with two small ones on her back in a lignum swamp, near the Kow Swamp, in the Terricks district, in Victoria. I spent my boyhood's days on a property we had on the Pyramid Creek, which was filled from the Kow Swamp, and, after travelling in New Guinea, Northern Territory, North Queensland, East, West, South, and North Africa, I have yet to find a place that abounded with wild-fowl as plentiful

as Kow Swamp. I have sometimes been out in a boat shooting, and, when the first shot was fired, the rising of the birds sounded like thunder, but that was about 20 years ago.—E. R. CALDWELL. "Gilgi," Pampas, Queensland, 3/6/17.

Camera Craft Notes.

Red-capped Dottrel.—It is interesting that the Red-capped Dottrel (*Ægialitis ruficapilla*) always nests, as far as my observation goes, on coarse sand, and just at high-water mark; occasionally a higher wave than usual wets the eggs, but, the sand being so coarse, at once sinks away and no drawback occurs—if it did the eggs would run the risk of being rolled away. I took the accompanying photograph in Tasmania on 23rd November last. It will be noticed how the bird has placed small pieces of white shell alongside the eggs, and the excellent site from a protective point



Nest of Red-capped Dottrel (*Ægialitis ruficapilla*).

PHOTO. BY W. H. D. LE SOUËF, C.M.Z.S., R.A.O.U.

of view. Not far away was the nest of the Pied Oyster-catcher (*Hematopus longirostris*). This bird had made its nest (if nest it can be called) well above high-water mark and on fine sand. I notice that the Black Oyster-catcher (*H. fuliginosus*) usually nests further away from the sea, and on darker material—such as on patches of seaweed, &c.—than the lighter-coloured bird does. The photographs were taken on the same day, on the eastern coast of Tasmania.—W. H. D. LE SOUËF. Melbourne.

Notes on the Coachwhip-Bird.—Our experience of the Coachwhip-Bird (*Psophodes crepitans*) has been limited to about the last four seasons—the period during which we have worked the Ferntree Gully district. For the first portion of this time we occupied ourselves in the more open country, and so learnt nothing of the nesting habits of this interesting bird. We saw and heard many of them, however, and made some attempt to satisfy ourselves as to which bird was responsible for the two notes closely following the loud whip-crack.

It was in November, 1915, that we first located a nest near Upwey. It was built about 4 feet from the ground in a tangle of wire-grass, and contained one egg. The birds were in the vicinity, but did not venture very close. Being unfamiliar with their habits, we took the precaution of not disturbing the nest or egg. Examination the next week-end, however, showed the nest deserted. A week or two later, while endeavouring to catch a young Pilot-Bird in the same locality, we roused two well-grown young Whip-Birds with their parents. A long chase, equally divided between Whip-Birds and Pilot-Bird, failed to accomplish either object. A little later we found a nest about a hundred yards from the bottom of a deep gully at Ferny Creek. This nest was also built in wire-grass and contained two eggs. The cameras were set up, but a long wait failed to bring any reward. The birds appeared to take little interest in the welfare of their prospective chicks, and kept well out of sight. We did not again visit this nest, on account of its distance from the house. On the 5th December we located a nest in the Upwey district. It was built in dry bracken, and placed about 5 feet from the ground. As the nest contained two newly-hatched young, the parent birds showed great anxiety, and came to the nest several times while we were close by. Notwithstanding the dulness of the light, which is a serious drawback with our apparatus, we decided to give them a trial. The advent of the camera disturbed them considerably at first, but we were able to make four exposures in the limited time at our disposal. As we expected, however, the pictures obtained were failures, being greatly under-exposed. During the season 1916-17 we spent very little time at the Gully, and succeeded in finding one nest only. This was built in bracken fern in a small dry gully, and was placed only about 18 inches from the ground. The two eggs it contained were quite fresh, and the birds were therefore too unconcerned to give an opportunity for photography. We, however, obtained the accompanying picture of the nest and eggs.

Our next and most successful encounter with this bird was in October of the present season. We had made a trip to Ferntree Gully, intending to devote the whole of our time to the Coachwhip-Bird. About 7.30 one morning we commenced our search along a small creek a quarter of a mile from the house. We watched one pair of birds for some time without result, and in making our way down the gully disturbed another pair within 20 yards of



Nest and Young of the Coachwhip-Bird (*Psophodes crepitans*).



Coachwhip-Bird.

the road. The characteristic chuckling note of one bird first drew our attention, and we at once concealed ourselves. Presently the other bird appeared, and the two fed together for a time. Soon we noticed that one bird had again disappeared, and as the male (the remaining bird) had twice emitted his loud whip-note without receiving an answer, we concluded that the female was sitting somewhere in the vicinity. Our sudden issue from concealment roused the female a few yards ahead. Failing to find a nest at the spot, we were in the act of moving on when a faint call arrested our attention. After a few minutes' search, aided by the feeble answers to our imitation of the adult calls, we succeeded in capturing two well-grown chicks. The old birds, becoming very excited, ran and flew around us, uttering harsh cries. After about ten minutes they quietened down and began to collect food.

We had made preparations to photograph the birds in an open space, but it was a considerable time before they could be induced to leave the scrub. When eventually the female gained confidence enough to feed the young, she took advantage of every particle of cover available and carefully avoided the camera. After trying many schemes unsuccessfully we at last conceived the idea of keeping the young ones in the hollow of a stump near by. This made it necessary for the adults to leave the ground to feed them, and, after noting the spot most used by the parents, we focussed the camera on that side of the stump. This proved effective, and we succeeded in exposing six plates. The young were exceedingly quiet, and soon after being caught appeared to take no interest in the proceedings except on the near approach of the adults with food. Even when handled for the purpose of obtaining a picture they could hardly be kept awake. Although we were on the spot for about eight hours, we observed the male to feed the young on two occasions only. Sometimes the male bird transferred food to the female, who in turn fed the young. The male and female invariably searched for food in company, being never more than a few yards apart. This was particularly noticeable when the female appeared near the stump, and we prepared for an exposure. The male would decide at this time to move a few yards off, and the female always followed. Their food was obtained on the ground, and the powerful feet were freely used among the *débris*. Usually the undergrowth near at hand furnished their food supply, but an occasional excursion further afield would keep the pair away as long as a quarter of an hour.

During all our observations we have taken particular notice of the calls of male and female. It appears quite clear that the whip-crack is always emitted by the male. Our observations in 1913 were that in ten instances where male and female were in sight at the same time the whip-crack originated from the male and the two answering notes from the female. In two cases also there were no answering notes to the call of the male. Other

instances where both birds were not in sight appeared to point in the same direction. In 1915 we have notes of four cases where both birds were in sight at the same time. Three times the female answered, and once there was no answer. In six other instances the male only was in sight, and certainly made no answer to his own whip-note. During the present season we have kept notes of seven cases in which both birds were in sight together. In every case the reply was by the female. In four other instances where the male only was in sight there were two answers and two calls unanswered. In no case did the male make the answering call. There have also been occasions where the female was in sight and made the answering notes, but we have not kept a record of these. We have not on any occasion heard the male make the answering notes to his own call, nor the female to make the whip-crack.—R. T. LITTLEJOHNS, R.A.O.U., AND S. A. LAWRENCE, R.A.O.U.

Stray Feathers.

Crows and Sheep.—Is the Crow acquiring the same habit as the New Zealand Kea? This year the Crow has been a terrible scourge among our ewes and lambs, and often before the ewe could get up the Crows had the eyes plucked out and the lamb killed. But another feature has come under my observation lately which has not been noticed in this district before. The Crows actually picked a hole in the sheep's back right into the kidneys to get the fat! This sheep I had to kill, as the poor thing would not have lived much longer. I thought this was an isolated case, but one of my neighbours had three or four, and another one, the Crows doing exactly the same. This would almost point to a time in the near future when the Crow will be as bad as the New Zealand Kea.—JOSEPH A. HILL. Phoracantha, Golton South, *via* Lubeck, Vic. 12/11/17.

* * *

Cuckoo Combinations.—The following rare Cuckoo combinations have been recorded by us:—*Hylacola pyrrhopygia* (two eggs) and *Cacomantis flabelliformis* (one egg), recorded near Sutherland, N.S.W., on 12/8/17; *Falcunculus frontatus* (two eggs) and *Cacomantis flabelliformis* (one egg), recorded at Blacktown, N.S.W., on 13/10/17.—P. A. GILBERT and H. KEANE. Redfern (N.S.W.), 17/11/17.

* * *

Hooded Dottrels.—A male Hooded Dottrel (*Egialitis cucullata*) was observed on a lonely stretch of sandy beach fronting the ocean, occasionally running in from the water's edge, but generally interested in the results of the receding tide. After

forty minutes' watching through glasses from a distant and partly-concealed position, the bird was eventually marked down to a spot on the sand some 15 or 20 yards up and in from the sea. This spot was only reached after the most circuitous and deliberate wandering on the part of the bird, with long pauses, punctuated by occasional jerking and bowing of the body. There were no landmarks in the shape of driftwood or weed by which to identify the situation amongst the rolling, sandy ridges; but, as far as could be definitely ascertained without rising, the bird had settled down into a sitting posture. Before many minutes, a second bird (the female), who had not previously been seen, arrived on the wing, and alighted on the sand a short distance from the male, who immediately rose, flew towards the sea, and recommenced peregrinating near the water's edge. The last-comer, meanwhile, after a short run, shuffled down on the sand, though not exactly where the male had been sitting. On reaching the site two eggs were found, but they were 3 feet apart, one of the two being more elongated and less pyriform than the other. Both the eggs were in an advanced stage of incubation. Were these eggs, evidently the product of this one pair of Hooded Dottrels, ever lying together side by side? The sand-ridges were sufficiently undulating to obviate separation by the force of the wind, and the possibility of human interference may be neglected, the locality being utterly isolated and unfrequented.—HENRY L. COCHRANE, M.B.O.U., Captain R.N. Melbourne, 19/11/17.

* * *

New Cuckoo Foster-Parent.—Last September, at Raak Plains, N.W. Victoria, in company with Mr. A. W. Milligan, I found a nest of *Amytis striatus (howei)* containing an egg of the *Amytis* with one of the Narrow-billed Bronze-Cuckoo (*Chalcococcyx basalís*). This *Amytis* has not, I think, been previously recorded as a foster-parent of *C. basalís*. The new set is now incorporated in Mr. H. L. White's oological collection.—F. ERASMUS WILSON. Melbourne, 20/12/17.

* * *

Bee-eaters: Do They Migrate?—In reference to Mathews-Campbell correspondence about the Australian Bee-eater, owing to my extensive field ornithology in South Australia and the central regions, I can say for certain that the *Merops* found in South Australia does *not* migrate to the New Guinea Archipelago, but only shifts about according to food supply.—S. A. WHITE. "Wetunga," Fulham (S.A.), 9/2/18.

* * *

A Swallow Tragedy.—A pair of Swallows (*Hirundo neoxena*) used to come yearly and rear their brood in our verandah. One season, after the incubation had commenced, I noticed, although

one was always on the nest, there were two flying about; and after a few days, seeing the sitting one always in the same place, I climbed up to examine it, and found that it had been built into the nest, and was dead. The clay was firmly attached on either side across its back. I took the poor little thing and four eggs away; the others then repaired the nest and laid and hatched their brood of four.—(Miss) C. A. LUTTRELL. East Devonport, Tas.

* * *

Nest of *Pardalotus striatus*.—During a holiday sojourn at "The Creel," on the Thredbo River, January, 1917, I observed *P. striatus* breeding in a large company in a bank of the Snowy River. A few yards in from the bank I noted a small bird disappear into a cleft about three feet from the ground, in the trunk of a small snow gum. After hammering for some time on the tree with no result, I sat and waited. Presently *P. striatus* appeared. *P. punctatus* will breed in trees or bank, and *striatus*, as is well known, will do likewise. This one of *P. striatus* is the lowest place of any ever seen by me.—E. A. D'OMBRAIN. Sydney.

* * *

Red-vented Bulbul.—It is interesting that one of our members, Captain N. Conant, should have obtained a specimen of the Red-vented Bulbul, of Burma. The bird was breeding, and its nest and eggs were secured. Those birds have also apparently been seen in Sydney. The bird must have been some time in Victoria, as last year a clutch was evidently hatched in one of the Melbourne suburbs; a specimen was also seen lately at the Melbourne Zoological Gardens. It has a clear, distinct, whistle-like note, is dark greyish in colour, with a black crest and red patch under the tail. But how it should have become acclimatized both in Melbourne and Sydney is a puzzle. Neither of the Zoos has ever imported them.—W. H. D. LE SOUËF.

* * *

The Magpie-Lark (*Grallina picata*).—In the same tree as White-fronted Herons, 15 miles west of Bendigo, a pair of these dainty birds was sitting. They relieved each other every twenty minutes while sitting. A bird would fly up to the side of the nest, the sitting one get off and fly away, to come back in twenty minutes to sit again. This was carried on all day. It was wonderful how close to the twenty minutes they kept in relieving each other. After the young were hatched they used to take eight-minute spells away from the nest after food. A bird would fly up on to the side of the nest, when the other, if on nest, would get up and fly away for the same spell. One of the birds was always at the nest, either sitting over young or standing on the edge of the nest.—H. W. FORD, R.A.O.U.

Babblers and Sparrows.—Last month my son heard, early in the morning, a company of White-eyebrowed Babblers (*Pomatostomus superciliosus*) making a great row outside our back door. On inspection he found that one of their number was up a small gum-tree in which was a Sparrow's nest. The Sparrows were buffeting and scolding the Babbler, but without avail, as he forced his way into the nest, took out a young Sparrow, and tossed it down to the other members of his company below, who then performed a sort of war dance around the victim. So pleased was the bird at the result that he again ascended to the nest, drew forth another fledgeling, and threw it down. Whether it was sheer love of cruelty or retribution for some offensive act or bad language on behalf of the Sparrows it is impossible to say, but undoubtedly while the cruel deed was done by one bird the rest were parties to it, and seemed to find some pleasure and excitement in the proceedings.—EDWIN ASHBY. "Wittunga," Blackwood, South Australia.

* * *

Nesting of White-fronted Herons.—Once we were boring on a creek flat 15 miles west of Bendigo, and near our work was a yellow box tree with a White-fronted Heron's (*Notophoxyx novæ-hollandiæ*), a Magpie-Lark's (*Grallina picata*), and three Spotted-sided Finches' (*Stagonopleura guttata*) nests in it. One of the Finches' nests was just under the Heron's nest. We noted that the Herons, when sitting, relieved each other at 9 a.m. and 3 p.m.—that is, in six-hour spells. At 9 a.m. a bird would come to next tree to nest, give a little croak, when the one on nest would get up, walk a few feet, and fly away. Then the other would go on the nest and sit till 3 p.m., when the mate came back and took up the sitting. We were alongside the nesting tree for a fortnight, and noted these actions of the birds daily. It was remarkable how close they kept to 9 a.m. and 3 p.m. in changing. I saw this pair of birds some weeks after with five young ones. I may say we were at work from 8 a.m. to 5 p.m., and do not know how the night sitting was done.—H. W. FORD, R.A.O.U.

* * *

Blue Wren (*Malurus cyaneus*).—Once we were camped on Jackson's Creek, 8 miles south of Ararat, Victoria. It was November when we pitched the three tents alongside an acacia hedge. We saw a party of ten Blue Wrens about the hedge—two full-plumaged males and eight grey birds. A few days after we fixed camp *two pairs* of birds started to build a *nest* in bushes on side rail of one of the tents, 3 feet from passage into the tent. They finished nest and laid three eggs. Then the *two female* birds took turn about at sitting, and the two full-plumaged males used to feed them. (There is no doubt about this—I saw the females

relieve each other often. The birds were very tame, and came into the tents after flies and crumbs regularly. The non-sitting birds often came on to my bunk, and even on my knees, in tent.) They hatched three young, which were fed regularly by the four birds that were partners at the nest. After the young left the nest two of them were attached to female or grey birds' party, and the other was fed by full-plumaged male. Both the bright blue birds lost their bright colours after a time and got a rusty brown. As to these birds losing the blue plumage, this does not always happen, as I have seen a male keep his colours all the year, but in my opinion this is exceptional.—H. W. FORD, R.A.O.U.

* * *

A Greater Frigate-Bird Obtained in Western Australia.—After stormy weather a female of this species settled on the bank of the Swan River at Perth on 4th May, 1917, and allowed itself to be captured. It was placed in a crate and brought to the Museum, and when approached kept snapping through the bars of its cage with its savage-looking hooked bill. As these sea-birds do not live in captivity, and this was the first bird of the species to be obtained in the State, it was killed, and is now on exhibition in the Museum. The great confusion with regard to the species of Frigate-Birds, which has always existed, has to a large extent been dispelled by Mr. G. M. Mathews's monograph on the genus, published in his "Birds of Australia." This enables us to state with practical certainty that the bird captured at Perth belongs to the form which breeds on Christmas Island, in the Indian Ocean, which Mathews has named *Fregata minor listeri*. (The unfortunate necessity of calling the larger bird *minor* is due to the original naming of the species *Pelecanus minor* by Gmelin.) This was the sub-species included by Mathews in his "Birds of Australia" as the most probable form of the species to occur in Australia. We can now state positively that this form is a member of our avifauna. The colour of the soft parts of the Christmas Island sub-species has not been described. In our specimen the bill was slaty-grey, the feet pale flesh-coloured, and the eyelids bright pink. The Greater Frigate-Bird is stated to occur in Northern Australian seas, but it has not yet been found breeding. Gould added the species to the Australian list, stating that he had received specimens from Torres Strait, and there are birds from that locality in the British Museum. After discussing the records Mathews writes:—"Apparently the large form of *Fregata* is a rare straggler in Australian waters, and I have seen no specimens absolutely procured in Australia." Campbell records the capture of one at Brighton, Port Phillip, Victoria, which is now in the National Museum, Melbourne. It would be of interest if it were examined in connection with Mr. Mathews's monograph to determine whether it is also a specimen of *F. m. listeri*.—W. B. ALEXANDER.

Bird Protection in Queensland.*

BY A. H. CHISHOLM.

APPRECIATIVE interest in birds, so strongly stimulated in Queensland during the latter part of 1916, showed no diminution in the following year. As a matter of course, the enthusiasm was mainly in evidence among the school children, who, fired by the very comprehensive series of articles, stories, verse, and photographs tendered them in the *Bird Day School Papers*, joined the Gould League of Bird Lovers in large numbers. Approximately 4,000 additional enrolments were made in the two months following the issue of these *Papers*, and, as showing the solid foundation upon which this interest rests, random extracts from some of the letters received in connection with these enrolments are here given:—

Rolleston (Central North District).—“We have grown over ninety trees in the school ground, of which sixty are fit for birds to build their nests in. During the last eighteen months eight birds built in them. At the present time we have Finches building, Flower-peckers rearing their young, and Parrakeets, Martins, and Willie Wagtails with their full-grown young in the school ground. At the schoolmaster's residence Chestnut-cared Finches have built their nests in each of the four corners of the verandah, and reared their young during the last two seasons. In this district birds have increased in numbers considerably during the past two years. With the exception of Canaries, we are pleased to say there are no caged birds about the school district. All thoughts of caging wild birds have been given up.”

Mackay District.—“The children here take an active interest in their local birds. It is a common occurrence to see several birds walking in and out of a group of children, eating the crumbs dropped at lunch-time.”

Cooyar District.—“It fills me with pleasure to know the children are so unanimous in their desire to protect the birds, as many native birds are found in this locality. Even in the school grounds and about the school garden many varieties may be seen.”

Crow's Nest District.—“The children here have always been taught by me to care for the birds, and, though our ornamental trees are very young, we have several nests in them. Flocks of Wrens, Diamonds, and other small birds are always around the school, and we have not an insect left on our rose-bushes, proving what a benefit they are.”

Jondaryan District.—“The children at this school are very interested in birds. There are two nests in the bush house made by the little Yellow-breasts. At present the birds are hatching.”

In addition to the medium of the *School Papers*, the Gould League of Bird Lovers reached teachers and the public generally through a series of public lectures during the cooler months, and

* Supplementary to notes in *Emu*, vol. xvi., p. 186.

the children (mostly of the metropolitan area) through lectures on Bird Day. The morning proceedings at the Exhibition Hall on that day (*vide Brisbane Telegraph*) "came to an abrupt conclusion amidst considerable excitement and alarm, occasioned by the unfortunate bursting of a tube of the lantern which was being used to project specially prepared slides on the screen. The demonstration was attended by about 1,700 senior scholars, drawn from eleven metropolitan schools. . . Mr. Chisholm had only just commenced to lecture when there was a small explosion, followed by a sudden outburst of flame, which startled the whole of the large juvenile audience. The doors were at once thrown open, and most of the children made a hasty but fairly orderly exit."

The cause of the birds has also found champions in the State Parliament, on both sides of the House. Speaking on the Education estimates on 26th November, Mr. Donald Gunn (Liberal) said he wished to draw attention to the destruction of native birds. Some of the most beautiful birds of all classes and descriptions were to be found in Queensland. It would be well if the Education Department showed the youth of Australia the value of the bird life in Queensland. If scholars were taught that every bird they killed meant that they were doing some harm to the country, they would probably not kill the birds. He knew that the Education Department was doing something in the direction of teaching children their duty with regard to native birds, and he hoped that they would do a lot more, and that every member of Parliament would tell the children of his district that it was wrong to kill native birds.

Mr. F. M. Forde (Labour member for Rockhampton) endorsed Mr. Gunn's remarks with regard to bird-protection, and went further by speaking at some length on the subject when the agricultural estimates were being debated three days later. Mr. Forde said the protection of native birds was a matter of greater importance to Queensland than was generally conceded. He regretted that the Act as now administered was not of as much use as it would be if more rigidly enforced. He had consulted ornithologists on the question, and he was assured that while this State had a good *Bird Protection Act* there was still much destruction going on. The Secretary for Agriculture, in reply to a question he had put to him a few days ago, informed him that there were fifty-two Crown land areas and nineteen privately-owned areas proclaimed as sanctuaries for native birds. That latter number should be vastly increased. If land-owners generally were clear-sighted enough to apply to the Department for the reservation of their properties, that could easily be done, and they would be doing a beneficial act for Queensland. Perhaps it would be only after they had had the same bitter experience as other countries—after all their valuable birds had been destroyed—that they would realize their great value. He would suggest to the Minister that he secure the services of an honorary ornith-

ologist. Later he could be paid and instruct the children of their schools regarding the nature of the birds and their services to the country. Every State in America had a professional ornithologist attached to the Agricultural Department to give advice on those matters. He knew that the Minister was greatly hampered for want of funds, but in the meantime he might make some improvement, and afterwards adopt the practice of the American States.

In this debate Mr. Gunn offered further advocacy of the interests of the birds, particularly in their relation to the blow-fly and tick pests, and he was followed by the Hon. J. G. Appel (Liberal). The latter said that he, as a native of the State, liked to see the birds and bears looked after. He did not think that almost any penalty was too great for those who contravened the *Bird Preservation Act*. In the district in which he lived the Agricultural Department was good enough to proclaim a reservation extending from the south head of the Nerang River to the Tweed Heads, and proclaim the properties which he possessed there also to be reservations for birds. It was marvellous, since that reservation had been effected, to notice the increase in bird-life. Since the reservation had been made you could see male Regent-Birds, Satin-Birds, and other birds of different characters which even he—although he had been living there for twenty-nine years—knew nothing about.

The Minister for Agriculture (Hon. W. Lennon), in replying to the champions of the birds, outlined various points on which the Department had already been active, and promised to continue to do what he could to safeguard Queensland's avifauna.

A MENACING INDUSTRY.

Mr. Forde not only spoke generally in advocacy of the birds; he took the lead (at the request of members of the R.A.O.U.) in offering opposition to what was characterized by a Cairns resident (in a letter to the present writer) as "the biggest blow which bird-lovers have been called upon to face." The nature of this is indicated in the following report (*vide Hansard*) of Mr. Forde's remarks:—"During the last few days there had been on view at the Belle Vue Hotel a display of the feathers of some of their beautiful wild birds made up in the form of flowers, and, from what he was told, their Governor and several of their Ministers had visited the display. They had been very pleased with it; but he regretted to hear, on the authority of two bird-men who inspected the exhibition, that much of its effect was secured only by the sacrifice of the lives of many of Queensland's best birds—birds which were presumed to enjoy the protection of the law. He understood that those feather flowers had been placed with a big city firm, which was to act as the agent for the owner, who proposed to carry on an industry. He trusted, however, that the Government would secure advice and act firmly and quickly in putting a stop to the traffic, because it would be a serious menace to Queensland. Such an industry as the manufacture of fancy hat

pins and hair pins for society ladies at the expense of the lives of the beautiful native birds of Queensland was not by any means a necessity, and would be a disgrace to the Government of Queensland. Ladies should not be allowed to wear beautiful headgear at the expense of Queensland's native birds, the loss of which would in time mean the loss of all vegetation. He appealed to the Minister for Agriculture not to rest content with the mere proclamation of sanctuaries for birds, but to place the Act under proper supervision, and try in every way to safeguard these natural police. Let them learn from the experience of other countries, which had awakened too late to the extraordinary value of their birds, destroyed by irresponsible people who were after pleasure and the almighty dollar all the time, and had not the interests of their country at heart.

Immediately after Mr. Forde's protest had been lodged, this important matter was taken up in the following letter to the Brisbane press:—"Mr. A. H. Chisholm writes:—Sir, For the enlightenment of any of your feminine readers who, lacking a guiding knowledge of the ways of the plume trade, may be tempted to buy certain feathered ornaments that are (or were) about to be placed upon the market, permit me to stress the protest uttered by Mr. Forde in the Legislative Assembly on Thursday. In company with another member of the Royal Australasian Ornithologists' Union, I visited the exhibition of these decorations at the Belle Vue Hotel during the week. Like everyone else, we thought the display strikingly pretty (albeit a good deal less so than the live birds from which the feathers were taken), but any pleasure aroused by the artistry of the creations was quickly overwhelmed by the knowledge that it was only obtained at the expense of the lives of some of Australia's most beautiful and valuable birds. The dainty orange and black plumes from the tail feathers of the Black Cockatoo, ostensibly a strictly protected bird, first met our astonished gaze, and in a few moments we had identified feathers from several other species which are presumed to be immune from destruction the whole year through—not to speak of other varieties which are (according to law) protected in the breeding season. It may be confidently assumed that, following the Parliamentary protest, the Agricultural Department will take prompt measures to stop the sale of decorations containing the feathers referred to; but all lovers of country who realize the awful possibilities ahead of an extensive plume trade will surely join in appealing to women not to wear the feathers of any wild bird. . . ."

These protests did not go unheeded. At the annual meeting of the Gould League of Bird Lovers a few days later His Excellency the Governor (Sir Hamilton Goold-Adams) announced that, in view of the destruction of valuable birds which the proposed new industry would apparently entail, he had refused a request for patronage; while the Under Secretary for Agriculture (Mr. E. G. Scriven) informed the writer that he had refused a request by the proprietor of the feather ornaments for the removal of the

Shining Starling (*Calornis*) and the Australian Roller (*Eurystomus*) from the list of protected birds.

The next development was the publication in the Brisbane press of the following crushing (?) retort for the defence:—"Sir,—I have just received a clipping from your paper published after my departure from Brisbane. A man by the name of Chisholm writes that he visited an exhibition of 'feather decorations' at the Belle Vue Hotel. I was the proprietor of that exhibition, and the person in question must have accepted my general invitation. He advertises the fact that he is a member of the Royal Australasian Ornithologists' Union. He certainly should have made himself known to me. I am always pleased to meet a gentleman, and in this case would have saved the public being led astray by someone with a 'little knowledge,' which is dangerous. I purposely brought the few feather flowers in my possession that contained the feathers of protected birds, and explained that these birds' feathers were not required by me, and I had forbidden their destruction, believing it far better and more honourable to act in this way than to have some person bringing a charge against me later on. I specially invited several of the most prominent members of the Queensland Society for the Prevention of Cruelty, the Minister for Agriculture, and the Under Secretary for Agriculture, besides the most prominent people in Brisbane, and many representatives of the press. To each I explained the class of bird I was using—edible and destructive birds with feathers that are thrown away in very large quantities all over the world. Yet, immediately my back was turned, I was subjected to an unwarranted and unprincipled attack from a person signing 'A. H. Chisholm,' a name that I cannot find amongst the members or donors of the Queensland Society for the Prevention of Cruelty in their annual report, kindly handed me by one of their committee. Kindly accept my apology for using so much of your valuable space, but I am sure you will agree the attack was unjust, and in the spirit of fair play allow my reply.—Yours, &c., E. HUNTER. Kuranda, 17th December, 1917."

Since that time very little has been heard of the feather industry and its virtuous "proprietor," but it is worth noting that the superintendent of the Mona Mona Mission Station (North Queensland) has lodged a protest against his blacks being used as bird-murderers.

Ourselves.

It has been decided that the conversaciones of the Union be held as follows, all at 8 p.m. :—

Wednesday, 3rd April, at the R.A.O.U. rooms in Temple Court, the subject to be "Swimming Birds."

Wednesday, 1st May, at the R.A.O.U. rooms, the subject to be "Robins."

Wednesday, 5th June, at the Museum, the subject to be "Thick-heads (*Pachycephala*)."

Correspondence.

“BIRDS OF ROCKINGHAM BAY,” BY A. J. CAMPBELL AND H. G. BARNARD, MS.R.A.O.U. (*Emu*, vol. xvii., pp. 2-38).

To the Editors of “*The Emu*.”

DEAR SIRs,—On behalf of Mr. Barnard and myself, kindly permit me to make a brief rejoinder to Mr. G. M. Mathews’s letter, which he was good enough to forward for the previous (January) *Emu*, p. 157.

Mr. Mathews, in a somewhat patronizing criticism of our paper, states we “fully confirmed the majority of the sub-specific distinctions bestowed” by him, in the district we collected; but where we ventured to disagree with that author, Mr. Mathews imputes it to our “ignorance”—“such ignorance,” “lack of knowledge,” &c. We bracketed Mr. Mathews’s names with those of the R.A.O.U. “Check-list” in a complimentary sense, not because we agreed with all his. Our readers know the bird we are dealing with at once by using the Union’s “Check-list”; the same, I am afraid, cannot be said had we used Mr. Mathews’s nomenclature only. Therefore it is the Mathewsian “technicalities of nomenclature” that are confusing. Even his last “1913 List” (which he wished the Union to espouse) is “in liquidation,” as a student aptly put it. Moreover, Campbell and Barnard’s paper of “petty and querulous items” was not written especially for “extra-Australian scientific workers,” but, with singleness of aim, purely in the interests of Australian ornithology.

We shall get to business and narrow our “little queries” to four particularly cited in Mr. Mathews’s letter:—

1.—Almost all ornithological authorities (including Mr. Mathews himself in his “larger undertaking,” “*The Birds of Australia*,” which he states we “have not considered”), use *Casuarinus australis* (Wall) for the Australian Cassowary. Now he revokes on his subscribers, requiring them to deface his fine plate by altering the name *australis* to *johnsonii*. It was the Hon. Walter Rothschild who first suggested that *johnsonii* should take precedence, because an ancient (A.D. 1792) popular miscellany,* edited by one Shaw, called the Emu the “Southern Cassowary.” Therefore, as “Southern Cassowary” signifies *Casuarinus australis* in technical terms, and as that name (although by inference only) was once previously and erroneously attributed to the Emu, it is unavailable for the Cassowary. If that be a sample of the operative laws of nomenclature or of priority, save Australian ornithology from such laws and from such “confusion worse confounded.” I defy Mr. Mathews or any other authority to say that there is anything scientifically or ornithologically wrong in the use of the term *Casuarinus australis* for the Cassowary.

* “*The Naturalist’s Miscellany*” (of Shaw and Nodder). It contains figures of more than 280 birds, but very poorly executed.—“*Encyclopædia Britannica*.”

2.—“No changes should rest on uncertainties,” wisely writes an authority. Mr. Mathews states that Gould’s name for the Tawny Grass-Bird (*Megalurus galactotes*) was proposed for an African bird. There is no direct proof of this, although Mr. Mathews’s opinion is that Temminck’s figure is only “almost certainly” an African *Cisticola*. Therefore, we were truly “amazed” that Mr. Mathews rejected Gould’s perfect, lifelike coloured plate in favour of an old figure of a supposed African species and added to a well-known Australian bird *his own new names*.

3.—Mr. Mathews disparages, because belated news, our statement—“We had the opportunity of proving that Ramsay’s *Eopsaltria inornata* and Hartert’s *Pachycephala peninsulae* are the same species.” Our sentence should have been elaborated thus:—“*But are not two different sub-species, as shown in Mathews’s last (1913) ‘List.’*” We have examined skins from both of Mathews’s so-called sub-specific localities, also from New Guinea. “No proof is put forward,” says Mr. Mathews. We hold the material.

4, and lastly.—Regarding the *Merops*, one could write pages of speculative interest on the variation and habitat of Bee-eaters. Let it suffice for the present to remark that with the “H. L. White Collection,” together with the national collections at Sydney and Melbourne, there is enough material to enable Australians to work out their “own salvation.” In the first-mentioned collection there is, from the Coongan River, North-West Australia (Mathews’s precise locality for *M. shortridgei*), a male specimen in perfect plumage, perhaps more golden about the head than is usually the case, but it exactly corresponds with the male of a pair collected at Kow Plains, Victoria. Again, there is a typical *M. ornatus* taken by Capt. S. A. White, M.B.O.U., on or near the Nullabor Plain, at the head of the Great Australian Bight—midway between the east and west coasts of Australia. To which stream of migrants (or supposed sub-species), eastern or western, would Mr. Mathews refer this central bird?—I am, &c.,

A. J. CAMPBELL.

Surrey Hills (Vic.), 22/1/18.

Reviews.

[“Descriptive List of the Birds of Tasmania and Adjacent Islands,” by Clive E. Lord, Hobart.]

THERE have been several lists of Tasmanian birds published—Gunn’s and Swan’s, both founded on John Gould; Legge’s, after the “Catalogues of Birds,” British Museum; and last we have Mr. Lord’s, according to Mr. G. M. Mathews’s “1913 List,” and in useful pocket form. In Mr. Lord’s list the vernacular name of the bird is first given, then the technical (trinomial) nomenclature, followed by a few succinct words of description.

Miss J. A. Fletcher's interesting little publication, "Nature and Adventure in Australasia" (Macmillans), for boys and girls, has come to hand. We can easily realize the success this work has had, being told in a charming style and containing much field information. Any children reading this work will take far more interest in the wonders of nature, and especially of bird-life, than they otherwise would. We can heartily recommend this book to juvenile readers.

THE second series of "Bird Numbers" of the *School Paper*, issued by the Department of Public Instruction, Queensland, are very creditable to all concerned. Many of the articles contain original field observations, while some of the photographs depicting bird-life are really excellent. Old as well as young should profit by Governor Hamilton Goold-Adams's wise remark—"The more you get to know about birds, the more you will realize how valuable they are to yourselves and the other inhabitants of this country."

Note.—Wanted to buy, part 3 of vol. i. of *The Emu*. F. E. Howe, "Athenæ," Bryson-street, Canterbury, Victoria.

Obituary.

DEATH OF COL. W. V. LEGGE.

Too late for adequate notice in this issue came the sad news of the death of the first President of the R.A.O.U., Col. W. V. Legge, C.M.B.O.U. An extended notice will appear in our next issue.

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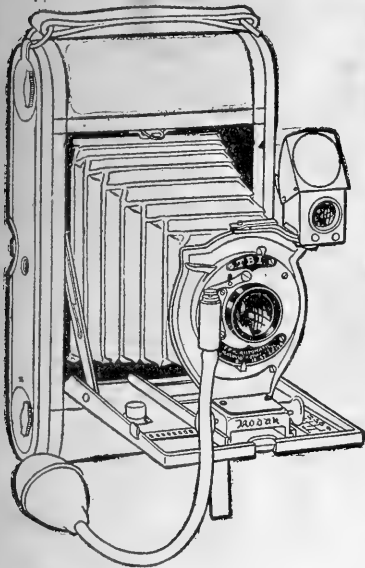
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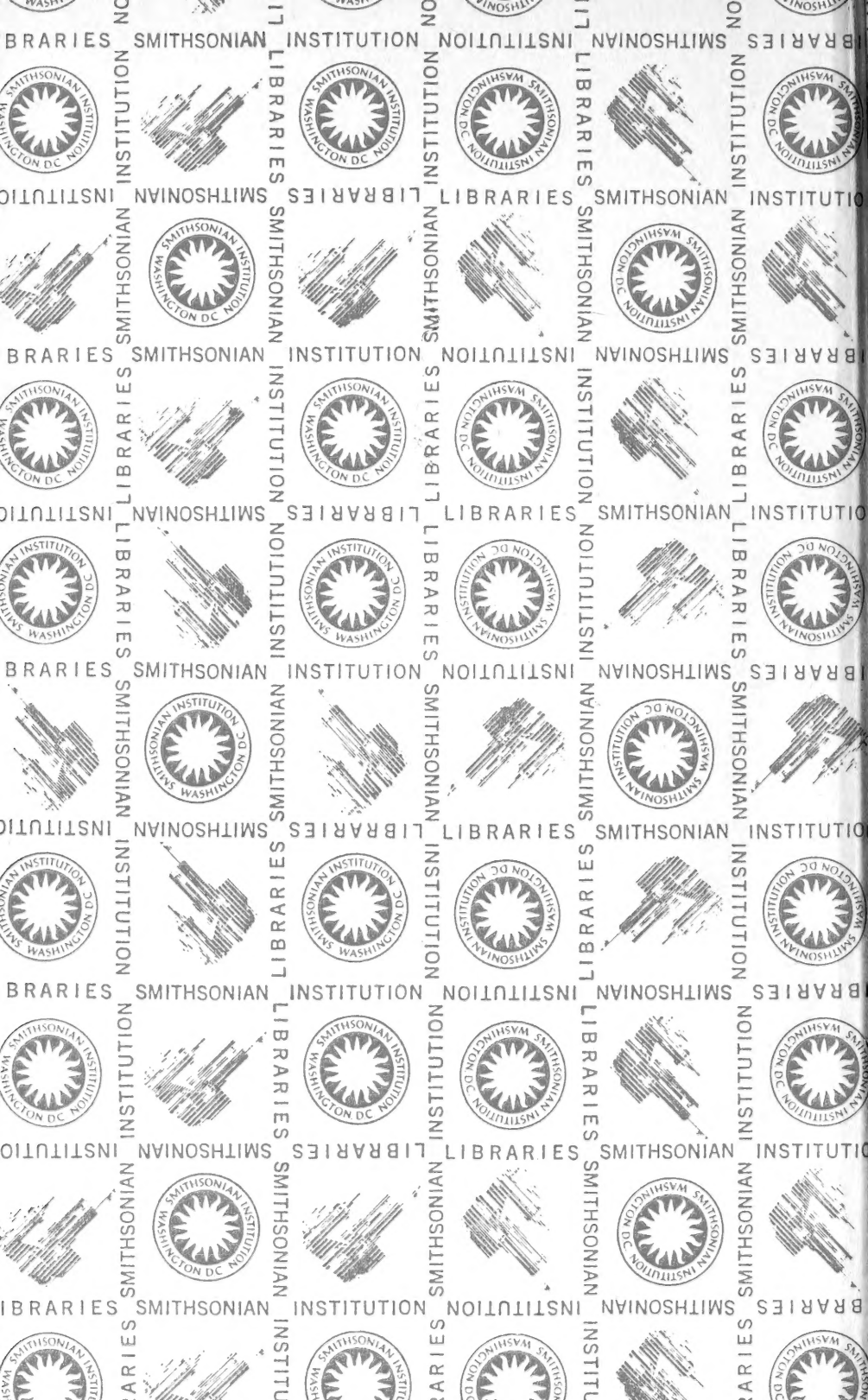
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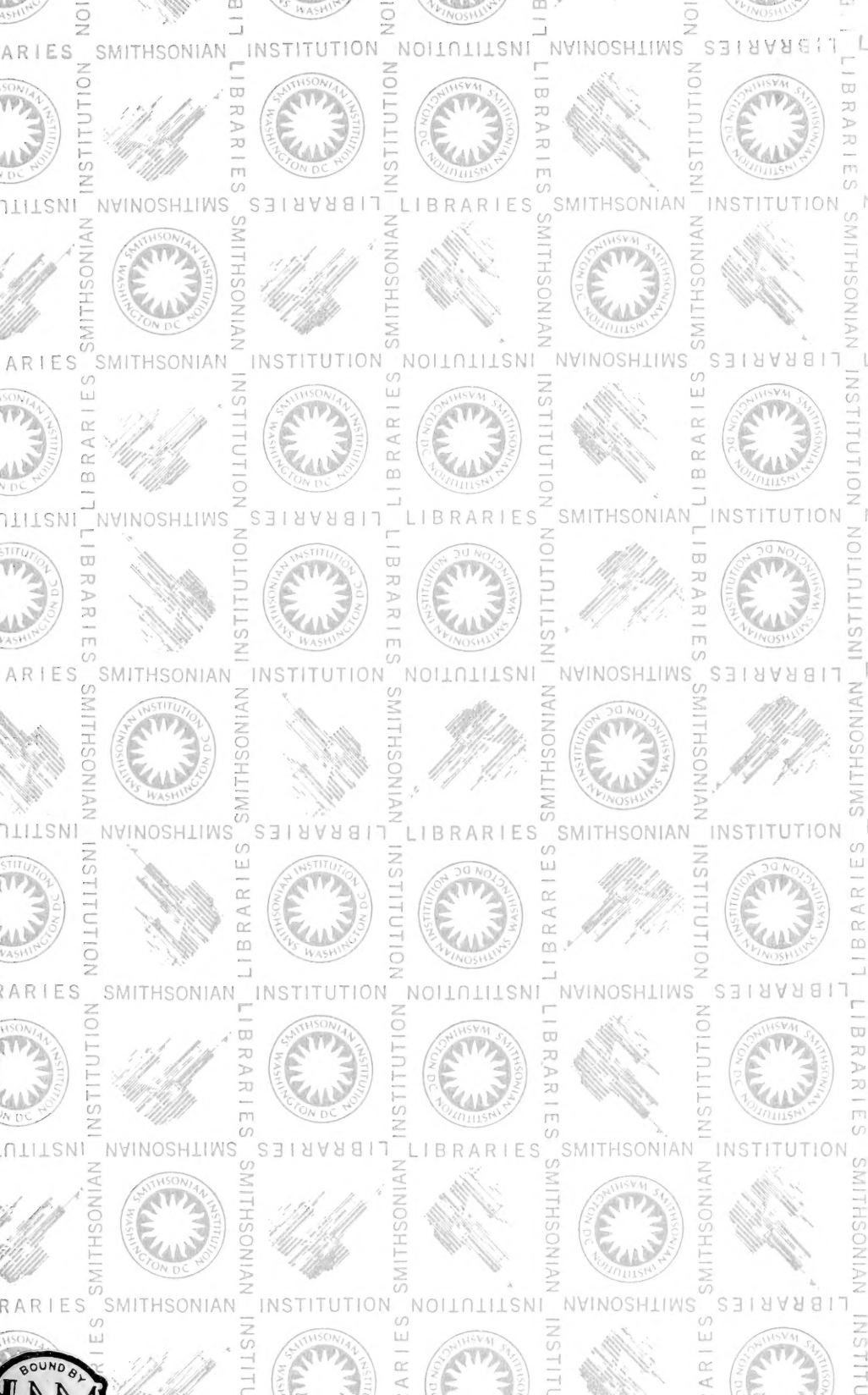
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