PLATE XII.

Rufous Fantail *(Rhipidura rufifrons)* and Nest.

FROM A PHOTO. BY A. H. L. MATTINGLEY.

The Emu

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

OFFICIAL ORGAN OF THE AUSTRALASIAN ORNITHOLOGISTS' UNION.

Hon. Editors { C. F. BELCHER, M.A., LL.B.
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VOL. VI.—1906-7.

Melbourne:
WALKER, MAY & CO., PRINTERS, 25 MACKILLOP STREET.

London Agent:
R. H. PORTER, 7 Princes Street, Cavendish Square, W.

1907.

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PLATE I.

Nest of Fern-Bird (*Sphenœacus punctatus*) in Rush-bush.

FROM A PHOTO BY J. C. McLEAN.

The Emu

Official Organ of the Australasian Ornithologists' Union.

"Birds of a feather."

VOL. VI.] 2ND JULY, 1906. [PART 1.

The Fern-Bird of New Zealand (Sphenoeacus punctatus, Quoy et Gaim.)

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

FOUR species of *Sphenœacus* are found inhabiting the islands of New Zealand, and all are peculiar to the region. *S. punctatus* is the best known, being met with in each of the main islands. A larger and paler form, *S. fulvus*, also occurs in the South Island; *S. caudatus* is found in the Snares, and *S. rufescens* on Mangare, one of the Chatham group.

The Fern-Bird is not uncommon in localities suited to its mode of life, but, being of a shy and cautious nature, is not often seen; still its monotonous call is sure to attract the attention, whether it be heard in the dense swamp of flax and raupo or in some rough creek skirted by scrub and fern. A favourite haunt is among the patches of rushes and cutting-grass which fringe the edges of low-lying swamps and lagoons, and often stretch up into the surrounding gullies. In the open virgin country it may occasionally be heard amongst the dense fern and scrub in the gullies or damp flats. It does not penetrate the bush, nor ascend to high altitudes. Large expanses of waste appear to suit the Fern-Bird best, and it is never noticed in the small patches of swamp in settled districts, nor about open creeks.

It is a difficult matter to study the habits of a bird which has its home among such dense and tangled growths. The movements of the Fern-Bird are quite mouse-like, and, if occasion demands, extremely rapid. It is a wary little creature, and usually found singly. This would lead one to think that the birds only pair for the breeding season, but from a long acquaintance I believe they remain paired throughout. A sight of the bird is usually momentary, and generally occurs in a chance manner. A pig-hunting expedition may disturb a little brown bird, which, flying with feeble flight and depressed tail for a few feet in a direct line and low, is lost to sight as it drops with a scramble into the fern of its own colour. Or, while waiting for Ducks far out in some lagoon, with the boat well hidden in the

raupo, one obtains a glimpse of the bird threading its way from blade to blade with halting, cautious, little flights towards the intruder, and calling a sharp "tŭ-'t" as each fresh step is taken. Probably it will come within a couple of yards, only to retire and execute a flanking movement. This goes on for some time, the bird working from flank to flank and keeping out of sight as much as possible. An imitation of its cry will cause it to become more excited and inquisitive. When one is eel-fishing in the summer evenings, its sharp call is sometimes heard, and the rustling of the reeds denotes its presence. This note is often heard till late on in the evening if the bird has been disturbed. It keeps low down in the vegetation, and is rarely seen near the tops of the raupo blades.

While moving among the vegetation the tail is continually being depressed; this is very noticeable when the bird is working its way up or along a blade. I suspect the tail is used as a support in climbing about, and have found it very much abraded in specimens examined. The bird's flight is very feeble, and it only takes wing when suddenly startled in short or scattered vegetation, and it then makes a direct flight to the nearest cover. Its great trouble seems to be in attempting to raise itself in the air, but I have noticed that in skipping from one strip of raupo to another low down it moves across the space with a smart undulating flight. It soon tires if pushed. A pair was once easily run down in some short, scattered fern, but no sooner was one placed in my pocket than it was out again like a mouse, and, although at last both were, as I thought, safely shut up in my saddle bag, both escaped on the way home. It is quite impossible to catch one among rushes or tussocks, through which it travels like a mouse. Only once have I seen an extended flight by a bird which must have received an awful start from my dog in a large, level stretch of rushes, over the tops of which it stuggled with depressed tail for fully fifty yards before dropping into cover.

Sir Walter Buller notes the possession of a strong scent by this bird, and I, too, have remarked sporting dogs taking notice of it. My first nest was discovered by my spaniel being attracted to the tussock in which it was placed and disturbing the sitting bird.

I have examined the crops of several of these birds and found them to contain the remains of insects, and in one case a number of pieces of the shells of a small freshwater snail.

The Fern-Bird is also called "Utic," from its call, and "Swamp-Wren." The Maories have quite a number of names for it, mostly in resemblance of the call—for instance, Koro-a-ti—but perhaps Mata is more commonly used.

The Fern-Bird has no song, but possesses a number of calls which are difficult to express on paper. The note most frequently

PLATE II.

Young Fern-Bird in nest in Stunted Nigger-head.

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

heard is a sharp *tŭ-'t*, best imitated by sounding the first syllable quickly and then sharply sucking the tongue from the front of the mouth. This note—one of suspicion, I should call it—is uttered, say, every six or seven seconds. When suspicion changes to alarm or concern, the first syllable is not sounded, and it becomes *'t*, more frequently repeated. Absolute rage and anger, when the young are molested, produce an extremely sharp *tak !* which sounds like the tap made by sharply striking two pieces of hard dry wood across each other, and similar to the sharp *tak* of the bones used by nigger minstrels. It is sufficiently loud and sharp, when sounded within a couple of feet of one's head, really to vibrate on the ear. *Tŭ-it* is a modification of *tŭ-'t*, and another call is best expressed by the native name "*koro-a-ti*" (pronounced *coro-ar-te*). It is heard when a pair is disturbed close at hand. On hot summer days the bird may be heard at intervals of three or four seconds calling to its mate at a distance a slightly plaintive, ringing *tū-ŭlt*, which I have likened to the ring of a distant anvil. But the Fern-Bird's most peculiar call is an imploring, plaintive, ringing *tū-wē-lt*. This is only occasionally heard, and generally on dull days or towards sunset, and as it floats across from far out in the silent marsh one can almost imagine a lost Fern-Bird. *Tū-wē-lt !* "Oh ! where are you and where am I ?" At the nest the old birds make a great hubbub, rushing wildly round and in and out of the tussock, scolding all the while, and I feel sure both birds utter the *tak ! tak !* which is really ear-splitting. I took down on the spot the notes used on these occasions, and render them thus—*Skwū, skwu, squrr, kur-r-r-kur, tak ! tak ! . . . . tak !* then again *skwū, skwe, squr, tak ! squr-r-r tak ! tak !* These are all the notes I have heard from the Fern-Bird, and both sexes use them. The young can make a fair *squū* and *squrr* when handled, but at other times a faint *t* has been remarked, and that very seldom.

Panapa Waihopi, a leading native of this district, has told me a little story in connection with the calls of this bird. In the old days, when a native went at evening to set his eel-basket in some hole in a creek, he was always on the look-out for omens. If on visiting a likely hole the Fern-Bird in the neighbouring vegetation called *t, t, t*, a plentiful catch of "tuna" was assured ; if, on the other hand, *ti-ko-re* was uttered, it was madness to place the basket there, and a more propitious spot must be sought, for not an eel would enter the trap after this warning cry.

I have heard the same story, but with the word *ki-po-ki* used instead of *koro-a-ti*, from a Hawke Bay native.

The birds are noticed in pairs early in August ; October is the usual nesting month. Eggs have also been taken in November and December. Young noted principally in November.

The nest is usually placed right in the centre of and low

down in a tussock growing in or near the edge of a swamp. One was noticed more to the edge and high up in a cutting-grass bush. Nests have been taken from rush bushes, nigger-heads, cutting-grass, and a stunted form of nigger-head which grows in drier spots. Sir Walter Buller notes the rareness of its discovery, and mentions that those found had the stems of the plants built into the material of the nest. With those observed by myself this has not been the case. There has been no interweaving or inclusion of any stem of the plant with the walls of the nest, and it can be lifted out bodily without a single stem drawing through the material. The nest is difficult to locate even when the bird is flushed from the tussock, as it is wonderfully protected, being built of the same coloured material as occurs deep down in the tussock, and the feathers of the lining are inclined to curl inwards at the rim and hide the eggs. I examined one tussock three times before finding the nest. All I have met with have been found through flushing the bird, and although I have watched the builders with material in their beaks I have never yet succeeded in tracing one to its nest. Considerable anxiety is evinced by the birds when the nest is investigated, one of the pair being more conspicuous by its calling than the other. If the nest is approached quietly and the tussock peered into, the bird may be seen sitting on the eggs with head and tail almost vertical. There is a slightly enlarged opening through the blades to the nest, facing the swamp; this is the only way of egress.

The nest is a deep cup-shaped structure, and not dome-shaped, as stated by Dixon in Seebohm's "History of British Birds" (Introduction, vol. ii., p. 17). I do not find the nest to be a frail structure at all; when it is lifted out and examined one is at once struck by its rigidity. Certainly, if a feather or two of the lining be misplaced it may be seen through, and no doubt will not stand exposure and handling in collections for long; but it is so strongly constructed as to appear like a miniature wicker basket from which a quantity of feathers have been emptied, a few still remaining attached to the inside. I have not noticed any feathers among the walls—simply a few inside for lining. The walls are very neatly woven, and the only ragged part is the base of the nest or foundation. It must be hard work for the birds starting a nest in the centre of a tussock, as the stems have a fair amount of spring in them, and would be hard to keep apart. This trouble—or, rather, the result—is noticeable in one nest in particular. It was taken from a cutting-grass tussock, the saw-edged cutting leaves of which are very stiff and irregular. The birds have evidently struck stems so stiff at certain parts that the material is all bent sharply at definite corners, and the result is a peculiar heart-shaped structure. Another, from a rush bush,

PLATE III.

Nest of Fern-Bird from Cutting-grass Tussock.

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

is round in general appearance; but here again the material is bent at definite points, and this makes the interior appear squared. One nest was a short oval; others were more or less irregularly circular. I am speaking of the nest as it appears when the interior edge is viewed from above. No doubt the stems used are very brittle, and sure to break while being bent to shape inside the nest, and so help to form this many-sided style of interior. The walls and foundations are composed wholly of fine, dry grass stems, with very little of the flag. None of these stems is thicker than a cocksfoot stem, and the inner ones are the finest obtainable. They vary in length, some being fully 18 inches long. How the bird manages to work them into shape is a puzzle. I have never noticed wool or feathers in the walls. The lining consists of a single layer of feathers—usually the larger contour feathers of Pukekos and Ducks—varying from 1 to 2½ inches long. This lining is so thin that the interior feels quite hard to the touch. The feathers are so placed that the curl corresponds to the curve of the nest. They are only lightly affixed to the wall by the base of the shafts, and are very easily displaced. Those at the rim are the largest, and are inclined to curl over and form a canopy when the bird leaves the nest. When the bird enters there is a good deal of shuffling in the nest, as if it were rearranging the lining. Twice I have seen a sitting bird return with material for the nest. This lining is often composed of but one variety of feathers. A nest in October had a lining wholly of Pukekos' feathers; one in the same locality in November had mostly Ducks', a couple of Pukekos', and a Rail's; while another nest, taken from the same place in December, had all Ducks' feathers. This is rather suggestive as to the season of moult in *Porphyrio* and *Anas*. An average nest measures in depth 4.5 inches, and the same in width; the cavity measuring 2.6 inches in depth, and only 2.3 in width. Another is 2.5 inches in depth of cavity and 2.2 inches in width.

Four is the usual number of a clutch, but a clutch of three is sometimes found. In shape the eggs are long ovals, slightly smaller at one end. They vary slightly in size, and one clutch of three is more pointed. An average egg measures .79 x .58 inch, but the clutch just mentioned averages .88 x .58 inch, while another clutch of four is .80 x .58 inch. The shell is glossy and of very fine grain; it is also very thin and fragile, a clutch of three weighing (blown) only 5.75 grains, one of four 6.75, and another of four 7 grains per clutch. Unblown eggs, about 9 days incubated, weighed 34.75 grains, and others, less incubated, 35 grains per egg. In colour they are much alike. The ground colour is dull white, with a very faint tinge of cream. They are closely spotted and dotted all over with very small violet markings, over which are

evenly but more thinly distributed larger markings of a purple-brown. The violet markings are sometimes a little thicker at the larger end, giving a slight suggestion of a zone, and are very small, and fairly constant as to size, not being larger than a pin's head, while the purple-brown ones are irregular in shape and size, varying, on some eggs, from the size of a pin-point to twice or three times the size of a pin's head. Neither tint stands out prominently from the ground colour.

Both birds assist in building and tending the young, and, I expect, share in the hatching of the eggs, but I have no direct proof of this latter.

The following table of a nest observed last season (in December, 1905) will give an idea as to the length of time involved in rearing a brood :—

Nov. 24th.—Found nearly completed nest.
Nov. 26th.—Observed both birds building.
Nov. 27th.—Nest complete.
Nov. 29th.—1 egg in afternoon.
Nov. 30th.—2 eggs in afternoon.
Dec. 1st.—3 eggs in afternoon.
Dec. 3rd.—4 eggs in morning—evidently last laid on 2nd. Bird on nest.
Dec. 4th.—Bird sitting.
Dec. 17th.—Young hatched last night.
Dec. 18th to 28th.—Young observed in nest.
Dec. 30th.—Young at nest, but scattered as soon as approached.
Dec. 31st.—2 young caught at nest.
Jan. 2nd.—No young in nest in daytime ; found them there just after sunset.
Jan. 6th.—Nest completely deserted.
Jan. 10th.—Saw 2 young with 1 old bird out in swamp.

The eggs are laid daily, evidently in the morning, and incubation lasts 12½ days, the young leaving the nest about the fifteenth day.

The young are born absolutely naked and blind, not a trace of down showing, but on the second day the quill feathers of wing and tail are just breaking, and a dark, shield-shaped patch underlies the skin over the lumbar region. This latter breaks through on the third day, and advances rapidly in growth, as do all the feather tracts. The chick grows at a great rate, and the well-developed legs and feet are very noticeable from the start. The eye is fully open on the third day. Full descriptions of the development of the young were made at the time, but must form the subject of a separate article. The ventral tract of feathers, starting under the chin, branches at the point of the sternum into wide arms, one on each side of the breast. These immediately branch again, one branch going along under the

PLATE IV.

Eggs (two clutches) of Fern-Bird.

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

wing to the thigh joint, and the other down the side of the breast and abdomen to the vent. The spinal tract is broken just above the lumbar patch, which is very extensive, and also just below it. The humeral pteryla is well marked and developed, while that of the femur is very slight. The tail of the young bird is peculiar. In the nestling of fifteen days old the ten tail feathers are nearly equal in length, and the barbs are closely set, as in an ordinary bird's feather, but there are no barbules to lock them. Also, the shaft of the tail feathers (which is rounded at the end) extends about 2 millimetres beyond the vane, and is curved downwards. These feathers, which are very stiff to the touch, are about .75 inch long. The legs and feet are very well developed, and the young are very active indeed, making good their escape whenever a chance offers by scuttling out of one's hand and through the grass or tussocks with great rapidity. The tail in a bird of about one month old is about half the length of that of the adult, is still closely barbed, but has lost the extended shaft, perhaps by usage. I have not examined sufficient material to state the changes of plumage of the adult. The iris is black in the adult, and also in the young.

Little is known of the breeding habits of the three remaining members of the genus in New Zealand.

S. fulvus (Gray) has the webs of the tail closely set. Mr. Potts describes the eggs as larger than those of *S. punctatus*, white and marbled with reddish-purple freckles (see Buller, " Birds of New Zealand," 2nd edition, vol. i., p. 61).

S. caudatus (Buller, *Ibis*, 1894, p. 523) is distinguishable from *S. fulvus* by its much larger size and much heavier bill. The late Captain Hutton notes it as common on the Snares (see Ogilvie-Grant, *Ibis*, 1905, p. 591). So far as I know, nothing is known of its breeding habits, and the egg is undescribed.

S. rufescens (Buller), the Chatham Island form, is distinguishable from the other members of the genus by its white throat. Sir Walter Buller (" Birds of New Zealand," 2nd edition, vol. i., p. 62) describes an egg from Pitt Island as broadly ovido-conical, with the entire surface covered with a speckled or marbled graining of reddish-brown on a creamy-white ground, and measuring .80 by .65 inch. The firing of fern and swamp and draining of marshes has, of course, lessened the area available for the Fern-Bird throughout the colony, and its ranks have been considerably thinned ; but I think no further great reduction in its numbers need be feared for the present, except in country which must ere long come into use for grazing and agricultural purposes. There are many extensive swamps and lagoons within the colony which are bound to stand untouched by man, and, let us hope, remain a refuge for the Fern-Bird for many years to come.

Feathered Friends in New Zealand.

BY H. STUART DOVE, F.Z.S., TASMANIA.

THE aspect of Papanui, in Canterbury, is well wooded and rural, and while staying there during a recent visit to New Zealand I had opportunities of witnessing how completely exotic birds have adapted themselves to new surroundings. English birds seemed more plentiful than in a similar patch of England itself.

In the early summer morning it was very pleasant to be awakened by the "mellow Ouzel fluting in the elm," or by the wise Thrush, who "sings each song twice over, lest you should think he never could recapture the first fine careless rapture." Starlings and Sparrows could be seen at all times; Goldfinches were nearly as plentiful; but I looked in vain for the native birds, completely ousted by the bold foreigners.

On exploring the wilder stretches of the magnificent Botanic Gardens, which stretch for a long distance along the banks of the Avon River, I was more successful. Two species of Fantail lived there—the Black (*Rhipidura fuliginosa*) and the Pied (*R. flabellifera*), the latter by far the more plentiful, and not at all unlike our own little Tasmanian *Rhipidura*. One afternoon I heard a queer squeaky little song proceeding from a tree at the entrance to the Gardens. I took it at first to be the twittering of a small Lorikeet, but by exercising a little patience I soon discovered that it proceeded from a Pied Fantail among the branches.

The tail of this species is white, with the exception of two central feathers, which are grey. One bird which I saw in a tree on the river bank had a pure white tail, of which it seemed very proud, spreading it and flashing it about at every opportunity. As the remainder of the bird is soberly tinted, mostly with greys and browns, the effect of the outspread snow-white tail was very fantastic. Probably the omission of the grey feathers would give this fortunate individual an enhanced value in the eyes of his lady-love, lifting him above the *profanum vulgus*, the common herd of *Rhipiduras*, and being thus an advantage to the race, perhaps we may look for a repetition, and finally a perpetuation of the peculiarity. The nest of this species is of the same beautiful cup shape with which we are so familiar, but the tail of the nest appears to be shorter than with us. Three young are usually reared.

Another bird which I frequently saw in one of the shubberies was the Yellow-breasted Tit (*Petræca macrocephala*), which, in the Museum specimen, has a white breast with a yellow tint on the lower part. The individual observed by me had a white breast on which no yellow was discernible, so the bird was

perhaps not fully matured. In shape he much resembled our *Petræca leggii*, and the female was of a sober grey.

A Honey-eater (*Anthornis melanura*), called by the Maories Makomako, was occasionally seen in the shrubberies near the river. It is a shy, quiet bird, in shape not unlike the Crescent Honey-eater (*Lichmera australasiana*), but of a very dusky hue, without any of the vivid golden tints of that bird.

A specimen of the Wekau or Laughing Owl of the colonists (*Sceloglaux albifacies*) lived in the gardens for a number of years, but was eventually found dead, and may now be seen preserved in the Christchurch Museum.

There is one very familiar feathered friend for which we look in vain on these summer isles—the Swallow, nearly ubiquitous, "chasing itself at its own wild will."

How a small bird like the Shining Cuckoo (*Chalcococcyx lucidus*), endowed apparently with no great power of flight should yet be able year after year to wing its way across the 1,200 miles of ocean which separate "The Land of the Moa" from our own, while a strong, facile flyer like the Swallow never accomplishes the same feat, is one of those mysteries of bird-life which are difficult to fathom. Even if the Cuckoo utilised Lord Howe Island as a resting place, there would still be several hundred miles of water to negotiate before reaching its breeding place. Concerning this bird, Sir Walter Buller makes the following remarks:—"But while we are still listening, a new sound arrests the attention—a peculiar whistling cry, different from that of any other bird. This announces the arrival in our country of the Shining Cuckoo, an inhabitant of Australia, and probably New Guinea, which appears in New Zealand (also in Norfolk Island) only as a summer migrant. The cry is always welcomed by the colonists as a harbinger of spring, and during its short stay with us its sweet but plaintive notes may be heard in every grove throughout the long summer days. For a period of ten years I kept a register of its periodical arrival at Wellington, and noted its regular occurrence between the 5th and 10th of October. It usually departs about the first or second week in January, but in the far north it sometimes lingers till the end of the month." It is much more frequent in the North Island than in the South, for a Dunedin writer says that "This beautiful little bird, with his pleasant note, is not very frequently seen in the city and suburbs. Like the Long-tailed Cuckoo, this species lays its single egg in the nest of some native bird, usually the little Grey Warbler. In due time all the eggs are hatched, but after the lapse of a day or two the young Cuckoo becomes the sole tenant of the nest, and the dead bodies of the other occupants are found lying on the ground below. The intruder is catered for by the foster-parents until it is ready to shift for itself."

I had the good fortune to see on the wing one of the Long-tailed Cuckoos (*Urodynamis taitentis*), a really fine bird, well marked, with strong tail development, as the name implies. This was in the vicinity of Lake Wakatipu, an immense basin of snow-fed water, mountain guarded, situated in the south-west of Otago Province. To the westward, again, is Lake Te Anau, another immense sheet of fresh water, and in pushing from Te Anau to Milford Sound on foot, through forest country, I saw many more of the native birds.

The Government has, with magnificent liberality and far-sighted wisdom, reserved here the immense area of 600,000 acres (1,000 square miles) as a National Park and heritage to the people for ever. In this splendid tract of forest and mountain, river and lake, the native fauna are strictly protected —no sporting or collecting allowed—and the benefit of this measure is evident, even to the passing traveller, in the tameness of the birds about the track.

The Maori Hen, or Weka (*Ocydromus australis*), a bird the size of a domestic fowl, which runs but does not fly, will cross the narrow forest path, just in front of one, without any hurry. With its head and long beak carried well forward, and its queer, uneven sort of gait, it is a comical sight. It is the clown of the bird realm, and will hang about the huts waiting for scraps, chasing its brethren and giving them a dig with its sharp beak, ever and anon breaking into the sharp cry, "Wee kaar, wee kaar," from which it obtained its Maori appellation. One individual, which had an injured leg and was much persecuted by the stronger ones, was seen daily at the hut on Lake Mintaro, and was rather a favourite with the hut-keeper, a young Englishman, who knew when his *protégé* was there even when the door was closed, on account of a peculiar cry which the bird had, differing from that of the others, as the querulous voice of an ailing child differs from the lusty tones of those in health. The Weka has a partiality for anything bright, and if it gets a chance, when the keeper is temporarily absent or has forgotten to close the door, it will walk into the hut and fossick round for something to play with—a fork or spoon, a tin pannikin, or anything shining and attractive.

Another large bird which is plentiful in the forests of this grand National Park is one of the few remaining species of the Cockatoo-like Parrots. Of this ancient genus, *Nestor*, the Phillip Island species is already extinct, and the Kea is becoming rare in New Zealand on account of its persecution by the sheep-farmers, who are persuaded that it kills the sheep in searching for the kidney-fat of those animals. That the Kea is guilty of this is, however, disputed by many, and the Philosophical Society of Wellington has, I rejoice to say, taken up the cudgels on its behalf. The species mentioned above as still existing in fair

numbers (*N. meridionalis*) is called Kaka by the natives, who named most birds from their cry. These fine birds would often sit in the great beech trees bordering the track, and would look down on us from no great height as we passed, or a flock above the tree-tops would be heard uttering their raucous cries. The upper mandible is long and very strongly hooked, and the plumage is handsome, with its orange and brown hues. Of the Kea (*N. notabilis*), or Mountain-Parrot, Malcolm Ross says that it has a surprisingly powerful beak, of which the upper mandible is curiously jointed.

While negotiating M'Kinnon's Pass (something under 3,000 feet) between the Clinton and Arthur valleys, I saw a small flock of large green Parrakeets, which seemed quite at home in those altitudes. What species they belonged to I could not determine, but it seems that Donald Sutherland liberated a number from one of the islands south of New Zealand a few years ago, and the individuals seen by me were in all probability some of these or their descendants.

When crossing the same pass on the return journey in a storm of wind and rain, I saw, a little below the summit, one solitary Pipit (*Anthus novæ-zealandiæ*) sitting out in the rain at the edge of a little morass and looking the very picture of desolation. Somewhat lower down, while splashing through the innumerable streams which rushed across the track, I startled a very tiny bird with short tail from its hiding place, just getting a glimpse of it before the scrub concealed it. Apparently it flew from a hole in a stunted tree, and from its diminutive size and its plumage I have little doubt that it was the Rifleman (*Acanthidositta chloris*), so named by the early settlers because its green back recalled the forester-like uniform of the first volunteer corps. Like many other Liliputians of the feathered tribe, our tiny friend constructs quite a bulky nest of fibres and long moss.

In the forest bordering the Arthur River the clear, bell-like notes of the Tui, or Parson-Bird (*Prosthemadera novæ-zealandiæ*), fall frequently upon the ear. Someone has remarked, with much truth, that "the fact of the variation of the Tui's note in different districts is well exemplified in this particular locality. It seems to have largely discarded the somewhat harsh note with which it usually ends its song in other parts of New Zealand, and substituted—very frequently as its only song—what may be termed a single staccato note, which it repeats from four to six times." These clear staccato notes resound among the forest trees in a very melodious and pleasing manner.

The plumage of the Tui has a greenish-black lustre. There is a white bar across the base of the wings, and under the throat appears the white frill which has caused the settlers to bestow the name of Parson-Bird upon this species. While in the bush

near Milford Sound I had a fine view of one of these birds rising on the wing to capture flying insects. To behold a fine bird like the Tui enjoying his free, unharassed life amid the sombre beech trees at the head of the Sound is a sight that is worth going far to obtain.

Two species of Gulls are met with in great numbers on these southern coasts—the Saddleback Gull (*Larus dominicanus*), much like the Pacific Gull (*Gabianus pacificus*), except that the black of the wings is continued across the back of the body, giving the appearance of a saddle, and the Red-billed Gull (*Larus scopulinus*), a pretty little silver-grey fellow. These also penetrate inland a considerable distance, for I saw both kinds at Lake Manapouri, the "Lake of the Sinking Heart." On the same waters were Duck, Black Swan, and one of the Terns—probably the White-fronted (*Sterna frontalis*). These last-mentioned were also seen on the plains between Te Anau and Manapouri. In the same locality a female Paradise Duck (*Casarca variegatus*), with the snow-white head which distinguishes her, rose from a swamp in the middle of the plain, and, circling with a heavy flight, alighted near a patch of tea-tree some distance away. These Ducks are numerous about the head of the Sound. I counted 16 near Sutherland's, all walking together, the ducks with white heads, the drakes with black. While crossing a creek near Giant's Gate Fall, in the Arthur Valley, we saw, on a spar about 20 or 30 yards away, a pair of the Blue Mountain-Duck (*Hymenolæmus malacorhynchus*), and there they sat quite unconcernedly and allowed us to watch them. How soon wild animals learn to know that they are protected, showing no fear in the presence of man! This fearlessness was one of the great charms of the trip through the bush to Milford. Even the great Fruit-Pigeons, which are so much sought after in most places that they become, to use a common phrase, "as wild as hawks," would sit on the overhanging beech branches and gaze down at us in an untroubled way, as if recognising in us friends and allies.

That fine Hawk, the Allied Harrier (*Circus gouldi*), is more plentiful in the South Island of New Zealand than in any other land in which I have travelled. On the great plains which extend between Lumsden and Lake Te Anau one sees them constantly, and they betray very little fear of man. Probably the rabbits with which these plains are infested form the the attraction, for the Harriers coast along at no great height, evidently spying and searching among the tussocks to discover their furry prey.

ERRATUM.—In the notices of birds striking the lighthouses in *The Emu* (vol. v., p. 109) "Ironlenda" in the South Australian notice should read Trowbridge, and "H. W. Transon" should read H. W. Franson.

Stray Feathers.

THE FEATHER FASHION.—It is discomforting to bird-lovers to see bird feathers being used again so freely to decorate ladies' hats. Whole plumages of small, bright birds are to be seen, and even Lyre-Birds' tail feathers are worked up for the trade. Society has surely forgotten the example of Queen Alexandra, who, when the feather fashion took hold some years ago, refused to wear any plumes that entailed the destruction of birds. Apart from Ostrich and Cockerel feathers, all the ornaments required by the fashion fad do mean the taking of life. The Audubon Societies of the United States have produced some astounding figures in reference to the number of birds ruthlessly slaughtered for the market. Those who recognise the sound practical use of birds in nature, apart from any æsthetic value, should openly discountenance such unthinking and barbarous fashions.

* * *

EAGLES AND RATS. — There have been very few Eagles (Wedge-tailed) about here, but the overseer of a station farther down the river (Flinders) told me they had been bad where he was, which he attributed to a visitation of rats (a mild plague). We had no rats at Spring Valley—never saw one. The Eagles were very partial to them—every nest that he examined which was occupied by a sitting bird or young was well supplied with the rodents. He told me that he found between sixty and seventy nests during the past winter with either eggs or young, and, on my asking him how often he thought both youngsters in a nest reached maturity, or at least an age able to fly, he said that seldom both survived, but this year, owing, he thought, to the superabundance of food (rats), there were decidedly more than usual. Not only that, but he found this year what he never saw before, and that was two nests with *three* eggs in and one nest with three big, strong youngsters.—FREDC. L. BERNEY. Spring Valley, Hughenden (N.Q.), 24/11/05.

* * *

DO EMUS MIGRATE?—I am camped on the No. 2 rabbit-proof fence, about 120 miles east of Perth. The Emus are having a bad time of it here. They seem to migrate from east to west. Later they travel back from west to east, as soon as the dry season comes. When they strike the rabbit-proof fence they hang on it in the corners until they die of thirst. The boundary-rider on this section told me he could show me fifty dead Emus between my camp and Cunderdin, a distance of about six miles, and that on his length of 60 miles there are about 300 dead ones. I put one mob of 30 birds through a gate, but it is too risky to do this, as one is liable to get into

trouble if caught by an inspector. On the No. 1 fence I am informed that the Emus were much more numerous, and that when travelling along the fence one was hardly ever clear of the stench from dead birds. Do you think the A.O.U. can do anything in the matter? Of course the only proof I have personally seen was starved birds on the fence at my camp trying to get through. They have a "pad" beaten along the fence, and walk backwards and forwards, trying to find an opening. If one gets a fright and rushes the fence, and falls over it, it goes straight west when it gets up. I have never seen any on the west side of the fence except one bird, which had three young ones on the other side. The young birds were very weak, so I watched my chance, got them in a corner, and, rushing them, they made a dash into the netting, and then lay down, with their necks stretched flat on the sand. In size the young were as big as Wild Turkey, but I do not think the three would have weighed more than a total of 12 lbs. They seemed to be only bones and feathers. I believe if the Emus were on the west side of the fence they would be all right, as no one has ever seen them hang and perish on that side.—J. P. ROGERS. Cunderdin (W.A.), 14/2/06.

* * *

DUNK ISLAND (N.Q.) NOTES.—It would appear that an alliance has sprung into existence between myself and certain birds of this island. The Drongo invariably gives warning of the presence of the cruel Grey Falcon, the note of detection and appeal for assistance being a peculiar discordant chatter, far more intelligible and significant than the clamour of domestic fowls. The Drongo will wait about until the Falcon is shot, and will then fly off with quite a pretty exclamation, no doubt expressive of satisfaction at the execution of a bold and notorious criminal. On three separate occasions when I have shot a Falcon which has fallen in the jungle, Varied Honey-eaters have directed attention to the exact spot where the body has lodged in the entanglement of vines and creepers. Now that I understand the call—a peculiar combination of hissing and chirping—I have no difficulty whatever in finding the dead bird, and when it is removed the Honey-eaters shout for joy. The other day a very pleasing experience was vouchsafed. Walking along the rear-guard of a dense mass of mangroves, my attention was attracted by an unusual commotion among the Varied Honey-eaters. Excited chattering, mingled with loud calls, evidenced the presence of something unwelcome, which I thought might be a snake. Peering about for some time, with the noisy birds fluttering from branch to branch, I at last saw—still as a statue in bronze—a Rufous Owl angrily glaring at the deriding intruders. As I approached he flitted

away a few yards, and all the little birds followed, chiding and ridiculing him. So great was the commotion that others came to look on—the Carinated Fly-catcher, the Masked Wood-Swallow, the Black-and-White Campophaga, and ever eager Drongo. A week later the scene was revisited, and the silent Owl still moped within a few yards of his first perch in the midst of a crowd of noisy witnesses to his strange appearance; or was the sage fowl sitting in solemn judgment on the frivolity of his fussy critics ?—E. J. BANFIELD.

* * *

ANNOTATIONS.—*Megapodius duperreyi* (Scrub-Fowl).—From Mr. E. J. Banfield, Dunk Island (N.Q.), I received a skin of a Megapode chick, together with the following note :—

"One of my dogs flushed it in the forest country twice, and before it got on the wing in the long grass on the third occasion seized and killed it. So strong was the flight and well sustained for about 200 yards that I can scarcely believe a Megapode chick so young as the size proclaims could accomplish it. Further, the nearest nest-mound is fully three-quarters of a mile away, and I have never before seen so young a Megapode so far away from its birth-place. Judging from the size and appearance of chicks that I have seen dug out of the mounds, I am convinced that if this is one it could not have been more than 24 hours old, and I fancy the colour is more pronounced (browner) than the Megapode of the age, which usually possesses a greyer tint.

"I have seen another bird similar in size and appearance, the cry of which, as it rose at my feet, was a brief, chattering 'cheep.' There was nothing in the crop."

I am not aware that an Australian Megapode chick has been previously described. The general colour of the upper surface is rufous or rufous-brown, more or less barred transversely with black, the bars being strongest on the secondaries and wing-coverts. The head is dusky-brown ; chin buff, shading into the darker (rufous) brown of the under parts. Primaries, which are fully developed, are blackish-brown. Wing, 4 inches ; tarsus, 1.2 inches; bill, .4 in.

In general appearance the Megapode chick resembles that of the Lipoa (Mallee-Hen) rather than that of the Talegallus (Brush-Turkey).

Sittella striata (Striated Tree-runner).—In "Nests and Eggs," p. 344, I stated that "the well-defined black head of some of the birds suggests that they are the males, but the point has to be settled."

Mr. F. L. Berney, Wyangarie, North Queensland, has kindly forwarded me a specimen of a black-headed bird which he care-

fully dissected and proved to be a female.* Therefore Dr. Hans Gadow's description of the type (Cat. Birds Brit. Mus., vol. viii., p. 364) may be read for that of the female instead of male; while the description for the female—"Only the top of the head black," &c.—may be transposed for that of the male. Mr. Berney writes:—"I shot two birds, a black-crowned one, which proved to be a male — without any doubt (testes largely developed)—and the bird sent you herewith."

Mr. Berney has observed this Sittella breeding in March.

Cuculus pallidus (Pallid Cuckoo).—Adverting to the new foster-parents recorded for this Cuckoo (*Emu*, vol. v., p. 197), Mr. Sep. Robinson, Bathurst, N.S.W., has been good enough to furnish the following supplementary names from examples in his oological collection, namely:—

Satin Flycatcher (*Myiagra nitida*)

Grey-tailed Thickhead (*Pachycephala glaucura*).

Puffinus tenuirostris (Short-tailed Petrel).—My cousin, Mr. J. P. Campbell, informs me that when he visited Cape Wollomai, Phillip Island, on the night of 30th April last, he found all the young "Mutton-Birds" fully feathered, scampering about the grass and trying their new wings preparatory to following their parents on migration.

The oological collection of Mr. T. A. Brittlebank, Bonsal, Myrniong, is now a first-class one. I had the pleasure recently of examining the cabinets, which contain over 500 species of Australian eggs, in beautiful order and mostly in complete clutches. In the collection is a set of seven Musk-Duck's eggs—an unusual complement for this Duck. One might have ventured the opinion that it was a double set—laid by two birds—had not Mr. Brittlebank mentioned the fact that the same season he took those, and in the same locality, he observed several nests with large complements (five to seven) of either eggs or young.—A. J. CAMPBELL.

* * *

SEA-EAGLE AND TREE-SNAKES.—Two days of rough weather, and the blue bay had become discoloured with mud, churned up by the sea, and the Eagle (rufous-backed species—*Haliastur girrenera*) found fishing poor and unremunerative sport. Even his keen eyesight could not distinguish in the murky water the coming and going of the fish. Just below the house there is a small area of partly cleared flat, and we saw the brave fellow roaming and swooping about with more than usual interest in the affairs of dry land. At this time of year green snakes are fairly plentiful. Harmless and handsome, they prey upon small birds and frogs, and the Eagle had abandoned his

* Obtained Flinders River, 30 miles below Hughenden, 15/3/06.

patrol of the sad-hued water to take toll of the snakes. After a graceful swoop down to the tips of a low-growing bush, he alighted on the dead branch of a bloodwood 150 yards or so away, and with the help of a telescope his occupation was revealed—he was greedily tearing to pieces a wriggling snake, gulping it in three-quarter of a yard lengths. Here was the reason for the trustfulness and respect of the little birds. The Eagle was destroying the chief bugbear of their existence, the sneaking greeny-yellowy murderer of their kind and eater of their eggs, whose colour and form so well harmonise with leaves and their branches that he constantly evades the sharpest eyes of them all, and squeezes out their lives and swallows them whole. But the big red detective could see the vile thing 50 and even 100 yards away, and once seen—well, one enemy the less. Briskly stropping his beak on the branch of the tree on which he rested, and setting his breast plumage in order as one might shake a crumb from his waistcoat, the Eagle adjusted his searchlights and sat motionless. In five minutes a slight jerk of the neck indicated a successful observation, and he soared out, wheeled like a flash, and, half turning on his side, hustled down in the foliage of a tall wattle, and back again to his perch. Another snake was crumpled up in his talons, and he devoured it in writhing, twisting pieces. The telescope gave unique advantage during this entertainment—one of the tragedies of nature, or rather the lawful execution of a designing and crafty criminal. Within ten minutes the performance was repeated for the third time, and then either the supply of snakes ran out or the bird was satisfied. He shrewdly glanced this way and that, craning and twisting his neck, and seeming to adjust the lenses of his eyes for near and distant observation. No movement among the leaves seemed to escape him. Two yards and a half, or perhaps three yards, of live snakes constituted a repast. At any rate, after twenty minutes passive watchfulness, he sailed up over the trees and away in the direction of his home in the same tree with a socialistic community of the Shining Calornis.

The Rufous-backed Sea-Eagle is a deadly foe to the pugnacious sea snake also. On the beach, just above high water mark, was the headless carcass of one that must have been fully 5 feet long, and while it was under inspection an Eagle circled about anxiously. Soon after the intruders disappeared the bird swooped down and resumed his feast, and presently his mate came sailing along to join him. The snake must have weighed several pounds, and apparently was not as dainty to the taste as the green arboreal variety, for after two days' occasional feasting there was still some of the flesh left.—E. J. BANFIELD. Dunk Island, North Queensland.

[Mr. Banfield intends publishing shortly a little but interesting book, entitled "The Confessions of a Beachcomber." It will

contain many "Nature Study Notes." The foregoing has been taken from his MS. by permission.—EDS.]

* * *

SWALLOWS AND ROBINS.— After the incident of the Swallows (*Hirundo neoxena*) driving Dusky Robins (*Petraca vittata*) from the latter's nest and dragging out the two young ones,* the Robins retired to an outside verandah and built their second nest. The Swallows, after spending a few days fixing up the Robins' nest, left it and went back to their own old one. During the nesting season of 1904 the Robins returned to the verandah, but were driven off by the Swallows, who were early arrivals that year, so they built a nest in a hollow tree in an adjoining paddock. The Swallows reared one brood of four in their own old nest, and a second brood of four in the Robins' nest.

Last year the winter was late and the spring very wet, so all birds were late in their nesting. The Swallows returned at the beginning of September, but did not begin to fix their nest until late in October, at which time the year before they had a brood just ready to fly. They completely discarded their own nest, and spent nearly a fortnight doing up the Robins' nest with mud and lining it with feathers. Here they reared one clutch of four, and did not rear a second one this past season, although our summer weather extended into March, and the migratory birds did not leave us until towards the end of April. The Dusky Robins built a nest in the shed last November. It seems strange that these birds should regularly come to the school ground to build their nest, in spite of the presence of the children.

Another interesting fact worthy of note occurred last year. A pair of Scarlet-breasted Robins (*Petraca leggii*), which constantly frequented the garden, built a nest in a corner of the front verandah, where it was boarded up at the end. I used to watch them through the window. Unfortunately, during a strong gale, the nest was partially blown down, and they deserted it. I was very sorry, as I think they do not commonly build in such close quarters to mankind.

A most extraordinary phase of Swallow nature was shown by a pair of these birds at the house of some friends of mine who live a few miles from here. A pair of Swallows had built a nest and the female was sitting. No particular notice was taken of the nest or its owners for some time, when one day it was observed that two Swallows were busily engaged bringing in mud. An examination was made, and it was found that the female bird was entirely built round with mud, and was quite dead. Regret was then felt for not having watched the nest.

* *Emu*, vol. iv., p. 16.

It is a curious question why the sitting Swallow was walled in. Was she an interloper, and did jealousy cause the others to punish her? Or did she die on the nest?—(MISS) J. A. FLETCHER. Wilmot, Tasmania, 29/5/06.

* * *

SPRING IN AUTUMN.—When Mr. Hubert Thompson and myself were recently taking a walk through the bush, we could not help being struck by the springlike spirit which seemed to animate the birds, especially the Honey-eaters, which flew in and out among the branches, chasing each other with great vivacity, as if mating, flashing their bright colours, and uttering cheerful, rapid notes. This phase of a second spring in the fall of the year has frequently struck me during a bush residence of several years in the north-west of our island, and a few extracts from my journal, kept at Table Cape, will exhibit my meaning more clearly :—

"15*th March*, 1893.—Many of the smaller birds appear as if mating afresh towards autumn, and after maintaining comparative silence during the hottest part of summer, their notes may again be heard about this time, fresh and sprightly as in spring. Young Fire-tailed Finches (*Zonæginthus bellus*), *quite recently fledged*, were lately observed.

"11*th April*.—Heard the pleasant trilling notes of the Fan-tailed Cuckoo (*C. flabelliformis*) this morning, although none have previously been heard for nearly two months. The Wood-Swallow (*Artamus sordidus*) is still numerous in the plains, and a few Welcome Swallows may also be seen.

"31*st May*, 1894.—Winter is now beginning, but I hear grasshoppers still chirping in the paddocks. Numbers of Robins are about with a red patch on breast—females, and some, perhaps, young males, of *Petræca leggii*. The females of the Flame-breasted Robin (*P. phœnicea*) are devoid of colour on breast. Our Derwent Jackass (*Cracticus cinereus*) is making the hillsides resound with his joyous, ringing notes.

"19*th April*, 1896.—The weather now, after a very disturbed summer, has settled down for a fine spell, and we are enjoying beautiful warm days, with a clear atmosphere. The birds seem to imagine that spring has returned, for the Honey-eaters are clad in their brightest plumage and utter joyous, inspiriting notes, while both yesterday and this morning I head the trilling notes of the Fan-tailed Cuckoo again, and when I expected that they had departed to the mainland. Possibly those heard now are young birds hatched late in the season and left behind by the main body.

"*2nd May*.—The 'Whistling Dicks' or Shrike-Thrushes (*Collyriocincla rectirostris*) are very lively just now, their loud, cheerful notes resounding in the morning and evening about the

hut, on the roof of which they often alight and hop along. Perhaps they are seen more now in the clearing because the autumn rains have softened the dead wood and bark and enabled them better to obtain the grubs concealed therein.

"*8th May.*—The weather is now quite warm and sunny again after a cold and stormy interval. Several large dragon-flies were seen on the wing, and the butterfly *Heteronympha merope* was observed sunning itself upon the stem of a small gum. Some of the males of the Superb Warblers or Long-tailed Wrens (*Malurus gouldi*) look as beautiful as Humming-Birds just now, with the vivid blue patches on the sides and back of neck and top of head; the long almost perpendicular tail is dark blue in front, lighter blue behind, and is continually flirted. The beak is nearly black, but in the hens is reddish-brown, the same tint extending to the eye and encircling it; they are otherwise very soberly attired in greys, the legs being reddish.

"*27th May.*—The delightful 'spring-in-autumn' still continues. The nights are cold, the days clear, warm, and sunny, with a delicious crispness in the air. A 'Whistling Dick,' apparently the father, from his very defiant attitude, was chaperoning a *young* one about the maze of fallen timber (proving that some at least of the birds breed again in late summer or autumn). The elder 'Dick' would frequently stretch out his head and neck very rigidly in an almost vertical direction, and then, lowering it a little, would utter loudly three or four defiant whistling notes, as if inviting combatants to enter the lists. The young one, rather a heavy-looking 'cub,' hopped quite close to me without manifesting the least alarm, at which the parent grew greatly excited, and, flying to a distant log, invited the fledgling, in very forcible language, to follow him. Numbers of young Robins are also to be seen now, pulling up worms from the moist ground. They probably belong to both the Scarlet and Flame-breasted species."

"31*st May.*—One of the first sounds heard in the morning now, as in spring, is the double note (dropping nearly an octave from first to second) of the Dusky Robin (*Petroica vittata*), or "Sad-Bird," just outside my window, while at night, as darkness falls and the little bat flits to and fro in front of the hut, the Crescent Honey-eater's (*Lichmera australasiana*) loud, cheerful call resounds through the belt of young tea-tree which borders the sandy track."

"*2nd April*, 1897.—The wild birds are becoming very tame on my little place, as they are never shot at or disturbed. Besides a large flock of green Parrakeets (*Platycercus flaviventris*), which disport themselves among the fruit trees, or whiz by close to one's head in their arrowy flight, the compact little Brown Quails (*Synœcus diemenensis*) are becoming familiar, and a covey of them even ventures into the patch of grass immediately

surrounding my bush hut, where they can safely pick up a good deal of food. Of the smaller birds, the graceful little Spinebills (*Acanthorhynchus*) are very bold, hanging to the slender stalks of the Cape gooseberry bushes just outside my windows, and thrusting their long needle-like bills into the yellow flowers in search of nectar and insects. They make short, intensely rapid flights, the quick wing-vibration causing a most peculiar rut-ut noise as they fly or chase one another among the bushes. The tiny White-eyes (*Zosterops cærulescens*) and Long-tailed Wrens are also constant visitors to the same bushes, whose soft, thick foliage affords them ample shelter and at the same time plenty of insect food.

"*13th April.*—The yellowish-green birds with beautiful primrose patch at throat, *Ptilotis flavigularis*, which used to build regularly in the small tea-tree scrub here, are now again making their appearance about the garden, but the pugnacious Dusky Robins, though smaller, chase them away."

"*1st June.*—It is quite interesting to watch the Shrike-Thrushes, which are very bold, familiar birds, cling to the dead gum trees and to the stumps which plentifully adorn our bush paddocks, and wrench off with their straight, powerful beaks great chunks of decaying wood in their eager search for grubs. They make quite a litter at the foot of the trees by this performance, reminding one of the old saw that "a carpenter is known by his chips." After I had split up a semi-decayed log which was full of White Ants (Termes), a Shrike-Thrush sat upon the wood and gobbled up the soft white insects as quickly as he knew how, while I worked close by. A Fire-tailed Finch sat upon a stump near at hand, and whistled often a plaintive note."—H. STUART DOVE. West Devonport, Tasmania.

[Mr. Dove has in the press a work entitled "Wild Life in Tasmania," which deals with the furred as well as the feathered tribes of his State. The work will be illustrated.—EDS.]

Forgotten Feathers.

THE FIRST AUSTRALIAN BIRD-OBSERVER.

BY E. SCOTT, MELBOURNE.

(Read before the Bird Observers' Club, 12th February, 1906.)

THOSE who find pleasure and profit in the study of Australian birds must be interested in the first Englishman who observed them on this continent, and who recorded what he saw. Dampier was not a naturalist, but when he found a bird which he had never seen before it gave him genuine pleasure, and, if he could procure a specimen, he took home its skin to be examined, classified, and described. He did not trouble himself

about nomenclature. His mind was much occupied with schemes of exploration and travel, and to such a voyager, who was pushing his path through uncharted oceans and stumbling upon continents by the way, birds could hardly be of more than subsidiary interest.

Nearly 220 annual migrations of feathered folk have happened since William Dampier first recorded birds on our shores. In 1686, a common sailor, he first saw Australia. His ship touched our coast at a point that has been conjectured to be either Bathurst or Melville Island, in the North. On this visit he seems to have seen very little bird-life. "We saw no sort of animal, nor any track of beast but once," he says, "and that seemed to be the tread of a beast as big as a great mastiff dog. There are a few land-birds, but none bigger than a Blackbird, and but few sea-fowls."

But on his next voyage to Terra Australis, in 1689, Dampier saw more birds, and has more to say about them. In August of that year, sailing in the *Roebuck*, he sighted Australia, cruised along the west coast for a few days to find an anchorage, and rested in Sharks' Bay.

On the voyage across from South Africa he observes that his vessel was "accompanied with fowls all the way." Several were Pintado-Birds, which were met with "for 200 leagues from the coast of Brazil to within much the same distance of New Holland." The Pintado-Bird he says is "a southern bird and of the temperate zone, for I never saw of them much to the northward of 30 degrees south." His description of the bird is that it is "as big as a Duck, but appears, as it flies, about the bigness of a tame Pigeon, having a short tail, but the wings very long, as most sea-fowls have, especially such as these that fly far from shore and seldom come asight it; but they lay, I suppose, ashore. There are three sorts of these birds, all of the same make or bigness, and are only different in colour. The first is black all over; the second sort grey, with white bellies and breasts; the third sort, which is the true Pintado, or Painted-Bird, is curiously spotted white and black."

Pintado is a Portuguese word, meaning painted. Friar Marco de Nica, a Spanish writer about Central America, named the Indians whom he met there Pintados, because "I saw their faces, breasts, and arms painted" (Hakluyt's "Voyages," iii., 368). The word was applied to the Petrels by the Portuguese sailors who travelled round the Cape to the East Indies. English sailors got the word from these, and it is not infrequently met with in accounts of early English voyages. The true Pintado-Bird is, I understand, the Cape Petrel.

The only birds that Dampier mentions that he saw while at Sharks' Bay were "Eagles of the larger sorts of birds, but five or six sorts of small birds. The biggest sort of these were not

bigger than Larks; some no bigger than Wrens; all singing with great variety of fine, shrill notes; and we saw some of their nests with young ones in them. The water-fowls are Ducks (which had young ones now, this being the beginning of the spring in these parts), Curlews, Galdens, Crab-catchers, Cormorants, Gulls, Pelicans, and some water-fowl such as I have not seen anywhere besides."

What he means by Galdens I cannot discover. The word is not included in Dr. Murray's great "Oxford Dictionary," neither is it mentioned in Newton's "Dictionary of Birds." It is not, apparently, a form of Gannet, nor can I suppose it to be Dampier's way of spelling Guillemot. I cannot find the word in other voyages which I have consulted, and must confess myself completely puzzled by it.

The water-fowl, "such as I have not seen anywhere besides," can scarcely have been Penguins.

No other birds were seen while in Sharks' Bay, but Dampier was at that time vexed with anxieties on the score of water for his ship. We can hardly wonder that he should write :—"If it were not for that sort of pleasure which results from the discovery even of the barrenest spot upon this globe, this coast of New Holland would not have charmed me much." We cannot but regret that Dampier did not strike the coast about one hundred miles further south. He might then have entered the noble Swan River. His impressions would have been very much more favourable, and from his reports the settlement of Australia might have been forwarded by an extra century of endeavour. He would also have seen more birds, including the magnificent Black Swan.

After leaving Sharks' Bay the *Roebuck* sailed north to Timor. Some days later the group of islands now known as the Dampier Archipelago was sighted. Still there was no water, and Dampier confesses that everything about New Holland disgusted him. But on this part of the voyage some Boobies and Noddies were shot. Booby is a name given by English sailors to the Gannet in very early voyages. As early as 1634 I find Sir Thomas Herbert writing in his travels :—"One of the sailors espying a bird, fitly called a Booby, he mounted to the topmast and took her." Some Noddies breed on islands off the Western Australian coast. One night a Noddy was caught on board Dampier's ship. "It was of another shape and colour than any I had seen before. It had a small, long bill, as all of them have; flat feet like Ducks' feet; its tail forked like a Swallow, but longer and broader, and the fork deeper than that of the Swallow, with very long wings; the top and crown of the head of this Noddy were coal-black, having very small black streaks round about and close to the eyes; and round these streaks on each side a pretty broad, wide circle. The breast, belly, and under

part of the wings of this Noddy were white, and the back and upper part of its wings of a faint black or smoke colour. Noddies are seen in most places between the tropics, as well as in the East Indies, and on the coast of Brazil, as in the West Indies. They rest ashore anights, and therefore we never see them far at sea—not above 20 or 30 leagues, unless driven off in a storm. But they come about a ship. They approach in the night, and will sit still till they are taken by seamen. They build on cliffs against the sea or rocks."

When searching for water on the north coast, Dampier saw a few more birds. "The land birds that we saw here," he relates, "were Crows, just such as ours in England; small Hawks and Kites, a few of each sort. But there are plenty of small Turtle-Doves, that are plump, fat, and very good meat." Roast Pigeon was, at all events, a welcome change after grilled shark, we may be sure. "There are two or three sorts of smaller birds, some as big as Larks, some less, but not many of either sort. Sea-fowl are Pelicans, Boobies, Noddies, Curlews, Sea-Pies, &c., and but few of these neither."

That is all our first bird observer has to tell us. It is not much, truly.

On the voyage over to Timor, Dampier notes that in the evening "we saw ten small land-birds, about the bigness of Larks, that flew away north-west." As the month was December, they would hardly have been migratory birds.

Dampier's mate, William Funnell, who was with him on the *St George* during his voyage from 1702 to 1707, also made a few remarks on curious birds. But he was a credulous, spongy-minded seaman, who soaked up much that was mythical and saw very little with his own eyes. I will quote his account of Birds of Paradise, the skins of which he saw in the East. It is a quaint mixture of fact and fantastic nonsense. "Birds of Paradise," says Funnell, "are about the bigness of a Pigeon. They are of various colours, and are never found or seen alive; neither is it known from whence they come. I have seen several here, embalmed with spice, which preserves them from decay, and so embalmed they are sent as rarities to several parts of the world. It is related of these birds that when the nutmegs are ripe, which is in the months of February and March, they resort to places where they grow—namely, to Bunda and this place—and eat of the outer rind of the nut, after which they fall down dead drunk, and an innumerable company of ants gather about them, and feed upon them and kill them."

Dampier himself had seen and described a New Guinea bird, probably the Crowned or Goura Pigeon, on his *Roebuck* voyage, in 1699. Contrast his plain, sober account with Funnell's credulous gossip. "One of my men," he says, "killed a stately land-fowl as big as the largest dung-hill cock. It was of sky colour; only

in the middle of the wings was a white spot, about which were some reddish spots. On the crown it had a bunch of long feathers, which appeared very pretty. His bill was like a Pigeon's; he had strong legs and feet like dung-hill fowls'; only the claws were reddish. His crop was full of small berries. It lays an egg as big as a hen's egg, for our men climbed a tree where it nested and brought off one egg."

Although Dampier tells us very little about the Australian birds which he saw on this historic voyage, we can implicitly rely on what he does tell as being honestly observed. He was a man of solid common-sense, as well as a daring, eager navigator.

Such specimens as he had collected, together with a quantity of shells gathered in Sharks' Bay, were lost when the *Roebuck* was wrecked off Ascension Island in February, 1701. She was a rotten old tub from the first. The plank in which the leak sprang that caused the founding was, Dampier says, "so rotten that it broke away like dirt." Our debt to Dampier, as also to Columbus, Cook, Magellan, and other discoverers, is not based on grounds of natural history. Nevertheless, we must be interested in what any one of them saw by the way when they sailed in strange seas and gazed on fresh coasts.

I do not think that the English ornithologists of that day, who would have had the handling of Dampier's Australian specimens, if he had taken any home with him, would have made very valuable use of them. Some American birds which he took to England were described in an appendix to Dampier's travels by a gentleman styled "A Fellow of the Royal Society." Looking over his compilation, one is struck by his curiously unscientific handling and by his unerring certitude in recognising a bird that was good to eat. When he writes "the flesh of this bird is excellent," "this bird hath good meat," and so forth, one can almost hear him smacking his lips. The good man's English is a little askew. For instance, he says of the Crested Eagle—"His cry is like a hen that has lost its young." A cry that was like a hen would beat the combined efforts of the gramophone and the camera.

Though perhaps we do not learn much from Dampier's observations on Australian birds, it gives one pleasure to think that the first Englishman who sailed in our seas was not unmindful of the feathered inhabitants of the country. It would, of course, be unreasonable to go to a navigator expecting careful ornithology. Yet it is pleasing to think that the first living creatures belonging to this country which the adventurous commander of the ricketty little *Roebuck* saw were some of its birds.

Drought and Flood in Queensland.

AN ORNITHOLOGIST'S EXPERIENCE.

THE following strongly contrasted extracts are from letters by Mr. F. L. Berney, A.O.U., written from Spring Valley, Hughenden, N.Q., and received by one of the editors of *The Emu* :—

"24*th November*, 1905.—I am camped out away with some of our sheep, and there is no chance of getting home (to Richmond, N.Q.) until early in the year. We are having a wretched time out here with the drought; things ornithologically in this district are dead. Nesting with most species of birds that we have here is out of the question; it takes them all their time to keep themselves alive. The Emus were the first to feel it, and most about here are now dead; the Bustards were the next, and many of these are now too weak to fly. I caught two last week; unable to fly, they tried to run, and fell at the first little bit of obstruction they came to, and lay there until I set them on their legs again. I picked up a dead Dollar-Bird; they have not long been here. This one was in perfect plumage, showing that it had arrived in good health; but it had died of starvation, and was only a feathered skeleton. The bush cats (domestic breed gone wild) on the open downs are dying, I believe, of hunger; there are no birds on the bare, brown country, and no grasshoppers or lizards or mice as a substitute."

Again :

"24*th March*, 1906.—I have not troubled you much lately, not because I had nothing to trouble you about, but because I had not the time to do it. We had an awfully bad time all last year—drought, everlasting drought; but with the advent of the new year there came a change, and we have already had 20 inches of the best rain we have had for 15 or 16 years. I look forward to a season (the longer the better) of peace and prosperity—we are due for it after 8 years—8 bad years in succession. I cannot consider my own good times as commencing until I get settled down again at Wyangarie (Richmond), which I hope will be in about two or three weeks' time. Part of my sheep are gone, and the balance start away in a couple of days, and then I shall shake the dust of these parts from my feet. There has not been much dust lately; my own camp, placed on a well-drained sand ridge high up on the river bank (Flinders), was under water for a couple of days. The diningroom (table under a bough shade) stood in 2 feet of water, and the river ran a foot deep through the tents—however, all's well that ends well."

From Magazines, &c.

RUFOUS BRISTLE-BIRD.—In the March number of *The Geelong Naturalist* are field notes by Mr. C. F. Belcher on the Rufous Bristle-Bird (*Sphenura broadbenti*), dealing chiefly with the nidification of the species and its distribution on the Otway coast.

* * *

HEIGHT AT WHICH MIGRATING BIRDS FLY.—In *The Auk* for January is a paper by Mr. Frederic W. Carpenter, which sums up the results obtained from attempts to gauge by astronomical instruments the height at which birds fly when on migration. The highest distance yet noted would seem to be

slightly over a mile, while observations of birds travelling at half a mile from the ground are numerous.

* * *

BIRD LODGINGS.—It has been reported to the Ornithological Society of Bavaria that a suggestion by one of its members that the providing of nesting opportunities for Swifts might be taken into consideration in the building of the new tower of the House of Parliament at Munich has been adopted by the architect, and that nesting space for about 100 pairs of these birds has been allowed for (*Verh.*, p. 14).

* * *

CUCKOOS.—*The Australian Naturalist* for January contains "Notes on Cuckoos," by Mr. L. Harrison. Of the voice of the Cuckoos he says :—"I have stood under a fine large eucalypt for nearly half an hour, whilst a Cuckoo shrieked (?) himself hoarse amongst the branches, without being able to see him. It is not that the voice is really ventriloquistic, as with a number of birds, but it rings through the air in a disembodied fashion, which renders it difficult to trace it to its source."

* * *

THE GENUS POMATORHINUS.—A perusal of Mr. E. C. Stuart Baker's notes on "The Nidification of Certain Indian Birds" in *The Ibis* for January suggests wide differences in nest structure and egg colouration between the Indian and Australian species of the genus. Apparently the Indian birds build cup-shaped nests and lay white eggs; all the Australian species dome their nests over and lay eggs hair-lined with brown or black on a dark ground colour.

* * *

Bird-Lore.—The Jan.-Feb. number of *Bird-Lore* contains some capital photos of birds and nests in the open. A list is published of the gentlemen who form *Bird-Lore's* Advisory Council. This Council was formed for the purpose of placing students in touch with authorities on the bird life of their particular district; accordingly, each member is a specialist for some one part of the country, and those who wish to avail themselves of his experience have but to write and get it. The idea is a good one.

* * *

THE HYBRID PLATYCERCUS ERYTHROPEPLUS.—Mr. D. Seth-Smith, F.Z.S., writing anent the Red-mantled Parrakeet (*Avic. Mag.*, Feb., 1906), states :—"A friend of mine in Sydney wrote to me last August to say he had secured a fine specimen of the

Red-mantled Parrakeet that was caught with two others on the northern rivers. The two others had died, but this one he hoped to send home to me. It has recently arrived, and is now in my aviary—an undoubted specimen of Salvadori's *Platycercus erythropeplus*." As Mr. Seth-Smith has already explained (*Emu*, vol. iii., p. 197), this bird is a hybrid between the Pennant Parrakeet (*P. elegans*) and the Rosella (*P. eximius*). It is interesting to have found examples in the wilds, because Count Salvadori's type was a living specimen in the Zoological Gardens, London.

* * *

NAME CHANGES.—In *The Ibis* for January, Mr. A. J. North contributes remarks on the names of some Australian birds. In strict obedience to the law of priority, the Fan-tailed Cuckoo will, the writer says, henceforth have to be known as *Cacomantis rufulus*, and the Brush Cuckoo as *Cuculus flabelliformis*. The Pallid Cuckoo will, on the same grounds, become *Cuculus inornatus*, the White-naped (Lunulated) Honey-eater be renamed *Melithreptus atricapillus*, and the Tasmanian species now known as *M. melanocephalus* will become *M. affinis*. The Wattle-Bird genus (*Acanthochæra*) becomes *Anthochæra*, and the yellow Tasmanian Wattle-Bird ought to be specifically renamed *A. paradoxa*. One is inclined to think that the upholders of the law of priority have hitherto rather neglected this last specific name in their choice of substitutes.

* * *

BIRDS OF THE PHILIPPINE ISLANDS.—From the "Hand-List" of Messrs. M'Gregor and Worcester (Manila, 1906) the connection between the avifauna of the Philippines and that of Australia is easily discernible. Among familiar species common to both areas may be noted *Excalfactoria australis*, *Hypotænidia philippinensis*, *Poliolimnas cinereus*, *Hydrochelidon hybrida* and *H. leucoptera*, *Sterna anæstheta*, *S. fuliginosa*, *S. sinensis*, and *S. melanauchen*, *Anous stolidus*, *Himantopus leucocephalus*, *Plegadis falcinellus*, *Dendrocygna arcuata*, *Falco melanogenys*, *Pandion leucocephalus*, *Caprimulgus macrurus*, *Artamus leucogaster*, and, of course, a number of the wide-ranging Limicolæ. The absence of the Snipe (*Gallinago australis*) from the list is noteworthy, as is also the presence side by side of the Peregrine Falcon (*F. peregrinus*) with the Black-cheeked species (*F. melanogenys*).

* * *

PRIORITY IN NOMENCLATURE.—Some remarks of the president of the Ornithological Society of Bavaria (*Verh. der O. G. in Bayern*, 1904, p. 13) are interesting in this connection. "He

believed" (runs the report) "that all these changings of long-established names, even when the alteration was justifiable, should be most rigorously guarded against, as the greatest confusion would be the only result. He would consequently under no circumstances concur in the transposing of *Turdus musicus* and *iliacus*, recently declared to be necessary. In this case, moreover, it was evident that Linnæus in the 12th edition, 1766, of his "Systema Naturæ," desired to correct an error contained in the edition of 1758, and that the description of *Turdus musicus* given by him on that occasion could in every respect only apply to our Song-Thrush. Even though it had been agreed to recognise only the 1758 edition of Linnæus, it must appear contrary to common-sense to take as a basis of nomenclature a description which the author himself openly acknowledged to be incorrect."

* * *

SQUARE-TAILED KITE IN CAPTIVITY.—*Lophoictinia isura* does not strike one, at the first glance, as a likely-looking cage-bird, but Mr. J. L. Bonhote tells in the *Avicultural Magazine* for April how he has succeeded in keeping one since June, 1903. Says the writer :—"I may as well sum him up once for all as the tamest and most sluggish of the Raptores that I have ever met, and I suspect that much of his tameness is due to the fact that it is too much trouble to move. . . . It was presumably born in November, 1902. The general colour of its plumage was rufous, each feather being broadly marked or streaked, especially on the upper parts, with dark brown. The new plumage (after moulting in October) was similar to the last, but darker on the back, lighter on the head, and redder on the under parts, while after the next moult, which was accomplished between May and July last year, it assumed the fully adult plumage, as figured in Gould's 'Birds of Australia.' . . . The peculiar build which has gained for it a generic title is probably correlated with a mode of life different from that of the true Kites, but on this point information is lacking, and I can only hope that, having pointed out this deficiency, some of our Australian friends may send us a future communication dealing with its habits and food in a wild state."

* * *

EXPERIMENTING WITH DISEASE.—A letter from the hon. sec. of the A.O.U. (Mr. A. H. E. Mattingley), which appeared in *The Argus* of 11th April, under the above heading, has called forth considerable discussion on the subject of Dr. Danysz's proposed endeavour to exterminate the rabbit from Australia by inoculating it with a bacillus. Dr. Danysz has been engaged for a term of two years, and will shortly reach Australia. No doubt the

experiments on Broughton Island will be carried out under every possible safeguard, but what if the bacillus be communicable to birds, and by them transferred to the mainland before its harmlessness (or otherwise) to living creatures other than rabbits has been determined? Even assuming the disease proves deadly to rabbits, the community ought to be assured of a far more important negative fact—viz., that it will not hurt anything else—a very difficult matter, it would seem, to settle on Broughton Island. Knowledge of the workings of micro-organisms is not yet out of the empiric stage, and the possible effects of change of environment on Dr. Danysz's bacillus can only be learned by experience, which may be too dearly bought. Then there is the likelihood of time rendering the rabbit immune, so that even the present excuse for the introduction of the disease may fall to the ground, while the countless evil possibilities remain. Ornithologists generally, seeing how many agencies destructive to our native birds are already at work, are likely to be very chary of assisting in this importation of what may prove to be a fresh one.

* * *

Avicultural Magazine.—Dr. A. G. Butler relates his aviary experiences in 1905 in the March number. He bought a pair of Wonga-Wonga Pigeons (*Leucosarcia picata*), and turned them first into a garden aviary, where they built but did not lay. They seem to have rendered themselves unpopular in the vicinity. "I received," says the author, "an impertinent anonymous letter complaining of the song of the cock-bird, and requesting me to wring its neck or get my son to poison it." Eventually he brought the birds inside and put them in a bird-room, where the female laid several eggs on a platform of branches, through which some of them fell to the ground, and later the hen deserted the nest and died.

At the Crystal Palace Bird Show the first prize for the Parrakeets was won by a pair of Scaly-breasted Lorikeets. The second prize was awarded to two Mealy Rosellas. Other Parrots shown were King Parrots, Crimson-winged Lories, Barnard, Yellow-naped, Pennant, and Barraband Parrakeets. A Banksian Cockatoo took first prize in the class for larger Parrots. Latterly the Yellow-rumped Finch (*Munia flaviprymna*) has been freely imported into England, and specimens exhibited failed to score prizes. A novelty from Australia was a Shining Starling (*Calornis metallica*), which, however, is said to have been entirely overlooked by the judge. Australian birds were well forward in the class for foreign hybrids. Here the first prize went to a cross between a Red-rumped Parrakeet and a Mealy Rosella, the second to a Bicheno-Zebra Finch, the third to a hybrid between Barnard and the Yellow-naped Parrakeet, which showed clear evidence of both sides of its parentage.

VERNACULAR NAMES.—Mr. D. Seth-Smith, F.Z.S., writes to the *Avicultural Magazine* (April, 1906) :—"I quite admit that in this country we ought to recognise the vernacular names employed in other English-speaking countries for birds which are natives of those countries, so long as they are appropriate. . . . In cases in which the vernacular name is eminently unsuitable, as it often is, we in this country are surely entitled to adopt a term that is more appropriate. For instance, in Australia several of the Parrakeets are termed 'Lories' which are in no way entitled to this designation. The well-known King Parrakeet is called the 'King Lory,' the Crimson-wing (*Ptistes erythropterus*) the 'Red-winged Lory,' and sometimes the Pennant Parrakeet is called the 'Crimson Lory,' and the Yellow-rumped Parrakeet the 'Swamp Lory.' The term 'Lory' should, of course, be confined to the Loriidæ, the brush-tongued, honey-eating Parrots. But there is no reason why we should not, where possible, follow the Australian vernacular names. Where is the sense in calling their Red-browed Finch (*Egintha temporalis*) the 'Sydney Waxbill,' or their Spotted-sided Finch (*Staganopleura guttata*) the 'Diamond Sparrow?'" One reason probably is that these birds are called "Waxbills" and "Diamond Sparrows" respectively by at least ten Australians for every one who calls them anything else, and it is natural enough that the bird-fanciers who take Australian birds to England should take with them their "popular" and not their "vernacular" names, though these should theoretically be identical. The fact seems to be that our Vernacular List is badly in need of further revision, so as to make it "understanded of the people," who can hardly be blamed for failing to recognise their favourite Magpie when it appears as a White-backed Crow-Shrike, nor for inability to pierce the disguise of the Yellow-rumped Acanthiza and discover the homely "Tomtit" that they have known from childhood.

* * *

MIGRATION.—A sub-committee was appointed by the British Ornithologists' Club in 1904 to collect and collate evidence regarding the movements of common migrants within England and Wales, and the results of this sub-committee's work are now published in the form of the Club's Bulletin (vol. xvii.) Twenty-nine species, which winter abroad and breed in Great Britain, were selected for observation. Over 150 individual observers and 50 lighthouses and lightships sent in returns on the slips furnished by the committee. The object was to trace when and where the birds entered the country, how they dispersed themselves over it, when they reached their breeding-places, and, finally, how some of them passed through, and out of, the country. It was found that immigration proceeded apparently

with little reference to weather conditions. Each species is dealt with separately in the report, and has its distribution in immigration illustrated by means of a separate map. Recognising the unwisdom of generalising on a single year's data, the committee say little in their introductory remarks about the conclusions towards which they are being led ; but it is intended, if possible, to pursue the same plan of observation for a series of years, and so collect sufficient material for a proper understanding of the main principles governing the migration of birds. Seeing how very little is really known of the movements of our Australasian migrants, a similar method might with advantage be adopted here. Plenty of scattered observations have been made from time to time, but there has been little or no systematic tabulation of information from different localities. It is advisable not to make the field of observation too wide at the start. To take what is probably our most familiar migratory species, it would be of value if during the winter and spring of this year observers in as many parts as possible would note the date of arrival of the Pallid Cuckoo (*Cuculus pallidus*), and send in the result of their observations to the Editors of *The Emu*.

* * *

South Orkney Islands.—Mr. Eagle Clarke's article on "The Ornithological Results of the Scottish National Antarctic Expedition," in the January *Ibis*, is of great interest. Sixteen species of sea-birds were found frequenting the islands, including the Cape Petrel (*Daption capensis*), Skua (*Megalestris antarctica*), Giant Petrel (*Ossifraga gigantea*), Silver-grey Petrel (*Priocella glacialoides*), Yellow-webbed (Wilson) Storm-Petrel (*Oceanites oceanicus*), Black-bellied Storm-Petrel (*Cymodroma* (*Fregeta*) *melanogaster*), and Banks Prion (*Prion banksii*), all of which species are found in Australian seas. The eggs of Wilson Petrel were found in hollows in the earth, in narrow clefts and fissures in the face of the cliffs, or under stones. The first egg was taken on 11th December. None of the eggs laid that summer had been hatched when the expedition left on 21st February. It is considered that the South Orkneys are this bird's southern limit. The eggs average 33.7 x 24 mm. Two eggs of the Black-bellied Storm-Petrel were found ; one secured measured 3.60 x 2.55 cm. Of the Silvery-grey Petrel the writer states that it is highly probable that a few pairs nest on Laurie Island, one of the group. However, the actual breeding-place of this bird is still to be discovered. The Giant Petrel breeds in rookeries. There were about 5,000 of these birds on Laurie Island—a scourge to the Penguins, "upon which," says the writer, "and their eggs and young it was their one aim to gorge themselves to repletion."

The nests consisted of great piles of small angular stones. The first eggs were found on the 4th of November. Average length, 10.38 cm., and breadth, 6.57 cm. Two per cent. of these birds were pure white. The eggs of the Cape Petrel were a "first discovery," familiar though the bird is. Dr. Pirie took the first eggs on 2nd December, 1902, from nests composed of a few small angular fragments of rock and a little earth placed on open cliff ledges on Laurie Island. Only one egg is laid. Specimens average 62.35 x 43.11 mm. The eggs are pure white, and large for the size of the bird. The position of the nest varies from that adopted by Kerguelen Island birds of this species, which lay in burrows and grottos. Five hundred Antarctic Great Skuas spend the summer on Laurie Island. The first eggs were laid on 2nd December. The nests were hollows in moss on top of rocks or in the earth on moraine tops, and in that case lined with lichens. Two eggs formed the clutch. Two types of bird, a light and a dark, were noted; in one case a mated pair consisted of one of each type.

Correspondence.

PRINCIPLES OF MIGRATION.

To the Editors of "The Emu."

SIRS,—It is pleasing to find that the publication of my hypotheses regarding "The Principles Governing . . . . Migration of Birds" (*The Emu*, vol. v., p. 147), has brought such a keen observer as Mr. J. Douglas Ogilby into the sphere of controversy—controversy that can but be beneficial, especially if Mr. Ogilby can prove his "hard, incontestable fact" that "home sickness" and the consequent tragedy of "suicide" are the sole concomitants of migration.

It is here necessary to quote in full my contention, as cited in *The Emu*:—"Then, again, an analogous case is the migration of birds, in which climatic conditions, apart from food and other conditions, bring about the unfavourable stimulus or stimuli from which the birds move to places where the stimuli are absent or modified. Were there no seasons in the year, birds would remain in the one place, and would lose their migratory habits, provided other unfavourable stimuli were absent. Hence we find the permanent stimuli of the seasons and their reflex actions causing migration always at the same season of the year, and mostly in the same direction, the date of migration varying according to the climatic condition of the season. This leads one to the supposition that migratory birds are of a delicate constitution, which, for their survival, causes them to shrink from the rigorous climatic conditions that cause unfavourable stimuli and travel to suitable zones."

From the foregoing it will be seen that I do not imply, nor can I be construed as implying, that a bird wintering in Egypt "knows" the climatic condition of Ireland, as Mr. Ogilby would fain have readers believe. It may, however, be that Mr. Ogilby would have the whole question of migration centre around the results of the "arrival" of the migrants at one terminal only when the migration is practically over, instead of principally at the departure terminal. Some of the migrants, as is natural, arrive after a continuous flight spent and weak, such as the extremely old birds, which become exhausted by trying to keep up with the main body. When birds are in this physically unfit condition it is not at all surprising that the local climatic conditions of their birthplace should ultimately cause their death—a question probably of the survival of the fittest. One must remember also that these physically unfit birds are continually perishing *en route*, and if a purely local condition arises—for instance, a violent storm in the Mediterranean blowing some of the more exhausted of the migrants into the sea and forcing others to alight on passing ships for shelter; or, again, a cold "depression" overtaking them—it must be expected that greater numbers of birds will perish. Birds must die somewhere! But why is Mr. Ogilby silent as to the causes that, despite "home sickness" and the "blind and unreasonable instinct," force the migrants to desert the home they love so dearly that they would rather suffer starvation and death than vacate it?—an assumption one must naturally come to when assimilating the statement by Mr. Ogilby in the last few lines of his letter. Is it not a strange thing that these migrants mentioned should be seized with "home sickness" annually, and at exactly the same "season" of the year? What gives rise to this craving? Is it not also a singular coincidence that they breed about this period? I thank Mr. Ogilby for proving my contention that birds migrate at the same "season" of the year, when he states—"I never knew this frail wanderer fail in putting in an appearance between the date mentioned and the end of the month." I must thank him again for corroborating my statement that migratory birds are of delicate constitutions, the "tragedy" quoted by him apparently proving this, whilst he also uses terms such as "frail wanderer," "delicate," and "fragile" when describing the species of migrants mentioned by him. Reasons of space have shortened my reply, but I think I have made it clear that "climatic conditions"—*i.e.*, the "seasons," early or late as they may be as regards date—govern migration directly and indirectly. Nor must it be assumed that I imply that a bird has no "knowledge" of its home, no "memory," and no consequent "love" for it, the contrary being the case.—I am, &c.,

Melbourne, 9/4/06. A. H. E. MATTINGLEY.

About Members.

MR. Richard C. M'Gregor, Ornithological Collector to the Bureau of Science, Manila, Philippine Islands, has returned to his duties after a well-earned term of furlough in America.

A POST-CARD, dated Vancouver, 9/4/06, has been received from Mr. Ed. Degen, F.Z.S., bearing the following :—" Westward, ho ! to Japan and Northern Siberia, returning *viâ* Alaska and here to New York by November." Mr. Degen's friends will wish him every success in this adventurous collecting tour. His last African trip to Uganda was a thorough success, the British Museum alone benefiting to the extent of at least 50 new types of animals.

MR. J. C. M'Lean, M.B.O.U., New Zealand, whose interesting article on the Fern-Bird appears in this issue, has kindly promised further field observations on N.Z. avifauna. He is at present most favourably situated for field work in a large tract of virgin bush-land on the East Coast of the North Island, where bird life is still very abundant, and where he is able to observe it in the same conditions as existed in the days of Capt. Cook. Mr. M'Lean finds *Certhiparus albicapillus* (Whitehead) and *Miro australis* (Wood-Robin)—species considered to be all but extinct—common. Another bird, *Anthornis melanura* (Bell-Bird)—supposed to be lost to the North Island—is fairly common. He has also noted *Creadion carunculatus* (Saddle-back), while *Acanthidositta chloris* (Rifleman)—the smallest of N.Z. birds—is usually seen hunting amongst the scraps by the camp kitchen. The only bush birds belonging to the North Island avifauna not noticed by Mr. M'Lean up to the present are *Apteryx*, *Pogonornis*, and *Turnagra*, but he may yet meet with one or all of these. Of course, Huia does not extend so far north, but *Glaucopis* and the *Psittaci* are very plentiful.

ON the retirement, with the close of the 5th volume, of Mr. A. J. Campbell from the post of one of the editors of *The Emu*, the following letter was written to him by the secretary of the Australasian Ornithologists' Union by the direction of the Council :—

" Owing to Mr. A. G. Campbell notifying his acceptance of the position of honorary co-editor of *The Emu*, the Council of the A.O.U. was enabled at its last meeting, definitely, though regretfully, to accept your resignation as one of the honorary co-editors of the *The Emu*. They desire me to express to you the esteem in which they hold you, and to inform you that a hearty vote of thanks was accorded you by them, as well as by the members of the Union, for whom they stand as sponsors, recognising that you have been one of the leading founders of the society, and subsequently one of the main pillars of the

Union. They also wish to place on record your devotion to the science of ornithology, and to the duties of the honorary co-editing of *The Emu* journal, knowing full well what sacrifices you have perforce made, owing to the quantity of work devolving upon you, and the inroads this work has made into your social and domestic affairs by occupying most of your spare time for the last five years. Believe me, the Council and members of the Union are cognisant of the high standard of literary, scientific, and artistic excellence which has characterised your efforts, and which are reflected in *The Emu*, the first five volumes of which stand as a permanent testimony of your ability. The members of the Union and ornithological science at large are under a deep debt of gratitude to you for your faithful and able editing. The contemplation, in after life, of your strenuous labours for the benefit of rising ornithologists, and the advancement of science generally, will bring its own reward mentally. The Council avow, however, that you may still be of great service to the Union, and they desire to have the further advantage of your mature experience and ripe judgment, and would therefore ask you to accept the position of an honorary advisory editor, which post, though onerous, will be devoid of the drudgery and consequent loss of time pertaining to the work of editing *The Emu*."

Obituary Notice.

THE news of the death, in the 39th year of his age, of Dr. Paul Leverkühn, Private Secretary to H.R.H. Prince Ferdinand of Bulgaria, and Director of the Royal Scientific Institute and Library at Sofia, will be received with great regret by all ornithologists who knew of his work. He was born in Hanover in 1867, and died of pneumonia, supervening on typhoid, at Sofia, on 5th December last. He was a man of varied abilities—scientist, diplomat, litterateur, and musician. He had been in the service of the Prince of Bulgaria from 1892, and at the time of his death was at work on the new Museum of Natural History at Sofia, which was intended to be opened next year. His ornithological writings are marked by punctilious care in reference to authorities and general arrangement. Probably the best known is the treatise entitled "Fremde Eier im Nest" ("Another Bird's Eggs in the Nest"), which appeared in 1891, when the author was but four-and-twenty; it is an exhaustive summary of the records of results occurring when one bird's eggs have in some way or other been placed in another bird's nest. It contains, moreover, in a lengthy footnote (pp. 36–45) a complete list of everything that had been written to the date of its publication on the mound-building birds (*Megapodidæ*), which will be found most valuable

to students of that interesting family. Dr. Leverkühn was the author of part of the introduction to the "New Naumann," which was reviewed in this journal last July, and was in correspondence with the editors only a short time before he died. He was a corresponding member of the British Ornithological Union. At his funeral two velvet cushions on which rested no less than 21 orders were carried behind his coffin. Dr. Leverkühn's interest in the work of the A.O.U. was very great. He had kindly promised to send the editors a list of names of Continental magazines which might be useful to the Union, but was not spared to fulfil that promise.

Australasian Ornithologists' Union.

ROUGH MINUTES OF THE 37TH MEETING OF THE COUNCIL OF THE A.O.U., HELD AT THE RESIDENCE OF DR. C. RYAN, 37 COLLINS-STREET, MELBOURNE, THURSDAY, 31ST MAY, 1906.

Correspondence.—A large amount of correspondence was dealt with, including a communication from the Department of Lands, New South Wales, in reply to a letter advising the reservation of Oil-tree Lagoon, Goombargona (water reserve No. 2,897), as a sanctuary for waterfowl, stating that, as the lagoon occasionally dried up, it was deemed inexpedient to reserve the locality. Captain Barton, of New Guinea, wrote stating that he was recording notes of the migration of birds between New Guinea and Australia as far as he was able. He also stated that prodigious quantities of gorgeous butterflies flew from Australia to the shores of New Guinea across Torres Strait, and suggested that the flights of these insects were probably due to hereditary instinct, and that they followed the course of old land connections. A letter was received from Mr. A. J. Campbell, in reply to a communication forwarded to him by the Council of the A.O.U. accepting his voluntary resignation as one of the hon. editors of *The Emu*, but at the same time requesting him to accept a position as an hon. advisory editor. The Mortlake Progress Association also wrote requesting the co-operation of the Council of the A.O.U. with a proposition that a swamp, lake, or lagoon in every district of Victoria be reserved as a breeding-place for birds. It was decided to give the Association moral support. Mr. F. P. Godfrey tendered his resignation as hon. treasurer of the A.O.U., stating that owing to circumstances it was impossible for him to attend to the work pertaining satisfactorily. It was decided to accept the resignation with regret, and to appoint Mr. E. B. Nicholls, Victoria-street, North Melbourne, to the vacant post. Col. Legge, in reply to a letter of condolence at the death of his only daughter, mentioned that both Mrs. Legge and himself were deeply touched at the kind expression of sympathy forwarded them by the Council of the A.O.U.

General Business.—The hon. Secretary stated that he had written a letter to the daily papers with reference to the proposed destruction of the rabbit by inoculation, pointing out that at the last congress held at Sydney, 28th November, 1904,* the members of the A.O.U. gathered together from the different States of the Commonwealth had unanimously passed a resolution that, whereas the introduction into the Commonwealth of "chicken cholera" or any "unknown" or "patent" disease may be fraught with dire consequences to our introduced and indigenous fauna, those diseases whose

* *Emu*, vol. iv., p. 86.

actions were in an experimental or partially known stage should be prevented from entering into Australia. The hon. secretary further stated that the letter to the press had been the means of bringing the danger prominently before the public, who had thereby been visibly perturbed. It was further decided to write to the Prime Minister of the Commonwealth, requesting him to declare unknown, patent, and dangerous diseases "prohibited imports" into the Commonwealth. The copyright of *The Emu* magazine was produced by the Secretary. It was dated 15th May, 1906, and was numbered 11,248B. Amongst other questions discussed was the programme of the next annual congress, to be held in Tasmania. It was decided to compile an index to the first 5 vols. of *The Emu*, and to ask Mr. F. L. Berney (Queensland) to undertake the task.

New Members.—The following were enrolled :—F. S. Smith, Victoria ; W. Young, Victoria ; W. H. Cornford, Victoria ; E. J. Banfield, Queensland ; Gregory M. Mathews, England.

Bird Observers' Club.

THE third quarterly dinner of the above Club was held in Melbourne on the evening of 20th June, fifteen members being present. At the ordinary meeting afterwards Mr. Donald Macdonald took the chair. The hon. secretary, Mr. F. P. Godfrey, stated that the result of the recent ballot-paper sent to members concerning the constitution of the Club resulted as follows :—Are you in favour of members that are absent from three consecutive meetings without an apology being crossed off the roll? Yes ! Are you in favour of ladies attending ordinary meetings? No ! Are you in favour of increasing the membership to 30? No ! (*i.e.*, for the present). A long discussion followed the suggestion of Mr. A. G. Campbell that the Club should begin some organised effort of collecting information concerning the movements and habits of birds, especially in reference to migration and the class of country inhabited. It was decided that next meeting be devoted to the examination of lists of birds found in the Cheltenham district, where some of the members have had a long experience, the initial idea being to group the birds into summer and winter lists, to note which species nest there, and which are becoming rarer or more common. Notice of motion was given by Mr. A. H. E. Mattingley that corresponding members be appointed in country districts to enlarge the field of the Club and further the collecting of information. It was decided that Mr. C. L. Barrett be selected to prepare a condensed account of the bird notes brought before each meeting, so that they might be published in *The Emu*. Some interesting skins were exhibited of Victorian shore birds, but the discussion of the characters of this interesting section of the avifauna was postponed until next meeting. Skins of some common birds of North-east Victoria were also shown, and Mr. A. J. Campbell exhibited three races of Emu-Wrens (*Stipiturus*), the new form being a large-billed bird from the Mallee. Mr. Mattingley showed a crocodile egg, and remarked that its similar-shaped ends showed an affinity to the eggs of mound-building birds. A sprig of early wattle bloom decorated the table.

The greater part of the evening was devoted to a very interesting paper by Mr. J. A. Ross upon a December visit to the swamps of the Murray frontage, which he made in company with Mr. Mattingley, who illustrated it with some excellent lantern views. Mr. Ross graphically described the difficulty of making one's way about the swamps in order to witness and photograph the numberless colonies of Ibis and other water birds at home. Some fine pictures were obtained of Ibis nests and young, of Grebe and Coot nests, and of Spoonbills and Little Cormorants nesting together in red gum trees.

South Australian Ornithological Association.

THE annual meeting of this association was held at the residence of Dr. A. M. Morgan on the evening of the 9th March, Mr. F. R. Zietz presiding. The secretary reported that the association had had a successful year, and much good work had been accomplished by members individually and collectively. There had been no falling off in attendance at the meetings or in enthusiasm. The association had assisted in entertaining the visiting members of the Australasian Ornithologists' Union during the Adelaide session in October, and several members had attended the camp-out on Kangaroo Island. The financial statement showed that the funds were in a flourishing condition. A vote of thanks was accorded to Dr. A. M. Morgan for having allowed his residence to be used for meetings. The following office-bearers were elected :—President, Mr. J. W. Mellor; vice-president, Dr. A. M. Morgan; secretary, Capt. S. A. White; these gentlemen to form the committee of management. Mr. L. C. E. Gee gave an interesting account of a trip through the Northern Territory, in which he noted many rare and beautiful birds. Capt. S. A. White and Mr. J. W. Mellor reported that birds were more plentiful at the Reedbeds than they had known them for some years. Mr. Mellor gave an interesting account of birds recently identified by him while on a trip to Narracoorte. Mr. E. Ashby said he had noted the Tawny-crowned Honey-eater (*Glycyphila fulvifrons*), at Blackwood early in the year, contrary to the general rule; also the Black-throated Honey-eater (*Melithreptus gularis*), in little coveys, uttering strange singing notes while on the wing. Mr. F. R. Zietz recorded the Black-and-White Fantail (*Sauloprocta tricolor*) within the city. Several specimens were exhibited. Mr. A. H. C. Zietz, F.L.S., showed the pelvis bone of the Emu (*Dromœus novæ-hollandiæ*), cut to display in sectional form the extremely strong construction of the vertebral column, formed on the principal of an arch, to carry a heavy body. Mr. E. Ashby showed a specimen of the Albert Lyre-Bird (*Menura alberti*), from Queensland, and named after the late Prince Consort. Mr. M. Symonds Clark exhibited the Rock-Parrakeet (*Neophema petrophila*), from Port Willunga.

Notes and Notices.

UNLAWFUL DESTRUCTION OF BIRDS.—A visitor to the Murray district writes :—"There is an awful amount of ruthless destruction of game taking place here, and probably the same sort of thing is also taking place generally among most of the swamp districts, both adjacent to and distant from the river. Early in the nesting season men regularly visit the swamps two or three times a week and gather eggs, not by the dozen, but in hundreds, robbing only the nests which contain one or two eggs, so as to make sure of obtaining them fresh. The eggs of the Ibis are sent away as ordinary articles of commerce, and those of other birds, such as Coots, are used in great numbers by the gatherers. Not far away is an aboriginal station, from whence the inmates walk through the swamps about 20 abreast, and leave few, if any, nests unmolested. Nearly every house, too, has its punt gun hidden away until the Duck season opens. The slaughter caused by these terrible engines of destruction is beyond calculation. I was privileged to see one such weapon,

and was *regretfully* informed that it was the smallest in the district, and that the greatest number of Ducks picked up after one discharge from it was 17, although the previous owner had on one occasion got 21 from a single discharge. This was the *smallest* gun, and it was stated that upwards of 20 Ducks picked up was a common result from one discharge with many of the other local guns. When 20 Ducks are picked up, it is quite safe to say that almost an equal number get away wounded, many of them to die a few hours later. It would be a very difficult matter to prevent this wholesale slaughter, for it is no easy task for a stranger to find his way about the countless acres of swamps, even if the presence of strangers did not temporarily check the shooting; and the movements of the local limbs of the law are notified, perhaps not so rapidly, but just as effectively as by wireless telegraphy."

Publications Received.

Auk, The, XXIII., No. 2, April, 1906.

Australian Naturalist, The, I., Parts 1 and 2, Jan.–April, 1906.

Avicultural Magazine, The, N.S., IV., Nos. 4–6, Feb.–April, 1906.

Bayern, Verhandlungen der Ornith. Ges. in, V. (München, 1905).

Bird-Lore, VIII., Nos. 1 and 2, Jan.–April, 1906.

British Ornithologists' Club, Bulletin of the, XVII., Feb., 1906.

Geelong Naturalist, The, Second Series, II., No. 3, March, 1906.

Hawkesbury Agricultural College Journal, The, III., Parts 3–5, Feb.–April, 1906.

Ibis, The, VI., Nos. 21 and 22, Jan.–April, 1906.

Judd, Sylvester D. (1) The Bobwhite and other Quails of the United States in their Economic Relations. (2) The Grouse and Wild Turkeys of the United States, and their Economic Value. (U.S. Dept. of Agriculture, Biological Survey, Bulletin Nos. 21 and 24.)

Linnean Society of N.S.W., Proceedings, XXX., Part 4.

M'Gregor, Richard C., and Worcester, Dean C. Hand-List of the Birds of the Philippine Islands. (U.S. Dept. of the Interior, No. 36.)

Ornithologisches Jahrbuch, XVII., No. 2, March–April, 1906.

Smithsonian Institute, Annual Report for 1904 (2 vols.)

Victorian Naturalist, The, XXII., No. 11, March, 1906.

Zoologist, The, Fourth Series, X., Nos. 110–112, Feb–April, 1906.

The Emu

Official Organ of the Australasian Ornithologists' Union.

"Birds of a feather."

VOL. VI.] 1ST OCTOBER, 1906. [PART 2.

Field Notes on Birds of the Richmond District, North Queensland.

BY FREDC. L. BERNEY.

PART III.

(*Continued from Vol. V., p.* 78.)

CHESTNUT-EARED FINCH (*Taeniopygia castanotis*).—During the eight or nine years previous to 1906, *T. castanotis* has been our most constant resident in the bird line, but this year, one of our best seasons on record, when grass and herbage, and therefore, of course, seed, are in abundance, it has entirely left the district, disappearing as soon as the first general rains fell in January, and so far (August) it has not shown up again. The contented manner in which it adapts itself to circumstances, together with its fecundity, will long ensure its being among the survivors in the struggle for existence. Its nesting operations are prolonged from June to January, but are carried out principally from August to November. Among 30 or 40 records of nests with eggs or young, I have none for the months February to May. A pair that built their nest among the rafters inside a boundary-rider's hut, successfully led forth three broods in three and a half months. Five or six eggs appear to be their clutch. A nest of seven was found to include one much-addled egg, which doubtless belonged to a previous brood. As regards sites for their nests they are not particular. The most favoured spots are the thorny mimosa bushes (*Acacia farnesiana*), and the lower portions of the nests of Eagles and Kites, but they will build in bough-sheds or up in the rafters of huts or verandahs. They flock in June and July.

BANDED FINCH (*Stictoptera bichenovii*).—This species only comes to us in the worst of bad times, leaving again as soon as the drought breaks. I do not think it ever nests here.

WHITE-BREASTED FINCH (*Munia pectoralis*).—This is an uncertain visitor. One year or another I have seen them during all the four seasons, but they generally pick the good times ; this year they are more plentiful than I have ever seen them before. Though generally to be seen in twos or threes, there are sometimes as many as 15 or 20 together. They invariably frequent the pea-bush (*Sesbania aculeata*) flats and other low-lying spots, where the grass and herbage grow rather rank. Their note is a simple "Chip, chip, chip." Mr. J. H. Smedley writes me that he has seen them at Homestead, on the Campaspe, at times as many as 30 or 40 together, and that on one occasion (April, 1897) he found a nest containing four eggs.

BLACK-THROATED GRASS-FINCH (*Poephila cincta*).—This species was only seen once (January, 1906), when I watched a pair in the river (Flinders) timber.

GOULDIAN GRASS-FINCH (*Poephila mirabilis*).—This only occurs rarely here, and then confines itself to the timbered country along the river. I had an excellent opportunity to watch a few of these lovely Finches in March this year. Mr. Smedley wrote me from Homestead in May, 1903, that these Finches were all busy nesting down there.

CRIMSON FINCH (*Neochmia phaeton*).—1902 is the only year that I have seen them. I used to come across them feeding on the dry mud-banks along the river from June to November, sometimes ten or a dozen together. A female I obtained measured as follows :—Total length, $5\frac{9}{16}$ inch ; wing, $2\frac{1}{2}$ inches ; tail, $2\frac{3}{4}$ inches ; tarsus, $\frac{11}{16}$-inch. Their call is a subdued "Peet, peet, peet," uttered disjointedly.

BUSH-LARK (*Mirafra horsfieldi*) ; LESSER BUSH-LARK (*Mirafra secunda*).—I have thought it best to bracket these two Larks together, because at present I am somewhat in doubt as to their distribution and representation here. I had always put our bird down as *M. horsfieldi*, not recognizing *M. secunda* as a local bird. But on shooting a Bush-Lark for the purpose of examination I was struck with the bird's unusually red appearance, and on forwarding the skin to Mr. A. J. Campbell for his opinion he reported it to be *M. secunda*. Although these birds are common on the Flinders the above individual is the only one I have examined, for I had always felt satisfied we had only one species; however, I must find time to look into them closer. Under the impression that the bird I shot was *M. horsfieldi* I wrote in my notes at the time :—"This skin agrees with Gould's description ("Handbook," vol. i., p. 404) in most points, but, be it noted, the rufous on the wings is most marked, and the same colour on the under surface of the wings would be better described as pale brick-red ; the chin is buffy-white rather than white, and the breast feathers, which have a narrow streak of dark brown down the centre, have also a rufous tinge ; small dark spots of brown follow the line of the lower jaw and border in crescentive form the lower margin of the throat ; there is a wash of ashy-grey on the sides and back of the neck ; tail brown, margined with rufous, the outermost feather buff-white, with the next again buff-white on the outer barb." Sex, female ; eggs in ovaries very minute ; contents of stomach, small seed. Shot 10th July, 1904. Measurements :—Total length, $5\frac{5}{8}$ inches ; wing, 3 inches ; tail, $2\frac{1}{16}$ inches ; tarsus, $\frac{15}{16}$-inch ; bill to gape, $\frac{5}{8}$-inch ; from extremity of middle toe to same of heel, $1\frac{7}{16}$ inches. Bush-Larks are here all the year round, but ever so much more numerous in summer than winter.

[A nest of a Bush-Lark, presumably *M. secunda*, was forwarded to me by Mr. Berney (see illustration). It is domed, placed in a tuft of grass, and composed of soft, greyish-coloured, dead grass-stalks, and lined with finer material (grass). Dimensions—externally, 4 inches in diameter ; entrance, $1\frac{3}{4}$ inches ; egg cavity, $1\frac{1}{4}$ inches deep. An egg accompanying the nest resembles those of the ordinary Bush-Lark, but it is more glossy, and has the markings more pronounced ; dimensions, .8 × .58 inches. This egg is typical of a set of authenticated *M. secunda* taken in North-West Australia, in which instance the nest was also completely hooded.—A.J.C.]

WHITE-RUMPED SWIFT (*Micropus pacificus*).—A summer visitor, arriving about the end of September, when circumstances are very favourable, but as likely as not the first representatives will not be seen till November ; the early part of April sees them off again. Verily, they are birds of passage—they never seem to have time to stop. Attracted by their screaming, you look up to see them racing high up overhead ; they are in sight for thirty seconds, and then gone again. It is not often they come down low to feed, and I never saw them settle.

SPINE TAILED SWIFT (*Chætura caudacuta*).—This is a very irregular summer migrant, never in any great numbers ; many years pass without their appearing at all.

PLATE V.

Nest of Lesser Bush-Lark *(Mirafra secunda).*

FROM A PHOTO. BY A. J. CAMPBELL.

SPOTTED NIGHTJAR (*Eurostopus guttatus*).—This species is only an occasional visitor. I have seen it three years out of the last five, and my notes then are confined to the period August to January. Mr. Keartland (quoted in A. J. Campbell's "Nests and Eggs," p. 537) well describes the strange night-cry of this handsome Nightjar. I should like to have named it the White-spot Nightjar, for the large spot of pure white on the centre of the primaries, which is really an irregular bar, commencing with an oval spot on the inner web of the first primary and attaining its greatest depth (⅞-in.) on about the third or fourth quill, is such a conspicuous and distinguishing mark as the bird is flushed from the ground.

PLUMED FROGMOUTH (*Podargus papuensis*).—I do not often see them, and then, of course, they are always in timber. Being nocturnal, and naturally protected by their colour and the attitude they affect when roosting, they are, I dare say, more common than one would at first suppose. My records of them refer to all seasons of the year. In August, 1904, I shot one for examination, which gave among others the following details :—Sex, female; eggs in ovaries the size of swan shot; total length, 16 inches; wing, $8\frac{1}{16}$ inches; tail, 7½ inches; tarsus, $1\frac{1}{16}$ inches; bill to gape, 2¼ inches; width of gape, $1\frac{1}{16}$ inches. Throughout the plumage, which is most soft and owl-like, there is a rusty hue caused by minute freckles of red, which is most conspicuous on the outer webs of the scapularies, the tail feathers (all but the centre pair), and the extremities of the primaries. The markings of the under surface are richer than those of the upper, the lights being lighter and the darks darker. The extremities of the tail feathers are very pointed. The feet are quaintly chubby, and well earn for the bird its generic name; the toes, being thick and swollen at the base, taper rapidly to their extremity. Under the feathers the body is freely covered with soot-coloured down. On each side of the oil gland is a prominent powder patch. It was the toughest bird to pluck that I ever tried to pull the feathers off; many of the wing quills broke off in their sockets. This species is fond of roosting in pairs, sometimes four together in the same tree.

TAWNY FROGMOUTH (*Podargus strigoides*).—Of the four *Caprimulgidæ* that I have been able to identify this is the one I see least; I have but few local notes concerning them. I found a nest (10th October), containing two white downy chicks, situated on a horizontal limb of a gidea tree. I only lifted one of the youngsters to examine it, yet on my way home in the evening I found the nest empty, and the old birds nowhere about, the chicks having been removed, I suppose by the old birds, which were both at the nest in the morning.

OWLET NIGHTJAR (*Ægotheles novæ-hollandiæ*).—Though not often seen, on account of its being a nocturnal bird that passes the day within hollow limbs, yet it is fairly numerous along the river, from whence at night it sallies out across the open downs in search of insects. It may often be seen hawking round the buildings here. A female bird that I obtained on 13th January gave measurements as follows :—Total length, 9¼ inches; wing, $5\frac{3}{8}$ inches; tail, $4\frac{7}{8}$ inches; tarsus, 1 inch; culmen, ¾-inch; bill to gape, 1 inch; width of gape, 1 inch. Just above the ear coverts, from the upper portion of what may be called the facial disc, springs a small tuft of feathers which, although it does not show on a dead specimen, is conspicuous during life, and gives one the idea that the bird had waxed its eyebrows.

DOLLAR-BIRD (*Eurystomus australis*).—This species is a summer visitant in considerable numbers; arriving in October, it leaves again in March or April. A male bird that I picked up dead last December measured as follows :—Total length, 11 inches; wing, $8\frac{1}{16}$ inches; tail, $4\frac{1}{8}$ inches; tarsus, ¾-inch; bill, $1\frac{7}{16}$ inches; culmen, $1\frac{1}{16}$ inches; width of

gape, 1⅛ inches. The feet are light and small, weak-looking for the size of the bird. The red bill has an opaque candle-wax appearance and a pronounced black hook at the extremity.

BEE-EATER (*Merops ornatus*).—This is a summer resident, arriving in August and leaving in April or May, but some years a few remain right through the winter. They nest here. The chamber at the end of their nest burrow has sometimes a foundation lining of soft grasses and at other times is bare.

LAUGHING JACKASS (*Dacelo gigas*).—This is an uncommon bird about this part of the river; it is very seldom indeed that its jovial laugh may be heard. I have come across it, however, half a dozen times at the heads of the creeks that come down off the basalt table-land. This basalt wall, the western boundary of what is known as the basalt country, seems to bar the western extension of many coast birds; it divides the forest country from the downs. Many species that I know are common up there are practically never seen down here, although the distance from here to the piled black volcanic boulders is only 40 miles. Up the Flinders, 50 miles above Richmond, where the river and the basalt meet, I used to hear old *gigas* morning and evening—not regularly, but pretty frequently.

LEACH KINGFISHER (*Dacelo leachii*).—This bird is generally to be found in the river gums, where it betrays its presence by its poor attempt to laugh.

RED-BACKED KINGFISHER (*Halcyon pyrrhopygius*).—I do not know whether I have been overlooking this Kingfisher, but up to January last year I did not recognise it; from thence to March this year it was plentiful enough. It could be seen and heard constantly, not only in the timbered country, but out on the downs, where it seemed very partial to the vicinity of homesteads. This winter it has quite disappeared. The species is of considerable value as a grasshopper-destroyer.

SACRED KINGFISHER (*Halcyon sanctus*).—This is constantly with us as a rule, but, like the previous species, has quite left us this winter.

ORIENTAL CUCKOO (*Cuculus intermedius*).—Gathering up (early in May) a handful of feathers, all that remained after a Hawk's meal, of a species of Cuckoo that was strange to me, I forwarded them to Mr. A. J. Campbell for his opinion, who replied that he thought they were referable to this species, and with this I concur.

PALLID CUCKOO (*Cuculus pallidus*).—At one time or another the Pallid Cuckoo is to be found here during all the seasons of the year; though undoubtedly migratory, it is hard to form any opinion as to just what is the order of its coming and its going, so irregular are its movements. Its mournful note may frequently be heard at night, which habit is, I expect, common to all the *Cuculidæ*. A male I procured in June measured—total length, 12¾ inches; wing, 7⅝ inches; tail, 6 7/16 inches; tarsus, 1 5/16 inches; bill, 1⅛ inches; culmen, ⅞-inch. And a female obtained in March gave the following figures:—Total length, 12½ inches; tail, 6½ inches; bill, 1¼ inches; culmen, ⅞-inch; wing, 7¼ inches. Both had a narrow nuchal mark of three or four white feathers, which is visible without field glasses as the birds sit in the bush. Another mark visible in the same way, and therefore of assistance to identification, is the broadish dark stripe that runs from the eye through the ear coverts and down the sides of the neck.

NARROW-BILLED BRONZE-CUCKOO (*Chalcococcyx basalis*).—This bird has only come under my notice once. I shot one in August, 1901.

RUFOUS-THROATED CUCKOO (*Chalcococcyx pœcilurus*).—Like the last species, I have only a single record of this. I once picked up a dead specimen.

KOEL (*Eudynamis cyanocephala*).—A strictly migratory species, and spends the summer in this district, for which purpose it arrives in November or December, leaving again in March. Like its relations, the Koel is often heard at night—sometimes when the weather is clear and the stars bright, and at others when the nights are dark and dirty. The cry of the female is a monotonous, short, sharp, and high-pitched scream.

CHANNELBILL (*Scythrops novæ-hollandiæ*).—This is another summer visitor only, and also a night-caller. I rather fancy the Crow is its favourite victim as a foster-parent.

COUCAL (*Centropus phasianus*).—This is one of the birds that the edge of the basalt seems to block. I know of two instances of its being seen at the heads of creeks heading from the ranges, but it never follows them down to the river.

RED-CROWNED LORIKEET (*Ptilosclera versicolor*).—The appearance here of these charming little Lorikeets is controlled by the flowering of certain trees, from the blossoms of which they extract the nectar on which they subsist. It is a pretty sight to watch a mob of them feeding on the tea-tree (*Melaleuca leucadendron*), which is a particular source of attraction to them, as they climb and cling to the bending bottle-brush flowers, peering first round one side and then the other in search of food, keeping up the while an incessant squealing. Once on the wing they move very swiftly. They are practically absent from December to April, as there are no flowering trees at that time of year. So far as I know (see *The Emu*, vol. iii., p. 188) they nest in August. Average measurements of four females :—Total length, $7\frac{5}{8}$ inches ; wing, $4\frac{11}{16}$ inches ; tail $2\frac{13}{16}$ inches ; tarsus, $\frac{9}{16}$-inch.

BANKSIAN COCKATOO (*Calyptorhynchus banksi*).—This bird is an uncertain visitor, both as regards the season of appearance and the length of its stay. Two youngsters taken from the nest were brought into Richmond in July, 1902, but whether they were from one nest or two I am unaware. They go out to feed a good deal on the open downs. Their slow, heavy flight and complaining cry make them noticeable objects in a landscape. One I shot had its crop full of the seeds of *Chionachne barbata*.

WHITE COCKATOO (*Cacatua galerita*).—This species is always about in the river gums, seldom going far from the timber to feed. They nest during July and August ; one clutch of four eggs I found in a nest rather exceptionally situated, in the hollow butt of a gum, the entrance to which was only 3 feet 6 inches from the ground, the eggs resting on the vegetable mould 9 inches below the entrance hole ; on being blown, two of the eggs proved to be quite fresh, one was slightly incubated, and the other contained a well-developed youngster. Youngsters in the nest are often of quite different ages. The young of most animals are interestingly pretty, but this is not so with the young Cockatoo at a week old. It is all beak, and is quite the ugliest little beast imaginable.

BARE-EYED COCKATOO (*Cacatua gymnopis*).—The species is a permanent resident, gathering up in the winter time into immense flocks. They are then exceedingly noisy and most destructive to the timber in the immediate vicinity of the waterhole at which they congregate to drink and roost ; nipping off the foliage and young shoots and stripping the soft bark, they quite destroy the shade trees. They nest at any time—good seasons and bad are all the same to them.

As regards the reputed two species—*sanguinea* and *gymnopis*—it looks very much as though there was, after all, only one, and if this should be so, than I suppose *gymnopis* as a name will have to give way to *sanguinea*, the latter claiming priority. For purposes of examination in connection with this matter I have at one time and another shot, after carefully selecting the

birds I wanted, five-and-twenty of these Cockatoos, and in every instance they have proved to be *gymnopis* (or, as it seems to me it should be, *sanguinea*). The only difference that I could discern between the individuals was due, I take it, to difference of age, the old birds having a more extensive plaque of bare skin round the eye, the extension taking place chiefly below the eye. The base of the head feathers of all the specimens was rosy salmon, the colour varying in richness from age, I think—certainly not from sex. To make sure of the identification I sent skins to authorities in four of the States, who all reported that they were *gymnopis*. As regards the colour of the bare skin on the face, I never saw an instance anywhere in which it could be called white ; it is always bluish-lead colour, with a floury surface, the lead colour being darker in old birds. The average length of the males is a trifle over 15 inches, and that of the females 14½ inches.

GALAH (*Cacatua roseicapilla*). –Like the last species, the Galahs are plentiful at any time, and congregate in great numbers during the winter months ; like them, also, they do not appear to have any fixed nesting season, but they show a preference for the period from March to October inclusive. Although they are chiefly seed-eaters, I have watched them feeding freely on the succulent and somewhat fleshy leaves of the "fat hen" (*Atriplex spongiosa*). At times this and the preceding species cause a good deal of annoyance to the western telegraph officials by sitting on the telegraph wires in such numbers that they weigh the upper wires down until they come in contact with those beneath, which produces chaos in the department. As the interruption may occur 30 miles from the office, "shooing" the birds off is out of the question, and the public just have to wait until the Cockatoos get hungry and leave of their own accord.

There is a white powder through the crest and head feathers of *C. roseicapilla* that I have not noticed in other Cockatoos ; it is not present in young birds up to five months old, and only appears slowly after that.

COCKATOO-PARRAKEET (*Calopsittacus novæ-hollandiæ*).—This is generally a fairly common bird, but its numbers vary in an irregular manner ; they nest here during the winter months.

RED-WINGED LORY (*Ptistes erythropterus*).—This is to be seen fairly frequently, but not commonly, generally in small parties up to three or four, but I have seen five-and-thirty together. They are fond of the fruit of the wild fig and the berries of the mistletoe (*Loranthus*). I have seen youngsters taken from the nest in the river timber on 18th May.

PALE-HEADED PARRAKEET (*Platycercus pallidiceps*).—This is another coastal bird that makes the basalt ranges its western limit. I have never come across them about Richmond, yet up the Flinders some 40 or 50 miles, where spurs of basalt meet the river, I saw them frequently, generally in pairs.

BUDGERIGAR (*Melopsittacus undulatus*).—Their numbers vary ; generally a few are about, but the winter is the time of their visitation. From March to July last year we had a wonderful invasion. Their numbers were such as it would be hard to credit without actually seeing them ; everywhere you went flocks rose out of the grass, and the air was full of the rush and whirring of their wings. Some of the immense flocks seen at a distance across the open downs were hard to tell from dust storms, even by men who knew their bush well. At one station I heard of forty or fifty being picked up one morning, killed or maimed, beneath a telephone wire that connected two buildings 150 yards apart.

GROUND DOVE (*Geopelia tranquilla*).—This is generally to be seen, or its mournful notes heard, about the timbered country along the Flinders, where, too, I have found their frail nests. I have often at night flushed

small Doves from the ground where they were roosting, but in the dark could not say whether they were this species or the next. Probably this habit is common to both.

LITTLE DOVE (*Geopelia cuneata*).—This lovely little Dove is as common as the last, and frequents the same localities. August and September appear to be its nesting months.

BRONZE-WING PIGEON (*Phaps chalcoptera*).—This bird is seldom to be seen about Richmond, but in seasons of drought occasional birds are driven to the river by want of water. At Spring Valley, on the edge of the basalt, they are fairly plentiful in the open scrubs. Their handsome plumage so well assimilates with the ground and the foliage that they frequent that the first intimation you get of their presence is generally the rattle of their wings as they dart away through the timber. Owing to the habit these birds have of coming in to water in the dusk, many lose their lives where there are wire fences about; I know of one particular half-mile of fence that crosses a bore stream winding through open-timbered country, which is a very fatal spot; in such a light wires are indistinguishable. With the Hawks and the bush cats I have often shared the spoil in the morning; whoever got there first took the Pigeons, which were often decapitated by the force of the impact—head and body lying 10 feet apart. They are worth picking up, for they go over three-quarters of a pound. Measurements of an adult male :—Total length, 14 9/16 inches; wing, 7¾ inches; tail, 5⅜ inches; tarsus, 1⅛ inches; bill, 1 1/16 inches.

FLOCK-PIGEON (*Histriophaps histrionica*).—The presence of Flock-Pigeons here depends largely on the season; some years they are almost entire absentees, other years we have large numbers of them. This year they are plentiful, and have been nesting freely in the months from April to July—I saw most nests in May and June; in previous years I have known eggs in February and September. They are excellent shooting if waited for at their watering places, which they visit morning and evening, and, when obtained, are wonderfully fleshy birds, adult males going up to 12 ounces, while a mixed bag of fifty or sixty averaged over 9 ounces.

What a wonderful protection to this bird is its colour. The whole of the upper surface, bar the crown of the head in the male, being cinnamon-brown, it must harmonise well with the brown soil upon which it spends its life. To conceal the black and white extremity of the tail the exceptionally lengthened upper tail coverts seem completely adapted. They need all the protection they get, for where they roam there are such avian pirates as *Falco subniger* and *F. lunulatus*, from which the best chance of escape is to crouch motionless. Once on the wing there is no sanctuary for the Flock-Pigeon; it must trust to its own strong wings. The squab in the nest is covered with cinnamon-brown down. Measurements of two adult males and average measurements of five adult females :—

	Total length.	Wing.	Tail.	Tarsus.	Bill.
Male ...	11 7/8 inches ...	8¼ inches ...	3 5/8 inches ...	1 3/16 inches ...	7/8-inch
Male ...	11 5/16 inches ...	8 5/16 inches ...	3 5/8 inches ...	1 3/16 inches ...	15/16-inch
Female ...	11¾ inches ...	8 inches ...	3½ inches ..	1 3/16 inches ...	15/16-inch

CRESTED PIGEON (*Ocyphaps lophotes*).—This is a common resident, nesting practically all the year round. During the past eight years I have made records of 33 nests containing eggs or young; they are distributed as follows :—

Jan., 5	March, *nil*	May, 4	July, 4	Sept., 6	Nov., 2
Feb., 1	April, 1	June, 4	Aug., *nil*	Oct., 5	Dec., 1

Although generally found in small mobs of 10 or a dozen, I have seen as many as 200 or 300 in a flock.

Some Bird-Life on the Murray Frontage.

By J. A. Ross, Melbourne.

(Read before the Bird Observers' Club, 20th June, 1906.)

A journey of 156 miles by an ordinary train in this State in December is not a ride that one looks forward to with pleasure, and a subsequent run, or crawl, of 23 miles on the Moama to Deniliquin line in New South Wales during that month is even less to be longed for; but the whole journey is well worth undertaking if one has subsequent opportunities of studying our feathered friends at close range. A drive of 7 miles from Moama brought us to a farm-house at the junction (or rather the dividing) of the Murray and Gulpa Rivers—here all streams run out of, not into, the Murray. This farm-house was to be our home for the time being.

The first curiosity to be brought under our notice was a nest of a White-browed Scrub-Wren (*Sericornis frontalis*) built in the fold of a potato sack hanging over a wire stretched between two trees. The nest contained three young birds, almost ready to leave their home. On the second day following that of our arrival a visit was paid to a sandy ridge which has the reputation of having for many years past been a favourite nesting-place for Bee-eaters (*Merops ornatus*). We had no difficulty in locating many burrows made by these birds, but a little time spent in observation showed that the parent birds were busy carrying food to almost every nest. Two which were dug out proved that our assumption was correct—there were five young birds in one and four young birds and an egg in the other, and it was remarkable that no two young birds in the same nest were exactly the same size. Apparently the parent birds had sat on the nests from the laying of the first egg, and thus the eggs were hatched in the same order and at the same intervals as they had been laid. The Bee-eater is a shy bird, and the patience of our photographer became exhausted in gazing along about 50 feet of tubing which stretched between the screened camera and a stump, behind which he was hidden. He had my deepest sympathy, for the temperature was almost sufficient to blister the varnish on the camera, and the bird would not venture to enter its burrow in front of the lens.* Many rabbit warrens were situated along that ridge, and there were foot-prints and tail marks showing that every burrow had been entered by iguanas, a fact that suggested that many a young Bee-eater would be snapped up too, unless they are able to leave the ground as soon as they come out of the nests.

* This paper was well illustrated by the limelight views of Mr. A. H. E. Mattingley. Two subjects—Nest of Wood-Swallow and Nest of Grebe—are here reproduced.—Eds.

The next visit of importance was to the Redbank Swamp, which we reached *viâ* the Gulpa River in flat-bottomed boats, propelled by short paddles. The strength of the current, which gave us an easy passage down, was not realised until the return journey was started. Immediately we entered the swamp we were impressed with the abundance of bird life. Bald-Coots (*Porphyrio melanonotus*) went splashing along the channel cut through the vegetation; Nankeen Herons (*Nycticorax caledonicus*) and White-fronted Herons (*Ardea novæ-hollandiæ*) were lazily flapping across; Little Cormorants (*Phalacrocorax melanoleucus*) and Black Cormorants (*P. stictocephalus*) were perched here and there on stumps and posts; a pair of Swamp-Hawks (*Circus gouldi*) were posted like two sentries in trees on opposite sides of the channel; Reed-Warblers (*Acrocephalus australis*) were twittering in every clump of rushes passed; two dainty Marsh Terns (*Hydrochelidon hybrida*) were skimming along just above the reeds; White Ibis (*Ibis molucca*) were busy hurrying backwards and forwards between the feeding grounds and their nests, provisioning a rising generation; and high in the air the Straw-necked Ibis (*Carphibis spinicollis*) were circling, so high that they looked like mere specks against the blue vault. From both sides of us came a babel of sounds from innumerable birds hidden by the dense growth of rushes. With a great number of these swamp birds the notes are somewhat similar—hoarse, guttural notes that are in no way musical. This was noticed in all the Herons, Cormorants, and Ibis, and even the quacking of Ducks seemed very few removes from the general croaking sound. But at intervals we were delighted to hear the low, penetrating, resonant booming of the Bitterns (*Botaurus poicilopterus*), and judging by the different quarters from which the uncanny sounds came, we concluded the birds were fairly numerous, but we did not see one during the whole trip.

When we reached an open space in the swamp we disturbed a number of White-eyed Ducks (*Nyroca australis*), which are usually called "Hardheads" by the sportsman, and which he regards rather unfavourably, because they are so hard to get at, so hard to kill when they are within reach of the gun, and so frequently give the alarm to other game. As these birds rose they scared others further on, and these in turn passed the warning still further along, and so the process went on until the flapping of Ducks sounded like the distant rattle of rifle fire during the pushing home of an attack in a sham fight. Thus in a remarkably short space of time hundreds—aye, thousands—of Ducks—White-eyed, Wood, Black, Pink-eared, and Teal—were cleaving the air with the celerity for which such birds are noted.

But we had not yet reached the principal object of our visit.

We had to leave the main channel, pass the boat through a wire fence, and do some hard poling through heavy weedy growths until we neared the edge of a very long stretch of rushes, along the edge of which, and for the whole distance covered by the eye, were fleckings of white. Here were the nesting-places of the White Ibis, and the nests were so closely placed on the face of that stretch of rushes that they must have averaged about two to every yard of frontage. Several small patches of rushes, from 15 to 20 feet in diameter, had been completely trodden down, and were covered with nests. The old birds stuck very closely to their nests, and allowed us to approach within about a chain before rising—quite close enough for us to see (as they rose) that delicate half-inch band of pink which stretches like a ribbon near the outer edge on the under side of the wings. At this distance we were well within the range of that pungent odour which is characteristic of the nesting-places of the Ibis. The nests themselves are veritable hot-beds, and one could readily believe that there is little use in the parent bird sitting on the eggs during several hours before and after mid-day, for the natural heat seemed almost sufficient to carry on the hatching. The majority of nests contained young birds, varying from those almost able to fly, to chicks just out of the eggs, all gasping with wide-open beaks in the almost tropical heat of the swamp. Most of the other nests contained eggs—a few one, some others two, but generally three, and only in one instance four. There were very few empty nests. The fresh eggs could be readily distinguished by their clear white colour, and they were comparatively few, for most of the clutches had been stained brown by the feet of the sitting birds, which indicated that the process of incubation had well advanced. In one place three Straw-necked Ibis rose from among the white ones, and these nests contained three, three, and two eggs respectively. We were out for lasting records of our visit, and so the camera was prepared and an attempt made to set it up on the boat, but by no means could we get the boat steady enough for photography. Then we had to lash to the legs of the camera some saplings and the poles used for pushing the boat through the weeds. As the water was not at all cold there was no great hardship in having to get out of the boat, but as it was 3 feet deep and contained dense growths of weeds the photographer had a trying time endeavouring to adjust the long, cumbersome legs of his improvised tripod. Notwithstanding he was up to his waist in water, the exertion necessary to free the legs of the camera from the heavy, clinging weeds, added to the blazing heat of the sun overhead, was sufficient literally to bathe him in perspiration. But ultimate success crowned his efforts. There are few who have any conception of the skill, energy, and perseverance—and above all, the patience

Wood-Swallow (*Artamus sordidus*).—Nesting Site.

FROM A PHOTO. BY A. MATTINGLEY.

Nest of Black-throated Grebe (*Podicipes novæ-hollandiæ*).

FROM A PHOTO. BY A. MATTINGLEY.

—which our photographers of birds must possess and exercise to obtain the results they do.

When we had finished with the Ibis we turned our attention to the Tippet Grebe (*Podicipes cristatus*), but though we saw a few birds we were unable to discover their nests. Later a nest of the Black-throated Grebe (*P. novæ-hollandiæ*) was found and photographed.

We disturbed a Bald-Coot from her nest in a fork of a tree just above water mark, and in her hurry to get away she kicked two of her eggs on top of the other six with such force that one was badly broken. This revealed a chick almost ready to chip its way out. We also found on a piece of bark projecting from a tree trunk, and only about 3 feet from the water line, the nest of a pair of Wood-Swallows (*Artamus sordidus*), containing three young. This nest was a long way from any dry land.

During the afternoon three Swans were seen flying across the swamp, and the fact that they were heading towards the setting sun prompted one of our party to quote Banjo Patterson—

> "Oh, ye wild Black Swans, what a world of wonder,
> To join for a while in your westward flight!"

The only other Swan we saw was on the River Murray. It was remarkable that during a fortnight spent among all those swamps we should see only four specimens of this graceful bird.

On the return homewards another member of this Club and I met with an incident that was mildly exciting. We were paddling hard against the rapid stream in the Gulpa, he in the bow and I in the stern of our frail craft, and hugging close to the bank to avoid the worst of the current, when he suddenly raised his paddle and made a desperate stroke as far as he could reach ahead. He missed—only by an inch or two—a tiger snake which was swimming across the river, but his effort caused our boat to roll so that it became half-filled with water. The snake gained the bank, and with another stroke of the paddle my companion just tipped it on the tail, so that it turned and re-entered the river straight for the boat. By the roll of the boat at the second blow aimed at the reptile we shipped more water—far more than we could conveniently carry—and my watchfulness for the boat had to be transferred to the snake. However, it dived at once, and although we pushed out into mid-stream we saw it no more. When we had time to examine our position it was found that I was practically sitting in the river, and that the boat was slowly filling with water. A few strokes of the paddles brought us to the bank just in time to prevent us going under. We took all our gear out of the boat, turned it upside down and emptied it before resuming our voyage.

A few days later a guide took us through an intricate maze

of swamps and watercourses to a nesting-place of Little Cormorants. This was in a thickly-timbered area about 30 yards in diameter, in a swamp, but none of the trees were very large. Every available nesting-place seemed to have been used —from a few feet above the water to the topmost limbs of the tallest saplings. We inspected a number of nests that were not difficult to get at, and found most of them contained from three to five eggs, but several were occupied by broods of four and five young birds. In several of the nests high up we noticed young birds well fledged, which seemed to indicate that the higher nesting-places are taken first—that is, by the birds which arrive earliest. A few yards away, on the side of this thicket, was a huge gum in which several White-fronted Herons and a few Little Black Cormorants were nesting, the latter having selected the highest branches for their homes. On the opposite side was a somewhat similar tree, in which we noticed the nest of a Spoonbill (*Platalea nigripes*), with two young birds standing on a limb close to it. In this same tree were about a dozen nests of the Little Black Cormorant—possibly the overflow from the general muster of the last-mentioned species. An attempt was made to get a photo of the young Spoonbills. In spite of the height they were up and the distance between them and the camera, neither the photographer nor his camera was beaten.

Immediately around the farm-house Superb Warblers (*Malurus cyaneus*) were numerous, and there were several old nests in a large rose bush which completely covered the dairy. Illustrations were obtained among some thistles on the Victorian side of the river, immediately opposite the house.

The nest appearing in the collection was found while our photographer was patiently waiting for a Black-and-White Fantail (*Rhipidura tricolor*) to go on her nest, for which the camera was focussed. She eventually became so tame that she took no notice of the camera, and very little of the photographer, so that he was able to take several photos. of her. I sincerely trust that she successfully reared a pair of birds from the two eggs on which she was sitting.

On this visit we were disappointed because of the scarcity of Pectoral Rails (*Hypotænidia philippinensis*), which usually are very plentiful there, coming all around the house. We had one regular visitor which was quite tame, running about the bank of the Gulpa at the back of the house, frequently coming within a few yards of us. Its nest was soon discovered, on the opposite bank of the Gulpa. The scarcity of Rails was balanced by the unusually large number of Gallinules (*G. tenebrosa*), but they, of course, were not so tame. They were always to be seen strutting along the banks of the rivers as saucily as so many Bantams, and then scampering and flying for cover when disturbed.

Another bird seen in great numbers was the Black-faced Cuckoo-Shrike (*Graucalus melanops*), locally known as the Cherry-Hawk—a vernacular name probably new to most of us. The photographer was able also to provide a picture of this bird, with her shallow and well-hidden nest.

Several attempts were made to get a snap-shot of a Boobook Owl (*Ninox boobook*), which spent the daytime in some willows close to the house, but for once the photographer was unsuccessful—it could hardly have been otherwise when the trees were so dense and the bird so shy. He was more successful with a pair of young Magpie-Larks (*Grallina picata*), and good pictures were obtained.

One of the conclusions forced upon me as a result of this trip is that those interested in the preservation of our native birds would do well to impress upon our legislators not only the necessity of keeping our game laws up to their present standard, or making them more inclusive and more stringent, but of taking such action as will, as far as possible, keep in check that wily pest, the fox. Four Black Ducks had last season built their nests in the home paddock, and all four birds were taken by foxes.

The White-eye (Zosterops cœrulescens, Lath.)

By H. Stuart Dove, F.Z.S., W. Devonport, Tasmania.

This familiar little bird has been very numerous this autumn and winter; perhaps the exceptionally rough, wet weather has caused them to band together more than usual for warmth and protection, but certain it is that their shrill calls have been heard on all sides in our gardens or among the scrub.

They have also been very numerous this winter at Table Cape, 42 miles west of this, and Mr. H. C. Thompson tells me that a large party of Zosterops have been attacking the berries hanging upon a verandah-climber in Launceston, and were attracting much attention from the passers-by from their numbers and shrill cries, causing much speculation also as to their identity; they were variously christened "Honey-eaters," "Cherry-pickers," and "Goldfinches"! Having devoured all the berries upon that particular climber (which was bare of leaves, but was probably Virginian creeper), of which they were very fond, they next turned their attention to the honeysuckle, the bitter fruit of which disappeared also under their vigorous attacks.

Several vernacular names have been bestowed upon our little friend. Besides "White-eye," the appellation usually in vogue, there are "Silver-eye" and "Girdle-eye." These have all arisen from the fact that a ring of very short white feathers surrounds each orb, and forms a very conspicuous

feature in an otherwise protectively coloured creature. Why these startling white rings should have developed in an otherwise quiet plumage, consisting almost entirely of greenish tints and browns, is a conundrum.

Still another, but less pleasant, nickname for our subject is "Cherry-picker," bestowed by the bush-folk on account of its fondness for that small fruit; half a dozen birds will get into a tree, and, stabbing away at the ripest cherries with their almost needle-sharp bills, will soon spoil the crop. We do not object to what is eaten, but so much is stabbed and left hanging damaged and useless on the tree. Cherries are not the only toll levied; one summer a regular army of "Pickers" invaded my bush garden, and hollowed out nearly all the ripe gooseberries as they hung on the bushes; in many cases just a small hole was pierced and the contents of the berry extracted through that, leaving the shell hanging apparently intact; grapes were treated in the same way.

However, we do not bear little Girdle-eye (which is a literal translation of the generic name *Zosterops*) any ill-will on this account, for he is such a splendid insect-destroyer during a great part of the year, and may be seen hunting the apple trees for woolly-blight, peering into bark crevices, and pecking away at knobby protuberances where this insect foe lurks. He will also search gum saplings and other young trees for the scale-insects, which cause much damage, and when he hunts in large parties, as is the case this autumn, an immense quantity of our insect enemies must be destroyed.

Several species of White-eye are found in Australia, but only one in Victoria and Tasmania. As to classification, some naturalists place it among the *Meliphagidæ*, or Honey-eaters—a very conspicuous family among our birds. Colonel Legge separates it from the Honey-eaters, and places it in a family, *Zosteropidæ*, of the Swallow-like *Passeres*, possessed of nine primaries.

A frail little nest of this species was found about 4 feet from the ground in a swamp tea-tree (*Melaleuca ericifolia*), supported only by one slender twig, although partially tied to two upright stems by means of bark fibres. The structure was very slight, so much so that one could see through it, and was formed of fine stringybark fibres (*Eucalyptus obliqua*) and mosses, with a few small circular white spider cocoons stuck on the outside; the lining was of horsehair, and the nest contained two blue eggs and a young bird. It is strange that the White-eye nearly always has some of the spider cocoons placed on the nest as if for adornment; I think it probable that they are carried when full of eggs to the young in the home, and the eggs being disposed of, the empty cocoons are wiped off the beak of the parent bird on the outside of the nest.

PLATE VII.

Bronze-Cuckoo *(Chalcococcyx plagosus)*, about three weeks old.

FROM A PHOTO. BY C. P. KINANE.

In November, at Table Cape, a White-eye sang sweetly in an apple tree close to my cottage; the song, though sweet, is somewhat inward, a kind of meditation in solitude, so that one must be fairly close to the bird in order to hear it. The same singer was heard in a hazel bush close to the house on the evening of 24th December, a little before sunset. Some of the notes had the wild liquid sweetness of those of the Song-Thrush (on a very reduced scale, of course); others appeared like an imitation of the crescendo series uttered by the Pallid Cuckoo (*Cuculus pallidus*). This was altogether a very remarkable performance, and appeared to indicate hitherto unsuspected powers of vocal mimicry in this interesting little bird.

It is a moot point whether or not *Zosterops* is a true native of New Zealand. Sir Walter Buller contended that it was an inhabitant of the South Island until 1856, when it crossed Cook Strait and spread over the North Island also; other ornithologists believe that it crossed the Tasman Sea from Australia shortly before that time, and had not previously been found in either island. If so, this was an extraordinary flight for such a tiny bird, but perhaps not much more remarkable than that of the Shining Cuckoo (*Chalcococcyx lucidus*, Gm.), which crosses every year that great stretch of troubled water in order to deposit its eggs in the snug canopied nest of the Grey Warbler.

The Origin and Development of Parasitical Habits in the Cuculidæ.

BY C. L. BARRETT, MELBOURNE.

FOR nearly two thousand years certain remarkable habits of the family *Cuculidæ* have exercised the minds of naturalists and philosophers. The origin of these habits has remained hidden behind an impenetrable veil of mystery, which is only now being slowly and patiently lifted by means of the observations and researches of a number of ornithologists in different parts of the world. The first actual record which has come to us out of the past of the unusual ways of these strange birds is contained in a scientific treatise written by one Aèlian, a Latin author, who flourished during the second century. In this ancient monograph it is stated that the Cuckoo always lays her eggs in the nests of other birds, being too indolent to undertake the care of her own offspring.

We do not find many other important references to the Cuckoo until the time of Gilbert White, the famous old naturalist-parson of Selborne, whose charming series of letters on the wild life of his Hampshire home, known to us as "The Natural

History of Selborne," are full of interest still. White mentions that the European Cuckoo (*C. canorus*) is a summer migrant, appearing in his garden early in the month of April each year, and the whole of one letter, dated from Selborne, 19th February, 1770, is devoted to a consideration of the habits of the mysterious stranger.

Daines Barrington, a wealthy and aristocratic young naturalist, had written to the Rev. Mr. White, asserting that the Cuckoo did not deposit her egg indiscriminately in the first nest she came across, but, on the contrary, searched out the home of a bird whose natural food was to some extent similar to her own, and therefore a desirable foster-parent for the prospective baby Cuckoo. White, in reply, said that the idea was quite new to him, and that, after giving much thought to the subject, he had come to the conclusion that the hypothesis was reasonable enough, as, personally, he could not remember ever having witnessed a young Cuckoo being tended by any but soft-billed insectivorous birds. He adds, very quaintly, that the depositing of its eggs by the Cuckoo in another bird's nest is such a monstrous outrage on maternal affection that, had it been related of a bird in the Brazils, or Peru, it would not have merited belief. On the 8th October, 1770, the observant old naturalist again writes, this time from Ringmer, in Sussex, to the effect that he has just seen a young Cuckoo in a Lark's nest, and that it was very pugnacious, pursuing his finger and buffeting and sparring with its wings like a game cock. I have often noticed this bad-tempered disposition myself amongst our Victorian species, and it seems to be quite in accordance with the general nature of the birds as a class.

Coming to more recent times, we find Charles Darwin, in his chapter on instinct in the "Origin of Species," throwing the searchlight of his genius into the dark corners of the Cuckoo problem. Variation and natural selection, the great naturalist considers, have undoubtedly been the main factors in building up the parasitical instinct which we see working in all its horrible perfection to-day. Let it be supposed, for instance, that an early progenitor of our lovely little shining Bronze-Cuckoo (*Chalcococcyx plagosus*) occasionally departed from the natural order of things, and deposited one of her tiny eggs in the nest of some other species of bird, either accidentally or by reason of being compelled to lay before her own nest was completed, just as to-day we frequently find the pale blue eggs of Starlings and Mynahs scattered about the open fields or on our suburban lawns. If we conceive, further, that the egg thus consigned to its fate in an alien nest has duly brought forth a baby Cuckoo, which, being reared by the foster-parents, has unconsciously acquired, during the nestling period, a predilection for the company of its foster-parents and their kind, is it not probable that

this particular Cuckoo would, if a female, sometimes deposit an egg in the nest of a bird belonging to the species amongst whom her infancy was passed? The Cuckoo would also naturally transmit this predilection to her own offspring, and they in turn would rear young, or leave them to be reared by foster-parents, endowed with the same inclination towards parasitism. As time went on, and successive generations of Cuckoos from the same parent stock had been born and died, the parasitical instinct would gradually become more pronounced in the family, and, being an aid to its preservation and perpetuation, would finally become a fixed, immutable instinct.

As a proof of this theory I may cite the peculiar habits of certain species of the American *Icteridæ* or Cow-Birds (*Molothrus*), which, according to Mr. W. H. Hudson, author of "The Naturalist in La Plata" (with whom I am in correspondence), are only partially parasitical, being apparently still at the half-way house between virtue and vice. The Cow-Birds live together promiscuously, in flocks composed of many individuals of both sexes, and either build a nest for themselves or forcibly seize upon a suitable one belonging to some unfortunate member of another family of birds. In the event of there being either eggs or young in the appropriated nest the feathered robbers proceed to cast them out—a first trace of the ejecting instinct—before laying their own eggs therein. Strangely enough, Cow-Birds will sometimes construct a loose, untidy nest for themselves on top of a stolen one, without making use of the latter for purposes of nidification. One species of *Molothrus* has the parasitical habit much more strongly developed than other members of the genus, as it almost invariably lays its eggs in the nests of other birds; but sometimes several individuals will club together and attempt the construction of a large, shapeless nest, which, however, is never completed or made use of. These strange birds frequently lay as many as 20 eggs in a single nest, and they also possess the remarkable habit of piercing holes with their bills either in their own eggs or in those of other birds. Another curious fact relating to Cow-Birds is that one species (*M. rufaxillaris*) is actually parasitic upon another member of the same genus (*M. badius*), which builds its own nest.

Additional proof of the gradual development of parasitism among the *Cuculidæ* is found in the fact that an American Cuckoo (*Coccyzus americanus*), which, as a general rule, builds a nest and rears its own offspring, has yet been known to depart from its normal habit in this respect, and leave its pale green egg in an alien nest. The Hawk-Cuckoos (*Hierococcyx*) of southern India, which exactly resemble both in colour and flight the Sparrow-Hawks of that region, furnish still another instance. Of the six known species of *Hierococcyx* one only is said to build a nest, the remaining five being parasitic on the Babbling-

Thrushes. In the Great Spotted Cuckoo (*Coccystis glandarius*), ranging through south-western Europe, Asia Minor, and Africa, we can see the instinct to shirk parental cares yet more highly developed. These birds are truly parasitical, inasmuch as they foist their eggs on certain species of Crows and Magpies whose eggs bear a marked resemblance in colour to their own. In this case, however, several Cuckoos' eggs are found in the same nest, and when these are hatched out it is stated that the intruders live in perfect harmony with such of their foster-brethren as have survived, and make no attempt to eject them. Occasionally the female Spotted Cuckoo, before laying in the chosen nest, breaks the eggs of the rightful owner, in order to make more room for her own. Thus we find the parasitical habit and instinct to eject fellow-nestlings being manifested in various stages of development by certain existing representatives of the *Cuculidæ*.

Concerning the origin of these instincts or habits, the theory that natural selection, acting during a long period of time upon a chance beneficial variation in habits displayed by an early progenitor of the race, is responsible for the habit, receives much support from a further fact. Certain birds have been known to lay eggs in the nests of others belonging to widely different genera. Moor-Hens' eggs have been found in a Coot's nest, and an egg of the former species was taken in the half-finished home of a Blackbird. Starlings eject Woodpeckers from their nesting-holes in trees and the eggs of Gulls and Eider Ducks have been noticed in each other's nests. Romanes, in his "Animal Intelligence," says that we are justified in setting down the Cuckoo instinct to the creating influence of natural selection, and a consideration of the facts just mentioned will show how easily the parasitic instinct may have originated. The practice is by no means confined to birds, and an interesting comparison may be made between birds and insects by referring to the habits of a certain kind of bee, which always consigns its eggs to the care of another species. These parasitical insects are structurally modified in obedience to the law of co-ordination of structure with function and habit, for they are devoid of the pollen-gathering apparatus, which would have been absolutely essential had they been obliged to rear their own offspring.

There are two other phases of the Cuckoo problem that I should like to touch upon briefly, viz.:—

(1.) The resemblance that certain Cuckoos' eggs bear to those of the chosen foster-parent.

(2.) The nature of the impulse acting on a newly-born Cuckoo and causing it to eject its fellow-nestlings from their home.

As regards the first much-debated point, it is interesting to note that the Great Spotted Cuckoo (*C. glandarius*) of South Africa lays eggs closely resembling those of certain Crows and Magpies

PLATE VIII.

Young Narrow-billed Bronze-Cuckoo (*Chalcococcyx basalis*) being fed by foster-parent—Blue Wren (*Malurus cyaneus*).

FROM A PHOTO. BY C. P. KINANE.

which constitute its victims. Other members of the *Cuculidæ*, especially some of the Australian species, do the same thing. The salmon-tinted egg of the Pallid Cuckoo (*C. pallidus*) is frequently found among a clutch of flesh-coloured Honey-eaters' eggs; the Narrow-billed Bronze-Cuckoo (*C. basalis*) favours the Blue Wren (*M. cyaneus*), with her tiny pink-spotted egg; and most wonderful of all is the Fan-tailed Cuckoo (*C. flabelliformis*). I have found a great number of the eggs of the last-named species in nests of the White-browed Scrub-Wren (*Sericornis frontalis*), and in several instances the resemblance between the eggs of foster-parents and Cuckoo has been most pronounced.

It is thought by some naturalists to be highly probable that the food eaten by birds during the nestling period has much to do with the future colouration of their eggs, and, if such be the case, it goes far to explain the similarity between the eggs of many species of Cuckoos and those of their foster-parents, for it follows that the latter would rear the alien chicks upon the same food on which they would have fed their own offspring. The stomach of a female Bronze-Cuckoo (*C. plagosus*) shot at Olinda Creek last September was found, on dissection, to contain the remains of a number of the large green caterpillars of the cup moth (*Pelora*) and the emperor gum-moth (*Antherea eucalypti*). In the oviduct was a soft-shelled egg, on which the beautiful bronze-green tint characterising the eggs of this species was just becoming visible. I have watched closely several young Bronze-Cuckoos being fed by Blue Wrens and various species of *Acanthizæ*, and in many instances have noticed that the devoted little nurses were attempting to satisfy the voracious appetites of their charges with lepidopterous larvæ of a greenish hue.

With reference to a recently made suggestion that the action of the infant Cuckoo in ejecting its nest-fellows is purely automatic,* rhythmic, and governed by external stimuli or reflex action, I still cling to the belief that the process is referable to hereditary instinct or sub-conscious memory, aided by dawning reason. I am strengthened further in my conclusions by comparing notes with other ornithologists in various parts of the world. Mr. Edward Step, F.L.S., in his essay on "The Cuckoo," distinctly states that "shortly after birth the young Cuckoo shows that it has inherited the knowledge that its foster-parents will have all they can manage to satisfy its own wants, and that the presence of nest-fellows means overcrowding, and inevitable death for the majority, should they be allowed to remain." My friend, Mr. W. Percival Westell, M.B.O.U., a well-known British ornithologist, who has devoted years of study to elucidating the habits and life-history of the European Cuckoo (*C. canorus*), writes that his observations lead him to credit the blind nestling

* *The Emu*, vol. v., p. 145.

with hereditary reasoning powers, and that he agrees almost entirely with my theories on the subject as set forth in a previous paper published in *The Emu*, vol. v., part 1, July, 1905. Mr. Westell has been kind enough to forward me copies of his series of remarkable Cuckoo photographs, which were exhibited recently before the Royal Society of Great Britain.

I was fortunate enough to witness a miniature combat between a Narrow-billed Bronze-Cuckoo nestling and a baby Blue Wren, which took place in a nest of the last-named species at Olinda Creek in November, 1904. A snapshot of the struggle by Mr. C. P. Kinane has already appeared in the *The Emu*.* The actions of the blind, featherless infant Cuckoo on this occasion certainly showed no sign of being due to reflex action, but on the contrary appeared to me a marvellous and almost uncanny exhibition of instinct and sub-conscious reasoning. If it be objected that the term instinct is meaningless, I can only reply that there are many things in nature to which we attach convenient labels, although they still remain beyond our understanding.

Some Victorian Winter Notes.

BY A. G. CAMPBELL, MELBOURNE.

HAVING had occasion to journey to several parts of the State during the winter months, I have been able to note something of the bird inhabitants of the varied parts I have visited. One is struck with this fact, that the richer the country is, the fewer the birds. This is true in regard to number of species as well as number of individuals, and the reason is somewhat obscure. Of course, the settlement of good country, which takes place rapidly, is responsible for the disappearance of native fauna and flora. Nevertheless, the untouched tracts of such an area as Gippsland are singularly devoid of bird-life, while the poor sandy rises of the north-west, or the still poorer gravelly ridges of north-eastern Victoria are veritable natural aviaries.

Naturally enough, the food supply must govern the quantity of bird-life, therefore it is, I think, to the presence or absence of flowering plants and their attendant hordes of insects that the abundance or scarcity of birds is due. It is notorious that Gippsland, with its heavy rainfall and giant timber, gives no encouragement to the scores of heath-like shrubs and the many free-flowering eucalypti for which the more northern parts of the State are famous. In fact, Gippsland is a place where water and slimy fungous growths do the work of decomposition and soil preparing, which in drier tracts is done mainly by insects of all shapes and sizes. And birds surely follow insects.

* Vol. v., part 1, July, 1905.

It is to the north-east then, and to the north-west, that I will turn mostly for my bird notes. However, I might refer for a moment or two to Gippsland. About Drouin the heavy timber on the rich red soils is coming down fast, or at least the smaller scrub is, and the giant "rung" trees are left, 8 or 10 per acre, standing dead and gaunt in the fields and pastures. In these skeletons the introduced Starling by thousands of thousands is increasing, but speaking generally the species will do far more good than harm in a country where native caterpillars and other herbage-eating pests also flourish. The White-backed Magpie is also increasing in numbers about the clearings, but the Lyre-Bird is now unknown where it stalked as lord but 25 years ago. In the Crown lands flanking the settlements, among the big timber yet untouched, a few native birds are still at home. The White-throated Tree-creeper and Tits, principally *Acanthiza pusilla* and *A. lineata*, climb about the trees, and the Yellow Robin and White-throated Thickhead keep to the denser scrub. Occasionally the Crimson Parrakeet or the Gang Gang Cockatoo darts through the timber, while the Grey Magpie makes the place re-echo with its loud calls. Down about Moe, in the drained swamp land, nothing but Starlings seem to exist, though sometimes a Black-and-White Fantail or a pair of Swallows comes about the homes.

But in the north-east, from Beechworth through Chiltern to Rutherglen, bird calls come oft and varied. Even on a dense misty morning the chirping and wrangling by the country roadside betray the presence of at least three species of Honey-eaters together in some flowering gum tree. It is about Chiltern especially that birds are plentiful. Running east and west is a long, low silurian ridge, from which the gold in the adjacent rich alluvial mines was worn. The ridge is coated with a thick layer of quartz gravel, the broken up fragments of ancient reef, and looks spotlessly white after recent rains. The scrub thereon is mostly second-growth ironbark, but here and there among it is an ancient "senator," a solitary ironbark, the last of that old race that was wiped out to supply timber and fuel to the early gold-digging days. The ironbark flowers freely, even young saplings bearing trusses of heavy bloom, and on this many species of Honey-eaters and Lorikeets are found. Those identified were Fuscous and Yellow-tufted Honey-eaters in numbers, Black-chinned and Brown-headed, Wattle-Bird and Spinebill. The mistletoe is common, and also the Mistletoe-Bird. Some trees had positively more mistletoe growth than leaves of their own.

Some very pretty phases of a bird's existence can be observed in winter, when the adults, usually in pairs, remain in each other's company continuously. They traverse their domain, prospecting for food, with that happy indifference born of right living and a good conscience. Babblers, both *Pomatorhinus*

temporalis and *P. superciliosus*, are to be seen often among the fallen leaves and twigs, where their protective colour befits them, rustling and rummaging for insect tit-bits, quite unconcerned about an onlooker but 10 feet away. But, alas! all the households in that ironbark scrub on the dull morning when I passed were not in the same contented mood. I came upon a pair of the beautiful Crested Oreoica. I think the lady must have been sulky, for she had retired into the hollow centre of a fallen rotting tree. The mate, raising and lowering his fine crest, and moving about with great agility, was uttering a cross, scolding note, occasionally pausing to give forth his clear, bell-like call. Now and again he would go to the mouth of the log and look in, scolding his hardest. Presently the female could stand this no longer, and while the male paused a moment or two at the entrance, she charged him full in the chest and sent him spinning into the brown chips alongside. She retired again before he realised whence the thunderbolt had come. After a while, when my patience was exhausted, I went and looked in the end of the log. She charged me too; but this time it was in her fright to get away. The male bird quickly followed her off, and doubtless the argument was continued over the adjacent rise.

Later in the day I was able to identify the Black-eared Cuckoo, a somewhat scarce bird. It was whistling with a curious long-drawn note, similar to that of a Spotted-sided Finch, which species was also in the district, and doubtless is a foster-parent of the Cuckoo. In the fields everywhere the Black-backed Magpie was much in evidence.

While referring to the Mistletoe-Bird, I might here mention some further facts that have come under my notice. I take it that the seed is spread by this species of bird only. In the Grampians I was much struck by the absence of mistletoe on the stringybarks in the northern part, while in the southern part, 40 miles away, the parasite loaded the trees heavily, even being on black wattles. Here its deadly effect could be seen. Wherever it grew the branch of the host tree beyond that point was dead, and an unsightly callus or gall swelled up about the parasite. In Crown lands I believe timber-getters can cut trees with mistletoe without a licence. At another spot, near Melton, where the creek runs down to meet the Werribee, I came across a large red gum with no less than 42 mistletoe plants upon it, yet it had not lost a leaf. It is an unusual thing to find the common pendulous mistletoe on a red gum, but there it was, and not a single parasite was on any of the other gums about. This collection probably marks the resting place of a wandering Mistletoe-Bird (for I have never heard of any living hereabouts) of some past generation, and it left a legacy in a few slimy seeds, which germinated and sent their offshoots to all the other parts of the tree.

The earliest nesting operations I observed this season were at Horsham—a Yellow-rumped Tit had eggs and many pairs of Chestnut-eared Finches had young a week old in an orangery on 3rd August. Further along the line, at Dimboola, some striking country is found. South of the town is what is known as "The Desert," which stretches its undulating sandy hills well down into South Australia. Here the stringybark gum flourishes among breaks of honeysuckle (*Banksia ornata*), spinifex, and dwarf tea-tree. Birds were abundant on the bright morning when I passed through—*Streperas*, probably *S. graculina*, in the timber, and thousands of Lorikeets and Honey-eaters in the more open parts. The Lorikeets, both Porphyry-crowned and Musky, were climbing about the tufty, broad-leaved banksia bushes, pushing their chubby faces right into the flowering spikes in search of honey, filling the whole air with their noisy chatterings. And White-bearded Honey-eaters—well, every bush seemed to flicker with their yellow-splashed wings. There were thousands of them, intent on rifling the banksia blooms, which they do far more gracefully than the phlegmatic Lorikeets. Reference has often been made to irruptions of White-bearded Honey-eaters in several parts of Victoria, and the question asked, where do they come from? Here appears an explanation. The species collects on such abundant winter-feeding grounds as these banksia "deserts," and moves abroad with the advance of summer. I should not think they nested there in any numbers. Very many Tawny-crowned Honey-eaters were also about. Among the banksias, too, were the merry voices of Wrens, and after the exercise of some patience two species were identified—*Malurus cyaneus* and *M. assimilis*, females and males of both. One male of the latter species was just changing his mantle, and the rich brown of the shoulders with the blue of the ear coverts was the only bright colour showing.

Through the midst of this sandy "desert" flows the Wimmera, with its attendant flats of red gum trees. A change in the bird-life is at once apparent. White-plumed Honey-eaters and White-throated Tree-creepers, with Parrots and Cockatoos, are common, and the birds of "the desert" are no longer seen. At one point a strange, sweet note was heard from the top of a tall red gum. I think it must have been that of a White-throated Gerygone.

About midday, leaving this oasis, I pushed out to the north of Dimboola into real mallee country—the south-eastern fringe of that great unique tract lying in the north-west corner of Victoria. Here the soil was different from the area visited in the morning, the plants were all different, and the birds were all different. Many dwarf, rotund bushes of acacia were in flower, and in them sported the beautiful Yellow-tufted Honey-eater, and near by were the Brown-headed Honey-eater and the

Oreoica. The first Pallid Cuckoo of the season was seen and heard, and here, too, the little yellow buttercups and crocuses, with the real "harbinger of spring," were carpeting the grassy spots, as they do about Melbourne a few weeks later. All evidences of the Mallee-Fowl have now disappeared from these parts, though kangaroo and Emu may still be seen.

Journeying back to Stawell, two more days of interest were spent in the country that lies between that town and the Grampians, which rise—a huge sandstone wall—to the south-west. In the stringybark and ironbark gums, among underscrub of dwarf *Casuarina* and heath-like plants, the footprints of Emu were noticed. A local resident informed me he had seen four that week. This time last year he observed one bird with chicks. At the Black Ranges—low outcropping granite hills near by—the Lunulated and White-bearded Honey-eaters were seen along the creeks, White-browed Babblers had young in a nest, and the Shrike-Thrush, the Brown Tree-creeper, and the Blue Wren were common. The last-named three species came with great fearlessness about a friend's camp by the bank of a creek. Among the Blue Wrens, of which there were several families, was one unfortunate individual that suggested that even such tiny mites have their tragedies. It had a large cancerous growth on one foot, and it became the butt of all the others. One day it disappeared, and has not been seen since.

The Grampians were then visited, and a separate list of birds observed there is given in another part of this issue.* Down at Dunkeld, the southern extremity, Emu tracks were again observed. There, too, the Crimson Parrakeet was noticed, biting into the tough cones of the dwarf native pine (*Callitris verrucosa*) to get at the small winged seeds. Black Magpies (*Strepera*) were common, and had time permitted some species might have been discovered nesting. In one spot a pair of Scrub-Wrens loudly scolded at the intruder, and not far away a young Ground-Thrush (*Geocichla*), with weak flight, was disturbed, which showed that there the season was in advance somewhat of Melbourne district.

Still further south, at Portland, is a timbered tract of rich country that is a veritable oasis of birds. *Streperas* are in great numbers, and many Honey-eaters and Tits are about. All come freely into the gardens that are scattered through the forest. Orchardists say that the *Strepera* searches for the cocoons of the destructive codlin moth, which are hidden away in the bark of the fruit trees, and the White-eye, in parties, comes among the apple trees in summer and cleans off the woolly aphis, which does so much harm if left alone.

It is noticeable that the Magpie seems to be increasing in

* See "Stray Feathers," p. 71.—EDS.

many districts. In open country particularly, large numbers are seen, lending colour to this view. In the vicinity of Inverleigh, near Geelong, last month, I saw no less than 79 birds feeding on a grass paddock of about 10 acres. I never saw so many of the White-backed species together before. But on inquiry, and from observation, I find that very few of these birds nest. They are practically all the year in flocks, which do not split up in spring and disperse into timbered country to breed. Where, then, is the increase? It seems to me that the birds are just congregating about the clearings out of the falling forest, and, being hardy and long-lived, only appear to be increasing because seen in larger parties.

In conclusion, I would like to ask the readers of *The Emu* to inquire into this matter of bird inhabitants, and systematically to collect all such data as will tend to show the decrease or increase of any given species, so that, in a few years, an estimate or bird census might be made of the feathered inhabitants of this fair land, having reference also to their usefulness or otherwise, before the time arrives when their natural habits and habitats will be so altered as to be lost.

Stray Feathers.

PALLID CUCKOOS IN NEW SOUTH WALES.—15th July.—Small boy who climbs for me and knows the bird stated that he had seen it already at Flemington (Sydney); 11th August, heard the bird myself at Flemington in the distance; 25th August, saw and heard several birds at Blacktown; 26th August, saw and heard several birds at Sutherland.—L. HARRISON. Sydney.

* * *

PALLID CUCKOOS IN VICTORIA.—Heard last week in July, at Hopetoun (M'Lennan)—*vide Argus*; 4th August, seen and heard at Dimboola; 6th August, at Stawell, none to be heard; 18th August, plentiful at Stawell; 28th August, first heard at Burnley, Melbourne.—A. G. CAMPBELL.

* * *

PALLID CUCKOO, &C., IN TASMANIA.—*Cuculus pallidus* was first noted in the Devonport district on the 14th September, in the morning. At the same time I observed twelve individuals of *Graucalus parvirostris* coming from the north-west, a seaward direction, and proceeding rapidly, against the wind, towards the south-east, as if their course was plainly marked out. The great majority of these interesting birds leave our north-west coast in April and arrive again in spring. If they do not cross to the mainland, where do they winter? From the direction in which

they come, King Island seems the only reasonable alternative. On 23rd September in a previous year I noticed five *Graucali*, apparently just arrived, flying high and proceeding in exactly the same direction—from north-west to south-east—as those seen yesterday; in this case, however, they had the wind in their favour, it being from the north-west at the time. An individual of the Fan-tailed Cuckoo (*Cuculus flabelliformis*) was observed yesterday to alight in a small peppermint gum. Immediately all the *Acanthizæ* in the neighbourhood began to hurl violent abuse at the larger bird, as though intuitively aware of her intentions, and very soon a pair of these tiny Tits vigorously attacked the Cuckoo, and put her to flight.—H. STUART DOVE. W. Devonport, Tasmania, 15/9/06.

* * *

A CUCKOO'S EGG AT MIDWINTER. — There is in my collection a clutch of three eggs of *Acanthiza chrysorrhoa* (Yellow-rumped Tit) with an egg of *Chalcococcyx plagosus* (Bronze-Cuckoo), taken at Flemington, near Sydney, on the 14th of July this year. Mr. L. Harrison, of Sydney, who forwarded me the set, points out that the date when the eggs were obtained shows that the Bronze-Cuckoo was in the vicinity of Sydney at that time of the year. He further adds that those who assert that *C. plagosus* is strictly migratory will need to reflect.—A. MATTINGLEY. Melbourne, 27/8/06.

* * *

NOTES FROM MELBOURNE ZOOLOGICAL GARDENS.—A pair of Cape Barren Geese hatched out four young ones early in June. In July five eggs were laid again in the same nest, the former young being six weeks old. The bird which did not happen to be sitting looked after the young, but they clustered round the sitting bird at night, so were removed and given to an unattached male to be looked after. The second brood were duly hatched in July, and are now doing well. These birds evidently lay two clutches a year. Two Emus are also sitting, the male bird doing most of the work of incubating. The Brush-Turkeys (*Talegallus*) have made a very large nesting mound early this year, or rather the male bird has, as the hen only looks on. If she comes near he drives her away.—D. LE SOUËF. Zoological Gardens, Melbourne.

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SOME WESTERN DISTRICT NOTES.—One night in July a little common Fantail (*Rhipidura albiscapa*) found its way into the dining-room. It at first seemed bewildered, but on getting used to the light and surroundings became more at its ease. It commenced flitting about, once on the lap of a lady by the fire.

At last it disappeared behind the piano, but the maid on coming into the room discovered it fast asleep on the wick of a candle standing near the door. I closed my hands over it and put it out of a window, on the sill, where it sat much dazed. This afternoon I saw a Magpie (*Gymnorhina leuconota*) sitting on a Lincoln ram's back, dragging out beakfuls of the wool. We wondered if it were after ticks. During January last, when the bees were swarming, I watched the White-plumed Honey-eaters flying through the swarm, catching the bees, then back again through for others, when they would hide in a tree on the opposite side. I have also noticed the hen Robin with a bee in her beak, having a great time with it before she managed to swallow it.—M. PRINGLE. Merrang, Hexham, 5/8/06.

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MALLEE (VICTORIA) NOTES.—This is the earliest season for birds nesting that I have experienced—that is, taking all the birds together. Mallee Parrots—in fact, all Parrots in this region—have been nesting for the last six weeks. This also applies to the different Cockatoos about here. Hylacola, Scrub-Robin, and a few more of the October birds I have found with big young in their nests two or three weeks back. The little Red-throat I observed young in the nest six weeks ago, but they are always among the early birds to nest. I saw a few of the White-shouldered Lalage here on the 5th of this month (August)—that is the earliest I knew them to put in an appearance here. Another strange thing this season is that the Pallid Cuckoo was the last of its tribe to make its appearance. The scrub for the last few weeks is ringing with all the Cuckoos' shrill notes. I saw a large flock of Black Cockatoos to-day—about 400 of them. They come here every year about this time to feast upon the honeysuckle scrub blossoms. Their screeching notes when flying and floating from one bunch of blossom to another can be imagined.

I am writing this near the camp fire in the bush while my quart pot boils for my noontide meal, and an old Emu is walking around me, only about 20 yards off—no doubt wondering what the strange object is—uttering its characteristic booming note all the time.—CHAS. M'LENNAN. Pine Plains, 18/8/06.

* * *

CLARKE ISLAND (BASS STRAIT) NOTES.—It is a noteworthy fact that both land and aquatic birds down here were unusually late in nesting last year, for no accountable reason; also, that a large proportion of those species which are in most seasons very numerous, such as the Grey Shrike-Thrush, Thickhead, and a host of smaller varieties, were conspicuously scarce. The Brown Quail was most noticeably so, whilst the Painted Quail was not

seen at all. The following instances will give some idea of how the birds have deviated from their usual nesting time. I noted a clutch of cygnets in April which were only half fledged. The Swan lays in August and September, but chiefly in the former month. The last year's clutches of the Brown Quail are only flying well now, and I have noted a great many which are none too strong on the wing. They lay with us in November or December. The Thickhead and Grey Shrike-Thrush were a couple of months late, in company with many others.

22nd April.—Saw the Swifts in large numbers on Cape Barren Island, but only a few visited Clarke Island. They do not nest here.

4th May.—The Goose appears very numerous this year. Saw fifty (50) in one flock on Preservation Island, and am informed that on Balky Island as many as two hundred (200) are sometimes to be seen. Ornithologists need not alarm themselves about this bird becoming extinct, for they breed well and are seldom disturbed in any way ;* also their erratic nesting is a good protection. I have secured fresh eggs in June, and also in September. The Black-cheeked Falcon, at all times a rare bird, appears to have left us altogether. The Black Duck, Teal, and Shoveller have been here in fair numbers through the dry months, but are fast leaving with the autumn rains. Of course some Ducks nest here, chiefly Teal and Musk-Duck. The Mutton-Birds are very large and fat this year, and plenty of them, but the sale price is so low that it hardly repays the labour of preparing them for market.—J. D. MACLAINE. 12/5/06.

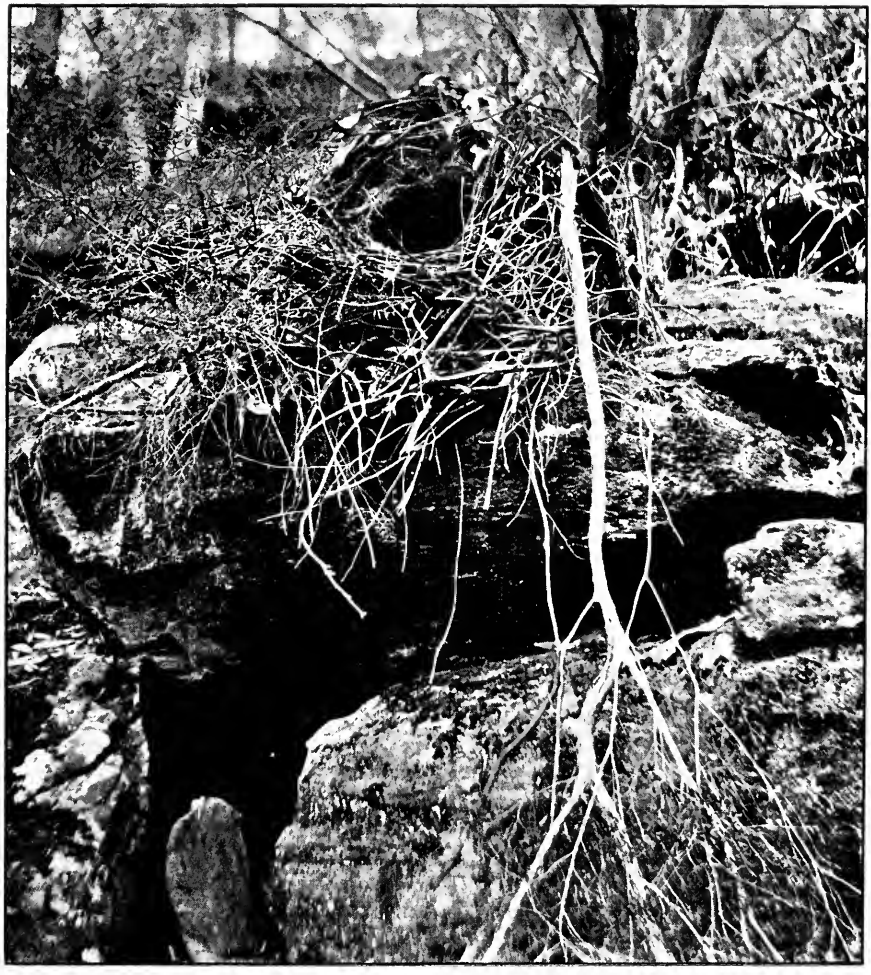
* * *

NEST OF MENURA SUPERBA (LYRE-BIRD).—As this beautiful bird is found plentifully in the National Park, close to Sydney, I determined during the present breeding season to try and observe some of its habits and characteristics, so on 22nd July, in company with Mr. Clifford Coles, I journeyed out to the Park, some 20 miles by train, and in a rowing boat went about 4 miles up that charming stretch of water known as the freshwater portion of the Port Hacking River. The country consists of steep sandstone hills, supporting many eucalypti, grass-trees, banksias, and a light, varied undergrowth, with occasional patches of tropical vegetation—palms, ferns, creepers, &c.—on small rich flats near the river bed.

When quietly rowing along we observed a hen Lyre-Bird bathing in the shallow water close to the bank ; she appeared to be much enjoying a complete bath, and reluctantly left the water as our boat drew on. Upon effecting a landing half a mile further on abundant traces of the birds were seen in the

* This may be due, in a measure, to the action the Union has already taken regarding the Cape Barren Goose.—EDS.

PLATE IX.



Nest of the Lyre-Bird (*Menura superba*).

FROM A PHOTO. BY A. S. LE SOUEF.

scratched surface of the ground, and we cautiously approached one bird as it was feeding and chattering among the undergrowth; it turned out to be a fine male, and his wonderful mimicking powers were well put forth as he repeated the notes of many birds in quick succession with extraordinary accuracy, now and again introducing his own particular call—two long high notes followed by three short ones. (I have never heard the *M. superbus* utter the shrill note common to Victorian birds; when disturbed, they give a low "Croak, croak"). Their ordinary note is similar to that of the Southern form. The following are the actual calls heard, taken down on the spot as uttered :—Bower-Bird, Whip-Bird, Grey Shrike-Thrush, own note (repeated), own, own, own, Jackass, Honey-eater, Thrush, Bower-Bird, Jackass, own, Black Cockatoo, own, Parrot, Thrush, Cuckoo-Shrike, Bower-Bird, Whip-Bird, Scrub-Tit, Thrush, Bower-Bird, Jackass, Bower-Bird, Black Cockatoo, Parrot, Bower-Bird, own, Black Cockatoo, Parrot, Thrush, Cuckoo-Shrike, Jackass, Bower-Bird, own, Friar-Bird, Black Magpie, Jackass, Thickhead, Scrub-Tit, Whip-Bird, Honey-eater. Upon walking up to him he quietly stalked off some fifty yards and again commenced his chatter, evidently upon one of the Lyre-Bird playgrounds, which were numerous in the locality.

We then started a careful search for nests, and located about ten old ones in various stages of disrepair; they were without exception placed upon a ledge of rock, and faced the north-east, the rising sun. The birds preferred the dry hillside for a nesting place to the shady gully. We were at last rewarded by finding a lovely fresh nest, placed upon a rock, about 3 feet from the ground, just at the head of a short, steep gully. The hen bird flew out as we approached, and on investigation we found the darkly-mottled purplish-grey egg very far incubated. The nest was composed of sticks interwoven with grass and leaves and lined with fibre from the cabbage palm and green moss, while the egg rested upon a handful of the soft vent feathers from the parent bird. The nest measured—outside, length 30 inches, depth 28 inches; inside, length 15 inches, depth 10 inches; entrance, 8 by 5 inches. The hen bird quickly reappeared and approached to within a few feet of us as we stood by her home, and then unconcernedly started to search for food. We again visited this nest on 26th August, and found the young bird well grown and just getting the flight feathers. Its shrill scream on being disturbed at once brought the parent bird to the rescue, and she hurried round, just out of reach, now and again answering her baby with a reassuring call.

The Lyre-Birds in the National Park have quickly learnt to appreciate the full protection afforded them. All credit is due to the trustees for this bird sanctuary.—A. S. Le Souëf. Zoological Gardens, Sydney, 27/8/06.

BIRD CENSUS OF THE STAWELL DISTRICT.—

Astur approximans
Uroaëtus audax
Hieracidea orientalis
Cerchneis cenchroides
Ninox boobook
Corone australis
Strepera cuneicaudata
Corcorax melanorhamphus
Grallina picata
Collyriocincla harmonica
Graucalus melanops
Micræca fascinans
Petrœca leggii
,, phœnicea
,, bicolor
Smicrornis brevirostris
Malurus cyaneus
Rhipidura albiscapa
,, tricolor
Sisura inquieta
Acanthiza nana
,, pusilla
,, lineata
,, chrysorrhoa
Sericornis osculans
Pomatorhinus superciliosus
Cinclorhamphus cruralis
Ephthianura albifrons
Xerophila leucopsis
Gymnorhina leuconota
Cracticus destructor
Falcunculus frontatus
Oreoica cristata
Eopsaltria australis
Pachycephala gutturalis
Climacteris leucophæa
,, scandens
Sittella pileata
Acanthorhynchus tenuirostris
Zosterops cœrulescens
Melithreptus lunulatus
,, brevirostris
Glycyphila fulvifrons
Ptilotis fusca
,, chrysops
,, leucotis
,, penicillata
,, auricomis
Meliornis australasiana
,, novæ-hollandiæ
Manorhina garrula
Acanthochæra carunculata
Entomyza cyanotis
Philemon corniculatus
Dicæum hirundinaceum
Pardalotus ornatus
,, punctatus
Hirundo neoxena
Petrochelidon nigricans
Anthus australis
Artamus sordidus
Staganopleura guttata
Ægintha temporalis
Mirafra horsfieldi
Podargus strigoides
Dacelo gigas
Cuculus pallidus
Cacomantis flabelliformis
Chalcococcyx basalis
,, plagosus
Trichoglossus novæ-hollandiæ
Glossopsittacus concinnus
,, porphyrocephalus
,, pusillus
Cacatua galerita
,, roseicapilla
Calopsittacus novæ-hollandiæ
Platycercus elegans
,, eximius
Psephotus hæmatonotus
Phaps chalcoptera
Coturnix pectoralis
Antigone australasiana
Burhinus grallarius
Lobivanellus lobatus
Ægialitis ruficapilla
,, nigrifrons
Recurvirostra novæ-hollandiæ
Heteropygia acuminata
Gallinago australis
Carphibis spinicollis
Platalea regia
Herodias alba
Ardea novæ-hollandiæ
Botaurus poiciloptcrus
Phalacrocorax carbo
Chenopis atrata
Anseranas semipalmata
Chenonetta jubata
Casarca tadornoides
Anas superciliosus
Nettion castaneum
Spatula rhynchotis
Malacorhynchus membranaceus
Biziura lobata
Dromæus novæ-hollandiæ.

—C. F. PAWSEY, Stawell.

BIRDS OF THE GRAMPIANS, VICTORIA.—The Grampian Mountains and the Sierras in western Victoria are a unique formation. Built entirely of sandstone rock, they stand out from the plain country, tier after tier of peaks of almost similar size and contour. Mt. William, in the north, rises to 3,800 feet above sea level, and the Sierras, extending away to the south in a series of fifty or more pointed peaks like teeth of a giant saw, culminate in Mt. Abrupt (2,700 feet). These mountains are famous the world over for their wild flowers. Hundreds of species are found nowhere else but on their sandy foot-slopes or on the steep rock faces or precipitious ravines that everywhere occur, and it might be expected that bird-life too would be distinctive, but it is not so. It is not a happy hunting ground for birds, and the species that are below recorded confine themselves mostly to the tea-tree-margined creeks and scrub-lined gullies. The most remarkable bird of all is, perhaps, the Emu. Their droppings are frequently observed, consisting entirely (at this time of the year) of the bright-red flowers of *Styphelia sonderi*, which seem to pass unaltered in shape through the body, nothing but the colour, and doubtless the nectar, being extracted by the digestive juices. The birds probably pick much of the flower from the ground where it readily falls, but they have also been seen plucking them from the bush.

Corone australis
Strepera graculina
Gymnorhina leuconota
Collyriocincla harmonica
Micræca fascinans
Rhipidura tricolor
Petræca leggii
,, *phœnicea*
,, *bicolor*
Eopsaltria australis
Smicrornis brevirostris
Acanthiza lineata
,, *nana*
,, *pusilla*
,, *chrysorrhoa*
Sericornis osculans
Geocichla lunulata
Malurus cyaneus
Pachycephala gutturalis
Climacteris leucophæa
Sittella pileata
Meliornis novæ-hollandiæ
,, *australasiana*
Melithreptus lunulatus
Ptilotis leucotis
,, *chrysops*
Acanthochæra carunculata
Acanthorhynchus tenuirostris
Manorhina garrula
Dicæum hirundinaceum
Hirundo neoxena
Pardalotus ornatus
,, *punctatus*
Chalcococcyx plagosus
,, *basalis*
Cacomantis flabelliformis
Platycercus elegans
,, *eximius*
Trichoglossus novæ-hollandiæ
Dromæus novæ-hollandiæ

A. G. CAMPBELL. Melbourne, August, 1906.

Addition.—My visit to the Grampians was during the winter, which may account for the small list of birds. But I find in a back number of *The Victorian Naturalist* (vol. viii., p. 193, April, 1892) a long list of birds noted during a camp-out of the Naturalists' Club, when an exhaustive search of the Grampians

was made by several members. Besides most of those in the above list, the following species were recorded :—

Uroaëtus audax
Haliastur sphenurus
Falco melanogenys
,, *subniger*
Hieracidea orientalis
,, *berigora*
Cerchneis cenchroides
Astur approximans
Ninox strenua
,, *boobook*
Grallina picata
Graucalus melanops
Rhipidura albiscapa
Myiagra nitida
Acrocephalus australis
Amytis textilis
Stipiturus malachurus
Cisticola exilis
Megalurus gramineus
Pomatorhinus temporalis
Ephthianura albifrons
Gymnorhina tibicen
Falcunculus frontatus
Pachycephala rufiventris
Climacteris scandens (?)
Zosterops cærulescens
Ptilotis auricomis (?)
,, *cratitia* (?)
,, *penicillata*
Philemon corniculatus
Anthus australis
Artamus sordidus
,, *superciliosus*
Staganopleura guttata
Ægintha temporalis
Podargus strigoides
Merops ornatus
Alcyone azurea
Dacelo gigas
Halcyon sanctus
Cuculus pallidus
Cacatua galerita
Calyptorhynchus funereus
Callocephalon galeatum
Calopsittacus novæ-hollandiæ
Glossopsittacus concinnus
,, *pusillus*
Phaps chalcoptera
Geopelia tranquilla
Coturnix pectoralis
Ibis molucca
Ardea novæ-hollandiæ
Hypotænidia philippinensis
Chenopis atrata
Chenonetta jubata
Casarca tadornoides
Anas superciliosa
Phalacrocorax novæ-hollandiæ

A total of 98 species. I have queried some, which were in all probability seen *en route* from Stawell, and not in the Grampians proper.—A. G. C.

* * *

NORTHERN NOTES.—The following field notes, which I have culled from a letter, dated 7th June, 1906, from Mr. C. E. May, of Port Keats (aboriginal name "Witney"), Northern Territory, will, I think, interest your readers. Mr. May is a great lover of his "feathered friends," and probably no student of bird life has previously visited the locality. I have substituted the names in Hall's "Key" for the vernacular ones used in the letter :—

"The Oriental Cuckoo (*Cuculus intermedius*) I find only visits here during the wet season; they are plentiful and very fat. I presume that they take their departure to more permanent water, there being only native wells in this locality. The Red-collared Lorikeet (*Trichoglossus rubritorques*) is very numerous, and is here all the year round. The Crimson-winged Lory (*Ptistes erythropterus*) is not too plentiful, and only visits us during the

dry season. Kite Hawks, probably White-headed Sea-Eagle (*Haliastur girrenera*)"—a specimen of this bird was secured by Mr. May—"are numerous, but only visit here after the wet season. Whistling Ducks (*Dendrocycna eytoni* (?)), of a bright plumage—a few pairs were shot during the wet season. I saw one Jabiru (*Xenorhynchus asiaticus*) in May last travelling north-west. I heard a few Native Companions (*Antigone australasiana*) during the wet months. Saw a few Wood-Ducks (*Chenonetta jubata*), black and white. The Fawn-breasted Kingfisher (*Dacelo cervina*) is numerous. The Crested White Cockatoo and the Red-tailed Black Cockatoo (*Calyptorhynchus macrorhynchus*) are both plentiful, and remain during the whole year. Honey-eating birds are very numerous. The Finches only visit here during the dry season. The Great Bower-Bird (*Chlamydodera nuchalis*) is plentiful. Doves of all kinds are very numerous. The Black-and-White Fantail (*Rhipidura tricolor*) is very numerous, but only visits us during the dry months. The black and white Magpie-Lark (*Grallina picata*) is also numerous, but only seen during the dry months. The Cockatoo-Parrakeets (*Calopsittacus novæ-hollandiæ*) I saw in thousands in November, 1905; I expect them in a few months again. Jungle-Fowl (*Megapodius duperreyi*) are common. I saw only one Black Butcher-Bird (*Cracticus quoyi*) and only one Emu (*Dromæus novæ-hollandiæ*) shot while I have been here. The Varied Lorikeet (*Ptilosclera versicolor*) is numerous, but only visits here during the dry months. I have collected two Pigeons with beautiful green wings, with white feathers on each shoulder (*Chalcophaps chrysochlora*); they are always in the jungle, and I have only seen them in the wet season. The Fruit-Pigeon with the crimson cap (*Ptilopus ewingi*) is here, but very shy indeed. I have only seen one shot; it seems a much smaller bird here. Bee-eaters (*Merops ornatus*) are plentiful, and only visit us during the dry months. Hawks are very numerous. I have collected two very large Hawk eggs (Wedge-tailed Eagle, *Uroaëtus audax*) from a huge nest 25 feet high in a gum tree. Graucali, Nightjars, Dollar-Birds (*Eurystomus australis*), Rufous-breasted Thrush (*Collyriocincla rufiventris*), and hundreds of other birds are very plentiful here. I saw a few Ibises one evening, but think that they were only visitors for the night, as I have not seen them since. The Fruit-Pigeon I sent you—Nutmeg-Pigeon (*Myristicivora spilorrhoa*)—only visits us during the wet season. I have seen a few Sacred Kingfishers (*Halcyon sanctus*), and I heard a few black and white Geese (*Anseranas semipalmata*) flying over our camp in the evening.

"The 'Mopoke' is numerous, as are various other night birds. There are numerous small kangaroos about, but I observed when I came to Port Keats that they have had a hard time in

the summer. I found many of them dead, probably owing to the want of green grass.

"I collected a little Rainbow Pitta (*Pitta iris*), such a lovely bird. They are plentiful about here, usually in the thick jungle. Crows are not numerous. Curlews and Large-billed Stone-Plovers (*Orthorhamphus magnirostris*) are common at night."—EDWIN ASHBY. "Wittunga," Blackwood, S.A.

From Magazines, &c.

ALEXANDRA PARRAKEET.—Mr. Herbert Astley writes from Italy to *The Avicultural Magazine* (May) that his hen *Spathopterus alexandræ* was then sitting on five eggs in a nesting-box in his aviary.

* * *

BIRDS AT OLINDA.—*The Victorian Naturalist* for August contains a pleasantly written paper by Mr. C. L. Barrett on the "Bird Life of the Olinda Creek," near Lilydale, Victoria, illustrated with photos. of the dancing mound and nest of the Lyre-Bird (*Menura victoriæ*).

* * *

THE YOUNG CUCKOO.—A note in *The Victorian Naturalist* for July states that on 16th October, 1905, Miss B. Keartland noticed two Superb Warblers (*Malurus cyaneus*) and two Yellow-rumped Tits (*Acanthiza chrysorrhoa*) feeding a young Bronze-Cuckoo.

* * *

THE LAUGHING JACKASS.—Mr. John M'Alpin, of Yea (Vict.), writing to Mr. Donald Macdonald ("Nature Notes," *Argus*, 31/8/06), states :—"I was not aware that the Jackass was fond of small birds until lately. A large Jackass caught and killed a Black-and-White Fantail, and flew off with it, followed by two other Jackasses. They evidently thought it a prize. If those birds are in the habit of killing the useful little birds it is about time the law was altered which protects them."

* * *

ISOLATION *v.* NATURAL SELECTION.—A paper in *The Auk* for July, by Dr. Leonhard Stejneger, discusses the causes which have brought about the several sub-species of American Hairy Woodpeckers. His theory is that the existing differences were caused not so much by natural selection (the usually accepted origin of such differences) as by "environmental stress"—that is to say, isolation—acting on plastic materials. At the same time the writer does not deny that some auxiliary influence on the development of the various forms may have been exercised by natural selection.

BUTCHER-BIRDS.—Mr. Donald Macdonald, in his "Nature Notes" (*Argus*, 31/8/06), quotes a correspondent who states:—"Last Friday morning, hearing a disturbance amongst the Honey-eaters in the saplings, I noticed that a Butcher-Bird had caught one of them and killed it. Then, after warbling and and kicking up a fuss for some time, he flew up into a large gum tree, and, placing the neck of the dead bird in a dry fork, hung on to the lower part of the body and tugged at it till the bird was a fixture, suspended by the neck. I have noticed this done on several occasions by this bird. Once it came back some hours later and devoured its prey."

* * *

AN ILLUMINED MIGRATION.—The ornithologists of Philadelphia, U.S.A., had a unique chance of observing the movements of migatory birds on the night of the 27th March last, when a large lumber yard took fire, and burned right through the night. In the glare of the flames appeared hundreds of small birds passing steadily across the heavens, from south-west to north-east, on the spring migration. Mr. Witmer Stone, who records his observations made at the time in *The Auk* for July, says that he believes the migrants were not influenced by the fire as to direction of flight, but that probably it attracted them to a lower level than usual. Not all the birds passed the fire in safety. "Occasionally a bird would fly over at a much lower altitude than the main body, and if it happened to pass over any part of the burning area it seldom escaped destruction. Up in mid-air, apparently clear of flame and smoke, though evidently within range of the terrible heat, a slender thread of silvery smoke came trailing out of the unfortunate bird, like the unfurling of a skein of yarn; it would fly wildly, and then, bursting into flame, fall into the roaring furnace below. I saw twenty or thirty birds perish thus during the evening."

* * *

LITTLE GREEN PIGEON.—In some notes on "The Green-winged Pigeons of the Genus *Chalcophaps*," in the July number of *The Avicultural Magazine*, Mr. D. Seth-Smith, F.Z.S., says:—"The Australasian species is far less often imported than the Indian form, and, I believe, has never been bred in captivity until this year. Early last January I obtained a pair of *C. chrysochlora* from New Caledonia, and later a male of the same species from Queensland. The latter specimen is a remarkably fine bird, somewhat larger than the first male, which he soon challenged for the possession of the hen, which was also a very fine bird. I had to remove the New Caledonian male, or he would have soon been bullied to death by his stronger rival, and the remaining pair soon set about selecting a nesting-site.

They are both shy birds, and generally keep out of sight when anyone is near, and I had no idea that a nest had been built until one day in May, when I entered the covered aviary, the male dashed from a dark corner where, high up, a bundle of sticks and brushwood had been fixed, and disappeared through an opening into the outer aviary. Getting a pair of steps, I soon discovered a nest containing two creamy-white eggs. With this species, as with all of the Pigeon tribe so far as I am aware, the male sits during the greater part of the day, the female taking his place during the late afternoon and sitting throughout the night. One egg eventually disappeared from this nest, probably having been knocked out by one of the birds as it dashed from the nest. The other successfully hatched. I cannot say the exact date, as I was most careful to go near the nest as seldom as possible, but on 26th May I looked in the nest and discovered a plump black squab, evidently hatched two or three days before. When it left the nest (13th June) it appeared to be identical with the young of *C. indica*, but somewhat larger. As I write (17th June) it is able to fly well, though it still frequently returns to the nest."

* * *

Eclipse Plumage of Ducks.—In an article on this subject in the June number of *The Avicultural Magazine*, Mr. Frank Finn says :—"As far as I have been able to observe, Australian and South American *Anatidæ* have no eclipse plumage, whether there is a well-marked sexual difference, as in the Rosy-billed Pochard and in the Maned Goose (*Chenonetta jubata*) of Australia, or whether both sexes bear a handsome quasi-male plumage, such as the Chilian Widgeon (*Mareca chiloensis*) or the Grey Teal (*Querquedula versicolor*). The latter case is obviously like that of the Shieldrakes, which everywhere and always display a striking plumage. These, being powerful, intelligent birds, probably need protection less than the other Ducks, and it is to be noted, with regard to the South American and Australian waterfowl, that they inhabit a region where the survival of numerous primitive types is supposed to show that the struggle for life is less keen. This would, of course, be an argument in favour of the eclipse plumage as a protective one. Whatever its use may be, there is some foundation for Mr. Bonhote's idea that it is a weak phase, in so far as it is a reversion to a more primitive colour." Of our Magpie Goose he writes :—"There seems to be an impression abroad that all the *Anatidæ* lose their quills and become flightless when moulting. But there is at least one remarkable exception—the curious Pied Goose (*Anseranas melanoleuca*) of Australia—a bird remarkable for its peculiar feet, which are only half-webbed and have a well-developed hind toe, unlike the short, useless member of most of the family. This species was stated by that well-known

aviculturist, Mr. F. E. Blaauw, in a letter to *The Ibis* in 1898, only to drop its quills gradually, so that it always retained the power of flight, he having observed this peculiarity in birds of his own."

* * *

BLUE WRENS IN CAPTIVITY.—In *The Avicultural Magazine* for March is an account by Mr. Reginald Phillipps of his experiences with the Blue Wren (*Malurus cyaneus*). He got a pair in May, 1902. In July, 1902, they brought out a young male, which survived its parents and lived till 21st March this year. He is not satisfied that the male Blue Wren is polygamous. "In districts where there are not any spare females," says the writer, "each male might naturally be expected to be more or less contented with a single mate; but where there may happen to be a superabundance of females, especially in a hot climate, the reverse would not by any means be particularly improbable. Possibly, as I suggested in 1902, he may take them in turn, each cast-off mother, as in the case of my birds, being left to look after her own brood by herself. They are said to rear two or three broods between August and January, but perhaps each may be by a different mother; and sometimes, as suggested by Mr. A. G. Campbell, the supposed extra females, or some of them, may be simply young birds—members of the first batch." Of the moulting of the species he says:—"So far as the autumnal moult is concerned—the going out of colour—there seems to be no question. My birds, young and old, males and females, like Mr. A. G. Campbell's, have undergone a complete change of feathers in September and October, the British autumn commencing early in September and completing in October, which about corresponds with March in Australia—the Australian autumn. My young male, bred July, 1902, for the fourth year came into colour this March—the British spring—the process occupying about a fortnight; and each year the change has taken place in a 6-foot cage in my diningroom. One point is certain—there is no general moult at this season. In the autumn, while the blue feathers are being shed, minute though these feathers are, they can be found and identified owing to their bright colour. Far different is it in the spring, when the feathers shed, if shed they be, are plain whitey-brown things, for the feathers affected are so small it is most difficult to find them, and, if found, to say positively that they come from the Blue Wren. . . . I am of opinion it will be safe to say that *Malurus cyaneus* obtains his summer plumes by a direct moult of certain of the small feathers."

* * *

KANGAROO ISLAND BIRDS.—It is learned from *The South Australian Register* (9/8/06) that an adjourned meeting of the

South Australian Ornithological Association was held at the Adelaide Museum on Tuesday afternoon, 7th August, for the purpose of investigating by daylight a number of species of birds from Kangaroo Island to ascertain their affinity or otherwise with those of the mainland. Mr. J. W. Mellor presided. Considerable time was spent in the critical examination of a number of species concerning which doubt exists. The meeting was greatly assisted in its deliberations by copious notes written by Mr. A. J. North, F.L.S., Ornithologist of the Sydney Museum; also by type specimens from that museum, which were forwarded by permission of the Curator, Mr. Robert Etheridge, F.G.S. The species examined were :—The Blue Wren (*Malurus*), which proved to be identical with the mainland one, previously known as *M. cyaneus*, and later as *M. superbus*, but Mr. North points out that both these names are synonymous for the Tasmanian bird, and he prefers the title of *M. australis*. Several Honey-eaters were examined, notably the Crescent (*Meliornis australasiana*) and the Spinebill (*Acanthorhynchus tenuirostris*), the former being, with slight differences, the mainland species, while the latter presented a smaller appearance, with a slightly shorter bill, the variations hardly warranting separation, in Mr. North's opinion. In the *Melithreptus* family of Honey-eaters further study of the birds was required to ascertain if constancy existed between the Large-billed (*M. magnirostris*) and Brown-headed (*M. brevirostris*), as both types of birds were from the Island, although the former predominated. The Thickheads were proved the same as those of the Adelaide hills, the Southern Thickhead (*P. meridionalis*) being a connecting link between the Western form (*P. occidentalis*) and the eastern (*P. gutturalis*). A small Tit (*Acanthiza zietzi*) from the Island differed from its near ally of the mainland (*A. pusilla*), being more grey on the upper surface and altogether less distinct in its markings. The beautiful Crimson Parrakeet, known on the mainland as *Platycercus elegans*, was of a brick-dust colour, and the upper surface had more black and less red on the feathers. A suggestion by Mr. North to call it *P. melanoptera* was thought by the meeting to be a good one, but it was considered more specimens should be examined to ascertain if this characteristic in the Island bird was fully established. The White-eye appeared to be the same as the ordinary species of South Australia (*Zosterops cærulescens*), the slight difference of colouration being attributed to seasonable changes.

It is obvious that Mr. North's paper was a covert criticism of the official report of the A.O.U. "On the Birds of Kangaroo Island."* "The study of native birds" being one of the chief planks of the Union and of its journal, Mr. North's remarks are

* *Emu*, vol. v., pp. 139-145.

welcomed. The pages of the journal are open for Mr. North's criticisms *in extenso* if he will permit the hon. secretary of the Adelaide Association to forward them to the editors of *The Emu*. In any case ornithologists would like a reference for the alleged prior claim of *Acanthiza zietzi* over *A. halmaturina*. And it will be observed that, while deprecating the "hair-splitting" of species in the Union's report, Mr. North has himself, apparently on even more slender grounds, suggested the separation of the Island species of *Platycercus elegans* from the mainland form. However, these differences of opinion will, no doubt, be welcomed as expert evidence by the committee of the proposed Australian "Check-List" when its labours commence.

Obituary Notice.

THE LATE SIR WALTER BULLER, K.C.M.G.

ALL naturalists, more particularly Australian, were deeply moved when they learned that Sir Walter Buller, New Zealand's great native-born ornithologist, had passed away, somewhat suddenly, in London, where he had just completed a two-volume supplement to "The History of the Birds of New Zealand," his beloved country. His life came to full fruition, and his mission, so far as ornithology is concerned, was completed by the issue of the supplement—a work which for all time will remain a standard authority.

The memorial services in connection with the deceased ornithologist took place at St. Paul's Cathedral, London, on Thursday, 19th July, in the Chapel of the Order of St. Michael and St. George, of which Sir Walter Buller was a Knight Commander. The services, which were attended by many notable New Zealanders then in London, were conducted by the Ven. Dr. Sinclair, Archdeacon of London and Honorary Chaplain to the King.

Sir Walter Buller's ornithological work has made an enduring name for him throughout the civilised world. As early as 1865 he obtained the silver medal of the New Zealand Exhibition for an "Essay on the Ornithology of New Zealand." In recognition of his researches in the bird-life of his colony, and on the publication, in 1875, of his splendidly illustrated work, "The History of the Birds of New Zealand," he was created C.M.G. The year following he was elected F.R.S. on the same account. In 1882 he prepared for the Government a "Manual of the Birds of New Zealand," and in 1888 brought out a second edition of his standard work.

From *The Lyttelton Times*, 21st July, 1906, we learn that Sir Walter Buller was a son of the late Rev. James Buller.

"He was born on 9th October, 1838, at Newark, Bay of Islands, New Zealand, and was educated at Wesley College, Auckland. Having early acquired a knowledge of the Maori language, he was appointed Government interpreter at Wellington in 1855, and started and edited a weekly Maori paper called *Te Karere o Poneke*. In 1859 he was made Native Commissioner for the southern provinces, and carried through the partition and individualisation of the Kaiapoi native reserve. In 1861 he acted as honorary secretary to the Kohimarama conference of native chiefs, convened by Governor Gore Browne, and in the same year edited the *Maori Messenger*, a fortnightly paper in English and Maori, being afterwards also promoter and editor of the *Maori Intelligencer* (both of them Government publications). In April, 1862, he was appointed Resident Magistrate of the Manawatu; and in April, 1865, Judge of the Native Land Court. In the same year he was present at the taking of Wereroa Pah (Volunteer staff), for which he received the New Zealand war medal. On that occasion, declining the protection of a military escort, he carried the Governor's despatches at night through forty miles of the enemy's country, attended only by a Maori orderly, for which gallant service he was mentioned in despatches. In 1866 he became Resident Magistrate and sheriff of Wanganui, which office he held till 1871, when he went to England as secretary to the Agent-General. For a continuous period of fifteen years he had held various official appointments, chiefly in connection with native affairs, and had on eight different occasions received the special thanks of the Colonial Government. He entered as a student at the Inner Temple on 20th November, 1871, and was called to the bar on 6th June, 1874. In the same year he returned to New Zealand, and practised as a barrister and solicitor of the Supreme Court with remarkable success till 1886, when he visited England as Commissioner in connection with the Colonial and Indian Exhibition. For his services on this occasion he was created K.C.M.G. Sir Walter remained in England till 1890, and took an active part in all public movements affecting the colonies. He was on the Mansion House committee for the Paris Exhibition of 1889, and was elected a member of the Executive Council. For his services on that occasion he was decorated 'Officer' in the Legion of Honour. Besides enjoying the dignity of a British order, Sir Walter was a Knight (First Class) Austrian Order of Francis Joseph, First Class Order of Frederick of Württemburg, Order of Merit (First Class) of Hesse-Darmstadt, and Officier de l'Instruction Publique (Gold Palm of the Academy). He was awarded the Galileian Medal by the Royal University of Florence, and received the honorary degree of Doctor of Science from the University of Tübingen. In 1881 he received the gold medal of the New Zealand Exhibition for science and literature, and was elected a govenor of the New Zealand Institute, of which he was also one of the founders. He married, in 1862, Charlotte, third daughter of Mr. Gilbert Mair, of Auckland, who died on 1st November, 1891. For some years Sir Walter had lived in England. He leaves two sons and a married daughter, Mrs. Madocks, wife of Major Madocks, who distinguished himself as a member of the first New Zealand Contingent in South Africa."

So many problems as to Australasian ornithology remain to be solved that we can ill spare such a man. It is to be hoped that (perhaps not among the native-born) another ornithologist will be found to do work on the same lines, and thus not necessarily replace, but succeed, our departed friend. His work was unique, beset with more difficulties in its accomplishment than any successor will have to encounter, and the debt of science to him can never be paid. Those who come after have

still a good field, but a stupendous task if they would do better—one worthy of all endeavour. What Sir Walter Buller did for science is his best memorial.

South Australian Ornithological Association.

THE ordinary meeting of the association was held at the residence of Dr. A. M. Morgan on the evening of the 3rd August, the president, Mr. J. W. Mellor, being in the chair. The chairman drew attention to the movement on foot for the formation of a reserve on Kangaroo Island as a national park for the total protection of fauna and flora. Mr. J. W. Mellor and Capt. S. A. White reported having identified a number of species of native birds at the Reedbeds this winter, some of which were rare visitors. They gave interesting notes upon the early breeding habits of some birds this season. A discussion took place on the protection of the European Goldfinch (*Fringilla carduelis*) and the European Blackbird (*Turdus merula*). Good points were accorded to both species, but it was unanimously agreed that their destructiveness was in excess of their usefulness. Dr. A. M. Morgan showed an interesting early ornithological volume, "A General Synopsis of Birds," by the late Dr. Latham, written in 1783. The chairman produced a volume of interesting photographs of Kangaroo Island fauna and flora, recently presented to him by the Council of the Australasian Ornithologists' Union, in recognition of services rendered in connection with the leadership of the recent expedition to Kangaroo Island. Mr. F. R. Zietz exhibited the Broad-billed Petrel (*Prion vittatus*), which had been found near Adelaide; also a specimen of a near ally, the Dove-Petrel (*Prion desolatus*). Mr. A. H. C. Zietz, F.L.S., in conjunction with Mr. E. Ashby, displayed a large collection of Kangaroo Island birds and their allies of the mainland to illustrate a paper sent by Mr. A. J. North, F.L.S., of the Sydney Museum, in criticism of new names given by Mr. A. G. Campbell * to several birds recently found on Kangaroo Island by the A.O.U.'s expedition. Mr. North also kindly forwarded a number of type specimens from the Sydney Museum, which were valuable for purposes of comparison. The debate on the subject was adjourned to a special meeting, so that the specimens may be examined in daylight.

Bird Observers' Club.

THE July meeting of the Bird Observers' Club was held at the residence of Mr. Donald Macdonald, Balaclava. The host presided, and there was a good attendance of members. The subject for the evening's discussion was "Shore Birds," including Plovers, Dottrels, Sandpipers, Snipe, &c., of which a fine series of skins was shown by Mr. A. G. Campbell, who pointed out the distinguishing marks by which the various species might be identified. Mr. D. Le Souëf, C.M.Z.S., exhibited a series of eggs, and also gave a lantern lecturette illustrating the protective colouration of the eggs and young of various shore birds. It was resolved to elect 25 corresponding members in the country districts of Victoria.

The August meeting of the Bird Observers' Club was held at the residence of Mr. J. A. Ross, South Yarra. The host was voted to the chair, and there were about 12 members present. After Mr. Ross's numerous trophies and medals for rifle shooting had been admired, several carefully compiled lists of the birds of the Cheltenham district were laid on the table and collated by members. It was found that well over 100 different birds frequented the

* "Report on Birds of Kangaroo Island: a Comparison with Mainland Forms," *Emu*, vol. v., pp. 139–145.

district either as stationary or migratory species. Attention was next devoted to the Quails of Victoria, and fine series of skins and eggs were shown by Messrs. D. Le Souëf, C.M.Z.S., F. Godfrey, and F. Howe. Mr. A. H. E. Mattingley displayed some excellent photos. of birds and their nests, and Mr. J. A. Ross showed a pair of living Stubble Quail.

The quarterly dinner of the Bird Observers' Club was held at the Mia-Mia Tea Rooms on the 19th August, Mr. D. Le Souëf, C.M.Z.S., presiding. Only nine members sat down at the table, but after dinner there was a large attendance of members and friends, including several ladies. The birds appointed for the evening's discussion were the Crakes and Rails, and specimens of eggs and skins were shown by Messrs. D. Le Souëf, A. G. Campbell, and A. H. E. Mattingley. Much interesting information respecting the habits of the birds under review was elicited during the evening. Mr. A. G. Campbell gave a lecturette, illustrated by an excellent series of lantern slides, descriptive of recent trips through various parts of Victoria, including the Grampians, where it was stated bird life is conspicuous by its absence, during the later winter months at all events.

Notes and Notices.

A RESIDENT of Goorambat, Robert Wright, was fined £2 in the Benalla Police Court on 22nd August for shooting four Wild Duck on the 4th of the same month, after the season had closed. The defendant also had to pay 5s. for each bird.

EARLY CUCKOO'S EGG.—I noticed a Pallid Cuckoo's egg on Saturday last (1/9/06) in the nest of *Ptilotis auricomis*. It stands as my earliest record for this Cuckoo.—L. HARRISON. Sydney.

PROHIBITED FEATHERS.—The Commissioner of the New York State Game Department has issued a circular to milliners that he will strictly enforce the law that prohibits selling or wearing the feathers, bodies, or skins of wild birds, or any parts thereof, whether they have been killed within the State or elsewhere.—*The Band of Mercy*, 24/9/06.

ERRATA.—*The Emu*, vol. vi., part 1, 1906:—Page 3, line 1 and following.—For "best imitated by sounding the *first syllable* quickly, *and then* sharply sucking the tongue from the *front* of the *mouth*," *read* "best imitated by sounding the syllables quickly *by* sharply sucking the tongue from the *base* of the *upper front teeth*." Page 7, line 20.—For "The iris is *black*," read "The iris is *brown*."

BY proclamation published in the *Government Gazette* of 8th August, 1906, the Governor in Council has declared that within the area known as Lake Lascelles the close season for all game shall be from the 1st day of January to the 31st day of December in each year, both days inclusive. Another permanent reserve for wildfowl is thus added to the list, but there are many other water areas in the State that might also well be set apart as bird sanctuaries.

THE WERRIBEE GORGE.—After having been raked during recent years by one or two violent floods, the bed of the river in the picturesque Werribee Gorge is assuming its wonted beautiful appearance, and is well worth a visit just now. Bird-life is as plentiful as ever. The Wedge-tailed Eagle still holds sway over "Eagle Gully," and the Black-cheeked Falcon still keeps its "Look-out" on the rocks 600 feet above the river's bed. Local residents are agitating to have this romantic gorge proclaimed a national reserve and a sanctuary for birds for ever. The Government might easily grant the request, seeing the land has no economic value otherwise. The Council of the A.O.U. will gladly support any movement in the direction of a permanent reservation.

[Since this note was written a freshet, caused by the excessive rainfall of Sunday, 9th September, has swept through the Gorge.]

AUSTRALASIAN ORNITHOLOGISTS' UNION.—The official programme for the sixth annual meeting of the Union has been issued. Tasmania has been selected as the rendezvous, from 22nd November to about 8th December. Three days will be spent in Hobart in connection with the general business, then an adjournment will be made to Launceston, where a lecture will be delivered on "The Islands of Bass Strait," with limelight views depicting the bird life and natural history objects found there. Following upon this the naturalists will go into a "working" camp at Mount Barrow, between the River Esk and St. Patrick's River, north-east of Launceston, where eight or ten days will be spent in field ornithology, &c. Members desiring to take part in the meetings are urged by circular to communicate with the hon. sec. (Mr. A. Mattingley) as soon as possible.

BROWN *v.* BLACK BUTCHER-BIRDS.—"My birds moulted in February and March, and took on the complete black plumage, which proves that the brown bird assumes the black plumage after the first moult. How did Le Souëf get on with those I sent him?"—E. M. CORNWALL. Mackay, 8/6/06.

Mr. D. Le Souëf, Zoological Gardens, Melbourne, replies:—"Mr. E. M. Cornwall kindly sent me from Cairns, Queensland, three Butcher-Birds (*Cracticus quoyi*) from one nest. Two were brown and one black. The black one died shortly after, and proved to be a female; one of the brown went next, and it proved to be a male; the other brown one lived for two years, but at the end of the second year lost his brown coat and became jet black, apparently proving that the Rufous Butcher-Bird is only a young male in immature plumage of the Black Butcher-Bird (*C. quoyi*)."

PRESERVATION OF QUAIL.—A movement has been set on foot to ascertain the feelings of sportsmen with regard to giving Quail 12 months' liberty. Many true sportsmen are of opinion that, in view of the woful decrease in the numbers of this fine game bird, some legislative action should be taken to allow them total protection until 1st May, 1908. Should it be found that the consensus of opinion tends towards such an end, steps will be taken to bring the matter before the Tasmanian Parliament during the coming session. Among the suggestions thrown out by writers in the press on the subject are, that there should be a game licence for persons wishing to shoot for market purposes, and that there should be a gun tax. It is thought that such would have the effect of lessening the number of irresponsible pot-hunters. Some years ago Quail were afforded two years' protection, with very good effect.—FRANK M. LITTLER. Launceston, 4/7/1906.

Publications Received.

Auk, The, XXIII., No. 3, July, 1906.

Academy of Natural Science of Philadelphia, Proceedings of the, LVII., Part 3, Sept.–Dec., 1905.

Australian Naturalist, The, I., Part 3, July, 1906.

Avicultural Magazine, The, N.S., IV., Nos. 7–9, May–August, 1906.

Bird-Lore, VIII., No. 4, July–August, 1906.

Hawkesbury Agricultural College Journal, The, III., Part 8, June–August, 1906.

Hall, F.L.S., Robert, A Key to the Birds of Australia.

Michigan Academy of Science, Seventh Report of the, 1905.

Oberholser, Harry C., Notes on Birds from German and British East Africa.

Ornithologisches Jahrbuch, XVII., Nos. 3 and 4, May–August.

Royal Society of Queensland, Proceedings of the, XIX., Part 2, 1906.

South African Ornithologists' Union, The Journal of the, II., No. 1, June, 1906.

Victorian Naturalist, The, XXIII., Nos. 2–5, June–Sept., 1906.

Zoologist, The, Fourth Series, X., Nos. 113 and 114, May–August, 1906.

The Emu

Official Organ of the Australasian Ornithologists' Union.

"Birds of a feather."

VOL. VI.] 1ST JANUARY, 1907. [PART 3.

Australasian Ornithologists' Union.

SIXTH (HOBART) SESSION.

ON Wednesday, 21st November, a large number of ornithologists, including a party of nine from South Australia, proceeded by the turbine steamer *Loongana* to Launceston, the passage across Bass Strait being exceptionally calm, the boat skimming along the water with a bird-like motion, most appropriate to her name, *Loongana*, which, in the Tasmanian aboriginal dialect, means "Swift Bird." How appropriate, too, for a party of bird-lovers to be in such pleasant and suitable associations.

Arriving early in the morning at Launceston, visiting members were met and welcomed by several Launceston members. Mr. F. M. Littler, with great kindness, took charge of all the party's luggage, and had it conveyed to the railway station, preparatory to their departure by rail in the afternoon for Hobart. Members, being now free from the cares of their impedimenta, were the guests for the day of Mr. Littler, who had the party conveyed by drag to the picturesque Corra Linn, a beautiful gorge chiselled out of a mass of trap rock by a rapid stream, cursory observations being made of the bird life *en route*. The outing was most enjoyable, the day being bright and fine, and after the return journey Mr. Littler entertained the members at lunch at the Metropole. Departing by the 3 p.m. train, members reached Hobart about 9.30 p.m., and were further welcomed by members of the Tasmanian Naturalists' Club and local members of the A.O.U.

FIRST DAY.

Next day a working excursion was made to the creek in the Cascade Brewery's property, where many varieties of forest birds were studied. Everywhere the beautiful Crescent Honey-eater (*Meliornis australasiana*) was to be seen and heard as it called "Egypt" with a glucking twang. The lively little Dusky Fantail (*Rhipidura diemenensis*), too, was heard repeatedly. A Fan-tailed Cuckoo (*Cacomantis flabelliformis*) was found in a nest of the Brown-rumped Tit (*Acanthiza diemenensis*), which was hanging pendent

from the leaves of a dead tree-fern frond overhanging a creek. Pink-breasted Robins, too, were seen, Black Cockatoos, and many other birds, accounts of which will afterwards appear in *The Emu*.

In the evening a lecture was given in the Masonic Hall, under the joint auspices of the Tasmanian Field Naturalists' Club in conjunction with the A.O.U. His Excellency the Governor of Tasmania, Sir Gerald Strickland, K.C.M.G., presided, and introduced the lecturer, Mr. A. Mattingley, who, through the sudden illness of Mr. D. Le Souëf, who was advertised to lecture on "Island Bird-Life," kindly stepped into the breach, and delivered a lecture, entitled "A Naturalist's Tour through Northern Queensland," illustrated by 130 unique lantern slides. As befitted the occasion of the co-joined clubs and their relative spheres of natural history observations, the lecturer gave a geographical survey of both the flora and fauna of those parts of the Commonwealth, the antithesis of southern Tasmania. Many weird, new, and interesting phases of bird, animal, fish, and vegetable life were lucidly dealt with, and many suggestions made that would ultimately place the work of protection on a sounder basis. His Excellency, in thanking the lecturer, amongst other things, mentioned that parts of such a lecture should be introduced into the curriculum of the State schools.

Second Day.

Next day excursions were undertaken to Mount Wellington and other localities of interest. In the evening the first general business meeting of the Congress was held in the Royal Society's room, at 7 p.m., 24th November, 1906, there being present—Col. W. V. Legge, F.Z.S., F.R.A.S. (Ceylon), Mr. J. W. Mellor, Mr. J. F. Mellor, Mrs. J. F. Mellor, Miss B. Mellor, Miss W. Mellor, Miss Allen, Miss Ellie Campbell, Mr. Griffiths, Mr. E. A. Elliott, Mrs. Roberts, Mr. E. B. Nicholls, Mr. A. Butler, Capt. S. A. White, Mrs. White, and Mr. A. Mattingley.

On the proposition of Col. Legge, seconded by Mr. A. Mattingley, the vice-president, Mr. J. W. Mellor, was elected chairman. Apologies for their unavoidable absence were read from Messrs. M. Harrison, D. Le Souëf, A. J. Campbell, and A. and F. R. Zietz.

The chairman, with his characteristic felicity, welcomed the members assembled, representing the different States.

The minutes of the fifth Congress, held at Adelaide, were read, confirmed, and signed, on the motion of Captain White, seconded by Col. Legge.

The annual report of the hon. secretary was read, and showed that progress had been made since last session. Efforts had been made to have water areas and quarantine grounds permanently reserved as sanctuaries for our avifauna. Excellent results attend the "working excursions" of our annual Congress. Since the previous session a large area of Kangaroo Island had been permanently reserved. The question of the introduction of diseases that may be inimical to our avifauna, and the action that the Council of the A.O.U. took in this matter, was set forth. It was

pointed out that the study of ornithology was becoming more popularised, and was advancing apace as its utility was being recognized. Nature study training, as well as nature study and also State school exhibitions, it was gratifying to know, were educating the rising generation to appreciate the domestic economy and value of their Australasian bird-life. Such training, it was pointed out, was better "bird protection" than many Acts of Parliament. The hon. secretary further pointed out that the "Coloured Figure Fund" was raised by voluntary subscription only, and hoped that this fact would not be overlooked by members, since the coloured plates were extremely useful to all ornithologists, whether of the *dilettante* or working type. The necessity of a "Check-List" was a matter of urgency. Ornithologists generally were awaiting its appearance, and its utility and importance was not to be over-estimated. It was hoped that the convener of the "Check-List" and the committee would be able to report to the members of the A.O.U. at the next Congress.

On the motion of Col. Legge, seconded by Mr. A. Butler, the report was adopted.

The report on the birds striking the lighthouses was next read. Mr. D. Le Souëf, C.M.Z.S., who compiled this useful information, pointed out, amongst other interesting details, that at Cliffy Island many White-eyes (*Zosterops cærulescens*) struck on 17th April, and 40 dead ones were picked up at the foot of the tower next morning. Col. Legge said he was glad to hear that the work done by the light-keepers on the mainland and on the Tasmanian coast was of such usefulness. He trusted that the reports on migration would continue to be forwarded, and that eventually a useful list might be tabulated. Mr. Butler said it was interesting to note that the Fan-tailed Cuckoo (*Cacomantis flabelliformis*) had struck the light at Tasman Head, the most southerly in Tasmania. The bird was evidently right out of its course, and was flying to unknown land further south.

The balance-sheet was then read, and the report by the hon. treasurer showed that the finances of the Union were in a satisfactory condition. Mr. A. Butler moved its adoption, and in doing so stated how pleased he was to find that the financial affairs of the Union were soundly administered. Col. Legge seconded the motion, which was carried.

CORRESPONDENCE.—Their Royal Highnesses the Prince and Princess of Wales, co-patrons of the Union, had most graciously and thoughtfully forwarded the following letter to the members of the Congress assembled in Hobart :—

MARLBOROUGH HOUSE,
LONDON,
27th September, 1906.

SIR,—

I am desired by the Prince and Princess of Wales to request you to be so good as to convey Their Royal Highnesses' thanks to the Council of the Australasian Ornithologists' Union for volume v. of *The Emu* journal, which

FINANCIAL STATEMENT OF THE

For Year ending

£	s.	d.	£	s.	d.	RECEIPTS.
44	19	6				Balance from last year, 1905, General Fund.
						Receipts by Hon. Treasurer.
			35	9	9	Subscriptions– Arrears
			83	13	0	Year current, 1906.
			15	2	0	In advance.
134	4	9				
						Coloured Figure Fund.
			0	0	1	Balance from year 1905.
			3	15	6	Members' donations.
			6	15	0	Sale of tickets, Adelaide lecture.
			3	0	0	Advertising in *Emu*.
13	10	7				
10	1	1				Sales of *Emu*.
1	14	10				Sales of "Key."
0	9	0				Binding members' copies.
2	7	8				Refund, account paid twice.
0	3	0				Sundries.
207	10	5				

CHAS. L. BARRETT, } *Local Auditors.*
EDWD. D'OMBRAIN, }

AUSTRALASIAN ORNITHOLOGISTS' UNION.

30th June, 1906.

EXPENDITURE.	£	s.	d.	£	s.	d.
Printing *Emu*	74	0	0			
Illustrating and Inserting	12	0	0			
Authors' Corrections	3	10	0			
Extra small type	1	18	6			
Specimens of Journal	1	0	0			
				92	8	6
Printing Dichotomous Key (350 Supplements)	22	15	0			
Reprints	1	10	0			
Extra for Stock	0	15	0			
				25	0	0
Illustrations—						
Blocks	12	14	9			
Photo. Prints	0	4	0			
Artist Drawing	2	7	0			
Lithographer	8	15	0			
Postage	0	4	0			
				24	4	9
Adelaide Lecture—						
Printing Tickets	0	5	0			
Advertising	0	19	6			
Caretaker and Lanternist	0	10	0			
Advertising	0	19	6			
				2	14	0
Adelaide Congress Expenses—						
Posting Notices to Members	0	8	0			
Printing Circulars	0	8	6			
Luggage Labels	0	4	0			
Caretaker and Lanternist	0	5	0			
Advertisements	0	3	6			
Postage and Stationery	0	10	6			
				1	19	6
Sydney Congress (Outstanding Account)				0	5	0
Postage—						
Hon. Treasurer, General	1	12	6			
Hon. Secretary, *Emu*	7	0	7			
Hon. Secretary, General	3	7	3			
Hon. Editors	2	1	8			
"Egg in hand" Circulars	0	13	2			
Lighthouse Reports	0	10	0			
				15	5	2
Stationery—						
Envelopes	0	12	6			
Printing Name on Envelopes	0	12	0			
Receipt Books	0	10	6			
Hon. Editor	0	4	6			
Large Envelopes	1	11	6			
Minute Book	0	6	0			
				3	17	0
Printing Copies of Lighthouse Reports				0	7	0
General Expenses—						
Binding *Emu*	1	4	8			
Insurance Premium	0	5	5			
Copyrighting *Emu*	0	2	6			
Exchange and Poundage	0	5	7			
*Adjustment Entry	1	3	0			
Sundry	0	10	6			
				3	11	8
Bank Charges for keeping Account (Bank Book)				0	10	0
Balance at Bank of Australasia, 30th June, 1906				37	7	10
				£207	10	5

Audited and found correct.

FRANK M. LITTLER,
H. C. THOMPSON, } *Auditors.*

30/6/06

FRED P. GODFREY, *Hon. Treasurer A.O.U.*

* This amount should be added to illustrating *Emu*, making a total of £25 7s. 9d.

BALANCE SHEET OF THE

Year ending

ASSETS.

	£	s.	d.
Emu journals in stock	97	0	0
"Dichotomous Key" in stock	19	0	0
Library (Exchange)	11	0	6
Illustration blocks	5	15	6
Arrears of subscriptions estimated to realize	69	9	3
Bank balance—			
Coloured Figure Fund 10 5 6			
General Fund 27 2 4			
	37	7	10
	£239	13	1

COLOURED

	£	s.	d.
Members' donations	3	15	6
Lecture, Adelaide	4	1	0
Trade advertisements	3	0	0
	£10	16	6

LECTURE ACCOUNT,

	£	s.	d.
Sale of Tickets	6	15	0
	£6	15	0

Melbourne, 30*th June*, 1906.

FRED P. GODFREY, *Hon. Treasurer Australasian Ornithologists' Union.*

AUSTRALASIAN ORNITHOLOGISTS' UNION.

30th June, 1906.

LIABILITIES.

	£	s.	d.
Subscriptions paid in advance	15	2	0
Balance	224	11	1
	£239	13	1

FIGURE FUND.

	£	s.	d.
*Debit Balance from last year	1	1	0
Balance	9	15	6
	£10	16	6

ADELAIDE CONGRESS.

	£	s.	d.
Advertising	1	19	0
Printing tickets	0	5	0
Lanternist, &c.	0	10	0
Balance	4	1	0
	£6	15	0

*This was under-estimated in last year's Balance-Sheet, when, owing to the death of the lithographer, the account was not sent forward till after books were closed.

Estimated to be £11 18 0
Should have been .. .. 12 19 0 Difference, £1 1s., Debit Balance. F.G.

they have been kind enough to send for the acceptance of Their Royal Highnesses. The Prince and Princess of Wales are much interested in receiving a report of the transactions of the Union for the past year, and wish the members of the Congress every success at their annual meeting

I have the honour to be, Sir,

Your obedient Servant,

E. W. WALLINGTON.

Arthur H. E. Mattingley, Esq., Hon. Sec.

The annual address of the president, Colonel C. S. Ryan, P.M.O., Victoria, dealing with the protection of native birds, was read by the vice-president, Mr. J. W. Mellor.

NEW MEMBERS.

On the motion of Capt. S. A. White, seconded by Mrs. Roberts, the following new members were elected :—Victoria—Messrs. W. H. Cornford, W. Young, F. S. Smith, A. E. Sambell, J. A. Leach, B.Sc., E. G. Austin, A. B. Harrison, A. Robinson, G. F. Hill, and H. Spowers. New South Wales—Messrs. C. T. Musson and A. F. Bassett Hull. Queensland—Mrs. S. S. Pegg, Messrs. J. Dodd and E. J. Banfield. South Australia—Dr. W. V. Angove. Western Australia—Mr. Chas. G. Gibson. Tasmania—E. A. Elliott. England—Messrs. E. P. Rogers and G. M. Mathews.

The office-bearers were then elected, viz. :—President, Col.-Surgeon Chas. S. Ryan, P.M.O., Victoria ; vice-presidents, Mr. D. Le Souëf, C.M.Z.S., &c., and Mr. J. W. Mellor ; hon. treasurer, Mr. E. B. Nicholls ; hon. editors, Mr. C. F. Belcher, M.A., LL.B., and Mr. A. G. Campbell ; hon. secretary, Mr. A. H. E. Mattingley ; and as members of the Council—Col. W. V. Legge, F.Z.S., F.R.A.S. (Ceylon) (Tasmania), Mr. E. Stead (New Zealand), Mr. P. Peir (New South Wales), Mr. W. M'Ilwraith (Queensland), Mr. R. Hall, F.L.S., C.M.Z.S. (Victoria), Mr. A. W. Milligan (Western Australia).

The reading of papers then took place.

Col. W. V. Legge, F.Z.S., F.R.A.S. (Ceylon), contributed an interesting paper, dealing with the extinct King Island Emu, written some time previously. Bones of both the present day and the extinct Emu were exhibited in illustration of the paper. The extinct King Island form must have been, according to the size of its bones, about two-thirds that of the present mainland species. Col. Legge recommended that the bogs in Tasmania be systematically searched, so that some bones of the Tasmanian form could be scientifically dealt with. Further discussion elicited the fact that four eggs of the extinct Tasmanian Emu were in existence—Mr. J. W. Mellor (1), Mr. A. Brent (2), Mr. D. Le Souëf (1).

Mr. Mattingley congratulated Col. Legge on his admirable paper, and thought that the matter brought forward would show that the King Island and the Kangaroo Island forms were distinct, and further research would reveal other parts of the skeletons, and make the evidence more complete.

A long and interesting paper by Mr. Richard Henry, of Dusky Sound, New Zealand, by the courtesy of the Marine Department,

Wellington, was read, dealing with the breeding of the Paradise Duck. The paper was illustrated by some nice photographs. The difficulties these birds had to overcome in trying to rear their young were vividly portrayed, whilst the watchful care exercised by the drake in protecting his brood was instanced in many cases.

Capt. S. A. White stated how pleased he was to see the magnificent series of lantern slides of the Lyre-Bird that Mr Mattingley had shown during the lecture the previous evening, and he was of the opinion that as the Lyre-Bird might eventually become extinct on the mainland, owing to the surreptitious slaughter of these birds, and also by the predatory ravages of dingoes and foxes, an effort should be made to have them introduced into Tasmania, where he had seen country that was specially adapted for their well-being and propagation. The Governments of Tasmania and Victoria might be approached and induced to try to acclimatise them in Tasmania ere it be too late. Col. Legge supported the suggestion, and said it was a wonder that the idea had not been thought of before. The climatic conditions would not be against the introduction of the birds, as he had found a pair on Mount Hotham, Victoria, as high as 5,000 feet. Mr. Mattingley said that the natural food of the Lyre-Birds, a crustacean like the sand-hoppers on the sea shore, was to be found right throughout the forest country of Tasmania. The vice-president, Mr. J. W. Mellor, said he was glad the subject had been brought forward, and thought that other forms, such as the Lipoa or Mallee-Fowl, and other birds, might well be introduced. Mrs. Roberts stated that she had been trying for some months to secure the eggs of the Lyre-Bird, but had met with no success. She intended to place them in an incubator and endeavour to hatch out and rear the young ones.

ALTERATION OF RULE.

After discussing the subject from many standpoints, it was unanimously decided, on the motion of Mr. A. Mattingley, seconded by Mr. A. Butler, to alter rule 12 to read—"The annual meeting shall be held in one or other of the principal towns of the different States, such State to be decided at the previous annual meeting," &c.

NEXT CONGRESS.

It was decided, on the motion of Captain S. A. White, seconded by Mr. A. Mattingley, to hold the next annual Congress in New South Wales.

GENERAL BUSINESS.

The *locus standi* of the hon. advisory editors was brought before the meeting by the hon. secretary, who pointed out that such eminent ornithologists as Mr. A. J. Campbell and Mr. H. Kendall were now precluded from taking an active part in the deliberations of the Council of the A.O.U., and asked the meeting to express their opinion on the subject.

Mr. A. Butler said that whilst it was highly desirable that such

able men should be enabled to help to formulate the course of the Council's work, yet the rules of the Union were imperative, and could only be altered by giving notice of motion as set forth in the rules. He trusted that the matter would be settled at the next annual meeting.

EXHIBITS.

Nests of *Rhipidura diemenensis*, also *Zosterops cærulescens*, were exhibited by Col. Legge, who pointed out that the latter was peculiar in the architecture of the way in which the bowl was set upon the twigs supporting it. Frail as it appeared to be fastened, yet the wonderful lacing of the material made every strand stand its due proportion of strain. Col. Legge also exhibited leg bones of mainland form of Emu and those of the extinct species found in the sand dunes on King Island.

Miss F. Downing exhibited a series of water-colour drawings of Tasmanian bird-life, including Thickhead, Pardalote, Pink-breasted Robin, Native-Hen, Honey-eaters, &c.

After a vote of thanks had been heartily accorded the Royal Society of Tasmania for the gratuitous use of their rooms for the business of the the Congress, the session was adjourned to Launceston for the working excursion.

On Monday morning members travelled by the express train to Launceston, arriving at that city early in the afternoon. They were met on arrival by Mr. M'Gowan and Mr. H. Thompson, and were their guests for the afternoon. A large drag was in waiting, and the visitors were whirled off to the Electric Power Station, situated some miles out of Launceston, at the end of the famous Cataract Gorge. Here members were taken across to the electrical works in an electrical aërial trolly. After examining the surroundings, a charming walk down through the crags and beetling cliffs of the Gorge was undertaken, some birds being observed *en route*, principally a nest of the Flame-breasted Robin (*Petræca phœnicea*), which had been built in a crevice on an overhanging crag, whilst the nest of a Long-tailed Blue Wren was found, which contained one *Malurus* egg, also one egg of the Bronze-Cuckoo and one egg of the Fan-tailed Cuckoo. The occurrence of two different Cuckoos' eggs in one nest set speculation rife, and many interesting hypotheses were advanced as to the ultimate end of the two Cuckoos. After afternoon tea had been done justice to, members adjourned to the city, and in the evening a lecture, entitled "The Islands of Bass Strait," was delivered by Mr. Mattingley (in the unavoidable absence of the appointed lecturers, Messrs. A. J. Campbell, D. Le Souëf, and J. F. Bradly) in the Art Gallery.

A large meeting was presided over by the Worshipful the Mayor of Launceston, and the interesting pictures of the wonderful bird-life found on those islands called forth repeated applause. The Mayor, in thanking the lecturer, said it was due to the work of such high-

minded scientific ornithologists, who, without reward, conducted investigations into the economy of Australian birds, that we were beginning to know that our feathered friends were of decided value in our domestic economy. He said that the members of the A.O.U., gathered together from different parts of the Commonwealth, were on the morrow going into camp for practical work, and he wished them success.

Early next morning members drove to "River-Made," St. Patrick's River, situate near Mount Barrow, for their "working camp," and were comfortably housed by Mr. and Mrs. Prestidge, who were most assiduous for the comfort and welfare of their visitors.

Eight days of profitable work were accomplished, despite the continuous rain for the first half of the camp. The rain did not, however, deter both ladies and gentlemen from scrambling through the dense forest growths of towering eucalypts, myrtles, and fern-trees on investigation bent. The results of the ornithological work will afterwards be published in *The Emu*. On one day a slight fall of snow occurred, and the weather throughout was cold and bracing. Snowballing was enjoyed one afternoon on Mount Barrow, and was greatly appreciated, since many of the members received their first introduction to this pastime. After ten days the main body of visitors returned to the mainland, whilst others undertook an investigation of the bird-life of the Great Lakes district. The following were the visitors to the working excursion to Mount Barrow :—Mr. F. Littler, Mr. J. F Mellor, Mrs J. F. Mellor, Miss B. Mellor, Miss W. Mellor, Miss Allen, Miss E. Campbell, Miss K. Campbell, Mr. J. W. Mellor, Mr. E. B. Nicholls, Mr. Griffiths, Captain White, Mrs. White, Mr. Thompson, Mrs. Thompson, Mr. A. Mattingley.

The President's Address : The Protection of Native Birds.

THE following address was read by Colonel C. S. Ryan, P.M.O., Victoria :—

Ladies and Gentlemen,—I deeply appreciate the very great honour you have conferred upon me by electing me as your president for a second term, and it would only be using superfluous words for me to say that I shall always be extremely glad to be of any service whatever to the Australasian Ornithologists' Union.

(*a*) *Introductory.*

As you are aware, the chief objects of the Australasian Ornithologists' Union are set forth in its second rule, and are twofold — firstly, the advancement and popularisation of

ornithology; and, secondly, the protection of economic and ornamental native birds.

It appears to me that our journal, *The Emu*, is carrying out admirably the first object; indeed, it has succeeded in this direction far beyond the most sanguine expectations—in fact, the complaint has been (if it be a complaint) that the journal is *too popular*—should be more scientific; but it must be remembered that we are still a young Society, and we must walk before we can run—therefore I purpose to confine the subject of my address to the second object—namely, the protection of birds. In this direction we have a long way to travel before we may expect to reach anything like an adequate protective policy for our indigenous avifauna. Probably that is why the Union, although in the sixth year of its usefulness, has not yet made a start in any definite way beyond making a few preliminaries and suggestions. We have been holding our annual meetings in one or the other of the Southern capitals, and, as it were, advertising ourselves at these central places by means of popular lantern-lecturettes and working camp-outs. This is quite the correct thing, because in these modern times we resort to advertising in almost every line. Moreover, it was just as well that these early and extremely pleasant gatherings of our Union should be educational in character, and tend to create a national sentiment in favour of birds and bird protection—conditions which must first obtain before anything of a practical nature can be attempted. Now, however, the time appears to have arrived when we should endeavour to settle down to something more practical regarding bird protection. But what tangible shape is our practice to take? is a very potent question. I can only hint at a few directions in which we may expect to work with success.

There is no doubt that each State will have to carry out its own domestic legislation regarding proper bird protection—at present, at least. It has been said that Australia is an over-governed country. So far as bird protection is concerned it is hardly governed enough. Here is one direction, at all events, in which the numerous Governments of the day may hand down to posterity for all time an invaluable legacy, and that is if they devise and introduce adequate game and non-game laws, before it be too late—*i.e.*, now. The administration of such laws, of course, means some slight expenditure by creating new departments or augmenting those that at present exist. But would not that be repaid by the accomplishment of the object we have in view? Besides, birds, I apprehend, will only be one item claiming the attention of such departments; other fauna and fish will have to be properly watched too, if they are likewise to be spared and not wiped off the face of the earth.

It may be argued that the protection of our native birds is purely a matter of sentiment, and that there is no "bread and butter" in it. Indeed! What about the value of our game birds, if properly conserved, and the inestimable value of insectivorous birds to the farmer, pastoralist, and fruit-grower? Moreover, it has been truly said:—"A garden without flowers would be a desolate waste." Wipe the birds off the continent of Australia and the land would be worse than a waste—"a howling wilderness."

The Commonwealth of Australia and New Zealand cannot afford to be behind the rest of civilised nations in matters pertaining to bird protection. In the Old World, the British Isles, France, Germany, Austria, Italy, Switzerland, Belgium, India, Japan, &c., have taken steps to prevent the indiscriminate destruction of useful birds, while in the New World, the United States have set an example in model laws and regulations not only dealing with birds but with game of all kinds.

(b) Bird Protection in America.

Regarding the protection of birds, the Australasian Ornithologists' Union might act as a kind of honorary advisory board to the various State Governments by framing a model bill after the fashion somewhat of that of the American States. Let us see what lessons can be learnt from the great older Commonwealth.

First, regarding the history of protective legislation. In 1885 the Legislature of New Jersey passed a bill, introduced by Senator Griggs, forbidding the killing of certain named birds or any insectivorous or song species not generally known as a game bird. This was probably the first elaborate bird law passed to protect all the birds that could not be strictly deemed game birds. In 1886 the Committee on Bird Protection (originally consisting of six members with power to add to their number) of the American Ornithologists' Union drafted a bill which differed from all previous laws by defining game birds and protecting all others (except a few known to be injurious). This method of defining the species to be protected has been adopted so far by twenty-eight States. It is claimed that there is the advantage of clearness, simplicity, and completeness, which is not the case with the laws framed on the old lines. The Act* proposed by the American Ornithologists' Union was certainly very concise, and only contained nine (9) sections.

In 1898 the Hoar Bill for the protection of song birds was brought before Congress. Then followed the Teller Bill, in 1899, "to regulate the shipment of wild game from one State to another." Then was approved by Congress, in 1900, the Lacey

* An Act for the protection of birds and their nests and eggs.

Act—"An Act to enlarge the powers of the Department of Agriculture, prohibit the transportation of inter-State commerce of game in violation of local laws, and for other purposes." This measure is the broadest and most comprehensive measure ever introduced for the protection of wild birds and animals, and contains three main divisions :—

(1.) It places the preservation of birds under the jurisdiction of the Department for Agriculture.
(2.) Authorises the Secretary of Agriculture to regulate the importation of foreign birds and animals; and
(3.) Prohibits inter-State traffic in birds killed in violation of State laws.

Second, let us see how these laws have worked in practice. For this information we must peruse Dr. T. S. Palmer's report —"Federal Game Protection : a Five Years' Retrospect."* Dr. Palmer is assistant in charge of Game Preservation, Biological Survey, United States Department of Agriculture. It will suffice if I mention only a few heads.

Provisions of the Lacey Act.—This was intended to supplement State laws, and to settle the vexed question as to jurisdiction over imported game. In effect it was intended to form a "federal capstone," resting on an uneven foundation of State legislation, cemented as far as possible into one solid structure. Its five sections were derived from dffferent sources, and drawn up for different purposes. Section 1 relates to the introduction and propagation of game. Section 2 regulates importation of all foreign species, and prohibits the introduction of those known to be injurious, and was modelled after the law passed in Western Australia, 1893. Section 3 relates to inter-State commerce of game. Section 4 provides for the marking of packages of game, while section 5 makes imported game subject to State laws.

Importation of Foreign Birds.—In attempting to regulate the importation of foreign birds and animals, the United States of America undertook a task of greater magnitude than that attempted by any other nation. Cape Colony, New Zealand, and some of our own States restrict the importation of pests, but no country with such an extensive coast line has attempted a supervision of all imported species in order to protect its agricultural interests. In addition to accomplishing the main object of preventing the importation of dangerous pests, this simple system affords the means of collecting valuable and interesting statistics concerning the trade in foreign birds. It has already brought to light the extensive trade in Canaries from Germany, Pheasants from Canada, and Quail from China, and

* "Year-Book of United States Department of Agriculture for 1905," pp. 541–562.

has established records of the introduction of new game birds—for instance. the Capercailzie, Black Cock, and Scandinavian Ptarmigan, and numerous species of Pheasants and Waterfowl, besides birds imported for aviary purposes. Last year (1905) 230,682 Canaries alone were imported.

Inter-State Commerce in Game.—The development of the cold storage and extension of railways. some years ago, made accessible to the markets of great cities a supply of game which seemed inexhaustible. So rapidly did trade increase that some of the Western States in self-defence were compelled to take steps to restrict consignments of game beyond their own borders. A single consignment of game from Nebraska received at Chicago in 1900 contained no less than 87 barrels of "Prairie Chickens," and it was roughly estimated that the number of these birds killed in Nebraska that year was about 5,000,000, of which about one-fifth were for home consumption, the balance to ship beyond the State. Unscrupulous devices were attempted at smuggling game from State to State, such as marking packages containing Quail or game "Butter," "Dressed Poultry," "Household Goods," &c., but these devices were rendered more than futile by the vigilance of the officers. And in consequence of the impulse given to State legislation and public sentiment by the *Lacey Act*, conditions are at present in marked contrast, say, with those prevailing five years ago. "Prairie Chickens" have almost entirely disappeared from the markets of Chicago. Quail and Grouse are received in greatly diminished numbers, and even Duck, which were formerly shipped from Illinois, Missouri, Arkansas, and Texas by thousands, are offered for sale in comparatively small numbers. Even more striking changes are reported in methods of shipment. Until recently the majority of game was forwarded to market by express, but the rigid inspection to which express matter is now subjected has resulted in detecting smuggling devices which hitherto were successful. As a result, little game is said to have been received at Chicago and St. Louis during the past year, and, as shippers have been forced to adopt other means of transport which are less satisfactory and more expensive, there is no likelihood of a resumption of trade in violation of laws.

Information Concerning Game.—In accordance with the provisions of the *Lacey Act* requiring the Secretary of Agriculture to "collect and publish useful information as to the propagation, uses, and preservation of birds," the collection of data has been steadily and systematically carried on, as is abundantly proved by the articles and bulletins which the Department has been good enough to forward regularly to our Australasian Union—such useful articles as, for instance, "How

Birds Affect the Orchard," "The Relation of Birds to Fruit-growers in California," "The Relation of Sparrows to Agriculture," "Birds as Weed Destroyers," "Cuckoos and Shrikes," &c. From time to time information on special subjects has been published in the Year-Book. Examples:—"Definitions of Close Seasons for Game," "Some Benefits the Farmer may Derive from Game Protection," &c. The distribution of publications on the habits and uses of birds undoubtedly constitutes a prominent educational factor, and is of immense service in creating a sentiment in favour of bird or game protection.

Preserves.—Previous to 1900 the American Government had set aside only three reservations for the protection of birds and animals, namely:—Yellowstone Park, National Zoological Park, and Afognak Island. Since eight additional preserves have been established, all except two being small islands of no agricultural value. The best known of these reservations is Pelican Island, Florida. It is little more than a mud flat about four acres in extent, with only a few mangroves, one or two cabbage palms, and patches of coarse herbage—a locality for many years the home of a large colony of Brown Pelicans. Prior to 1901, when the State passed a comprehensive law protecting non-game birds, their nests and eggs, and a warden was placed in charge of the island, the colony was in danger of extermination. Plume-hunters could easily destroy the birds for quills, which were then fashionable for ladies' hats, while collectors could carry away a very large number of eggs. One collector who visited the place is said to have taken no less than 125 sets of eggs. All this is now changed. Three years ago the island was made a Government reservation by Executive order, placed in charge of the Department of Agriculture, and the warden appointed as an officer of the department. As a consequence the Pelicans now flourish. The island has been visited by ornithologists, who have made studies of the birds, and interesting data never before available have been collected regarding their food, moulting, nesting habits, &c.

Co-operation of Societies.—The most important factor in the protection of non-game birds in the United States has undoubtedly been the work of the Audubon Societies. The good work of the Audubon Societies* in connection with bird protection in North America has already been mentioned in *The Emu*, vol. iv., p. 29. Local societies have been organised in no less than thirty-six (36) States, and last year the movement was given greater importance by the incorporation of the National

* The chief objects of the association are, as far as possible, to prevent—(1) the killing of any wild birds not used for food; (2) the destruction of nests and eggs of any wild birds; and (3) the wearing of feathers as ornaments or trimming for dress.

Association. In educating the general public as to the economic value of birds, and in creating public sentiment in favour of bird protection, these organisations have met with phenomenal success, and their educational work has paved the way for still more successful efforts in securing the adoption and enforcement of uniform laws and in specific measures of bird protection. Could not the Australasian Ornithologists' Union, by enlarging its members' roll and by extending its sphere of usefulness, aid the various State Governments of Australia in like manner ?

(*c*) *Suggestions.*

Let me conclude by endeavouring to throw out a few practical suggestions how we may improve bird protection in our own land, and increase public sentiment in favour of the same.

(1.) The machinery of our *Game Acts* is excellent so far as it goes, and for the present requirement needs only to be kept in motion. Therefore, the first object to be attained is to get the Acts in the various States strictly observed. This may be best done by education, by fostering a national sentiment, and by urging the authorities to enforce the law. It is notorious that some of our Game Laws are more observed in the breach than in the fulfilment, especially in the country districts, the very localities where the observance of bird laws is most needed. Take, for instance, Sunday shooting. Apart from being a transgression against the great moral law, it is an offence against the *Police Statutes* to shoot on Sunday. If the law regarding Sunday shooting were rigidly carried out it would be equivalent to an *additional close season* in favour of the birds, because they are more often shot on the first day of the week than on any other day.

(2.) Regarding some species of birds that are partially but not adequately protected, the schedules of the various States might be brought into line—*i.e.*, made uniform. The schedules could easily be amended by proclamation, as was pointed out in Mr. A. J. Campbell's paper, with suggestions, on the subject, read before the annual session of the Australasian Ornithologists' Union, Hobart, November, 1903. These valuable suggestions were referred to the Council (*vide The Emu*, iii., p. 159), but, as far as I am aware, nothing has been yet attempted in that direction.

(3.) Reserves for Birds.—Term them what you please—reserves, preserves, or sanctuaries—there are very few such places. More might be set apart, not only by State Governments, but by wealthy land-owners. Regarding some of our land-owners, I feel sure it only requires representation and some of our pastoralists and others would proclaim a limited portion of their "broad

acres" of waste land or water, as the case may be, safe hiding places for beautiful, interesting, and valuable birds.

(4.) The mention of reserves naturally brings us to the upkeep of such places. State reserves would need paid rangers, or "wardens," as they are termed in America, while I apprehend private reserves would be properly protected by their respective owners. There would be no wisdom in creating reserves merely in name, without proper supervision. Supervision of some sort is necessary, if only to keep down vermin, for it must be remembered that such sanctuaries will undoubtedly harbour undesirable as well as desirable creatures.

(5.) Reserves and paid rangers bring us to a very important matter—the necessary "ways and means." It has been humorously said that there is nothing surer in this world than "death and taxes." Sooner or later, and I venture to say the sooner the better, there must be a "gun tax," if only a nominal one, in every State. It would bring in much righteous revenue, which could be devoted to "bird protection." I observed with satisfaction that Mr. D. Le Souëf, at the last Adelaide session (1905), referred to the subject of a gun tax in Victoria. I concur with him that the introduction of a gun licence, not only in Victoria but in the other States where it does not exist, would, besides raising revenue, as I have already mentioned, lead to the better preservation of Australian birds. So many would not be destroyed by irresponsible persons carrying guns. Still more taxes: we have a dog tax. No person objects to pay a few shillings annually in return for the companionship of a faithful or useful dog. Why not have a cat tax too? It would even be more equitable than a dog tax, because cats are responsible for the destruction of much bird-life. I am glad that Mr. A. J. Campbell introduced the subject of cats at the Adelaide meeting also, by reading a brief paper—"Domestic Wild Cats *v.* Native Birds" (*Emu*, v., p. 201). The paper has not only attracted notice here but in America, where our bird-loving friends are seriously contemplating the cat question in relation to bird protection—*vide Bird-Lore*, "Annual Report Audubon Societies for 1905," and *The Auk* (January, 1906).

I am aware I am breaking new and perhaps questionable ground when I state that every natural history collector might be required to pay a nominal licence fee—not only collectors of birds and animals, but also collectors of plants, shells, &c. If argued to its logical conclusion, such a fee would only be a fair return for the pleasure and profit of outings and a courteous acknowledgment for value acquired from "Dame Nature," besides indirectly providing "ways and means" for the protection of invaluable native birds. Farmers, fruit-growers, and others who are practically benefited by birds should also be required to

pay a small bird tax, while a heavy tax should be levied on all persons, such as game vendors, &c, who trade for commercial purposes in wild birds or their feathers.

(6.) To educate people to love birds is better for their protection than many acts of legislation. Let us, then, educate the children. I am confident, in speaking for my own State (Victoria), that the Director for Education, Mr. Frank Tate, with his well-known love for "nature study" would introduce Australian ornithology into the curriculum of State schools. Such a study would surely "catch on" with the scholars, because birds are perhaps the most fascinating branch of natural history. Again, in our State schools Arbor Day has already become a recognised and important function. Once a year, on a day specially set apart, the school children plant their school grounds with trees. The excellent idea will expand as well as the trees. It will not be long before the school ground is full; then streets will be planted, and then parks. The child will grow into a citizen with the firm belief that to plant a tree is to perform good work. But what of the trees themselves? Should there be a tree without a bird to match it? Observation undoubtedly says "No!" It is a proven fact that trees cannot exist without birds. Some species carry the seed, and others guard them from many insect foes that threaten to destroy them. What ails the indigenous timber in the domains about the metropolis? The trees are scraggy, losing the healthy vigour of their leaves, and fast dying out. The reason is not far to seek. The bark is gnawed, the wood tunnelled, and the foliage eaten by insect enemies. 'Tis many years since able little foresters like Tits and Tree-creepers in these parts went about their duty —insect clearing—leaving the forest enemies to thrive unchecked. The audacity of these pests is even seen in the suburban streets and gardens, whose introduced trees and shrubs are set upon by native plagues. Then why not have a combined "Arbor and Bird Day," as plants and birds are both so interdependent, and instruct the children of the mutual help existing between the two great divisions of the natural world, emphasising the fact that, as true citizens, they (the children) must lend their aid in protecting the birds which perform so much good to trees, therefore to mankind.

And now, finally, ladies and gentlemen, let us all (especially you who are members of the Australasian Ornithologists' Union) continue and persevere in the work of well-doing touching the better protection of our beloved native birds, and thereby carry out the great and grand injunction handed down to us from the beginning of creation, when God brought forth abundantly every winged fowl after its kind, and saw that it was good, and said—"Let fowl multiply in the earth."

Honorary Secretary's Report.

LADIES AND GENTLEMEN,—Your Council has much pleasure in presenting to you the fifth annual report, containing a *précis* of the transactions of the A.O.U. for the year ending 30th June, 1906. The Union's affairs still steadily progress. Efforts have been made to have water areas and quarantine grounds permanently reserved for the protection of bird-life. Excellent ornithological results attend the "working excursions" of our annual Congresses. Since the last Congress and "camp-out" at Kangaroo Island a large area of that locality has been permanently reserved as a sanctuary for its avifauna, mainly through the exertions of the South Australian member of your Council. The prevention of the introduction into the Commonwealth of unknown, dangerous, and patent diseases, that may be inimical to our avifauna, has been successfully accomplished, such diseases having been declared "prohibited imports," until they have been satisfactorily proved to be innocuous. A comprehensive and useful index for reference to the first five volumes of *The Emu* is in course of preparation. The *personnel* of the honorary editors of *The Emu* underwent a change during the year, but the Council was able to retain the services of the retiring editor in an honorary advisory capacity. Under the able guidance of the new editors, the journal still maintains its standard of scientific, literary, and artistic excellence, and a more observant and attentive public is being gradually created thereby, whilst the science of ornithology is becoming more popularised, and is advancing apace as its utility is being recognized. Nature study training, as well as nature study and also State school exhibitions, it is gratifying to know, are educating the rising generation to appreciate the domestic economy and value of their Australasian avifauna Such training is better "bird protection" than many Acts of Parliament. The finances of the "Coloured Figure Fund," which is raised by voluntary subscription, have been somewhat neglected lately for lack of subscriptions. The thanks of the Council are, however, due to those subscribers who have so kindly helped to increase this very useful fund. The necessity of a "Check-List" is a matter of urgency. Ornithologists generally are awaiting its appearance, and its utility and importance cannot be over-estimated. It is hoped that the convener of the "Check-List" and the committee will be able to present a report to the members of the A.O.U. at the next annual session. The thanks of the members of the A.O.U. are again due to the president, Colonel-Surgeon Charles S. Ryan, for the gratuitous use of his rooms for Council meetings. The Council would be glad to receive further notes regarding the migration of birds. It is intended to tabulate some of these notes at the end of the present year. Useful and informative notes on birds that happen to strike the lighthouses are regularly forwarded by the light-keepers, as will be seen by the report by Mr. D. Le Souëf.

A. H. MATTINGLEY, Hon. Sec.

Lighthouse-keepers' Reports.

By D. Le Souëf, Melbourne.

Comparatively few reports have been received from the lighthouses during the past year, and the information received has not been of much help regarding migration.

Mr. George Johnston, of the Tasman Island light, reports that a Fan-tailed Cuckoo on 8th September was caught alive, and on liberating it several others joined; also Summer-Birds (*Graucalus*) and Wood-Swallows (*Artamus*) were seen for the first time (in 1906) on that day. The Welcome Swallows appeared there for the first time this year on 24th September; last summer they were conspicuous by their absence.

At Swan Island, Tasmania, Mr. Hemsley reports that several Petrels struck during rainy or cloudy weather, but the only land birds were a flock of Starlings, on 16th June, at 4.30 a.m.

At Maatsuyker Island, Tasmania, the Superintendent, Mr. Muir, states that 10 Black Cockatoos arrived on 22nd May, and remained for some weeks. The last Mutton-Bird was seen on 21st April.

At the Tamar Leading Light, near Launceston, Mr. Kirkwood states that Magpies seem to be increasing, and constantly alight on the tower of the lantern.

Mr. Nillson, of Table Cape Lighthouse, reports that he has not noticed any birds strike the lantern for some years, but a few passed by at night, but were not identified, except one flock of Wood-Swallows (*Artamus*).

Only one report came from South Australia, and that from the Althorpe Island Lighthouse, and Mr. Rackett, who is in charge, states that one White-faced Storm-Petrel struck in September, and was caught alive.

Two reports were received from Queensland—one from Mr. Picken, of the North Reef Lighthouse, in which he states that many birds strike the lantern in thick weather, and in nearly all cases at the point the wind is blowing from, but he had not been able to secure any for identification.

Mr. M'Kee, of Lady Elliott's Island, mentions that nine Mutton-Birds struck—four on the 14th, four on the 20th, and one on the 22nd of September; none were killed. Also, on the latter date, a small brown and white bird with horizontal stripes on its breast, which escaped.

A very interesting report is sent from Cliffy Island. The Superintendent states that many *Zosterops cærulescens* struck on 17th April, and 40 dead ones were picked up at the foot of the tower next morning. Also that on 21st April three *Artamus sordidus* struck, one being killed, and on the 30th of the same month a *Graucalus melanops* struck and was killed. He also

mentions that the Mutton-Birds and Petrels that nest on the island very often strike the lantern in thick or misty, rainy weather, but he has not known one to be killed. He sent skins of the three kinds mentioned as being killed.

In a report from the Nobbys, Newcastle, N.S.W., by Mr. W. Gardiner, it is stated that a large number of small birds were about the light from 18th to 31st August. The specimen he sent was a White-faced Storm-Petrel. These little birds seem very plentiful round the coast of southern Australia.

Field Notes on Birds of the Richmond District, North Queensland.

By Fredc. L. Berney.

Part IV.

Stubble Quail (*Coturnix pectoralis*).—Only to be seen very occasionally. My few notes on them bear reference to all the four seasons of the year. A male that was shot gave the following measurements:—Total length, $7\frac{10}{16}$ inches; wing, $4\frac{1}{16}$ inches; tarsus, 1 inch; bill, $\frac{9}{16}$-inch; spread of wings, $13\frac{2}{16}$ inches. Compared with such authorities as I have access to, these figures seem excessive. I do not think I ever flushed two together.

Brown Quail (*Synœcus australis*).—The appearance of the Brown Quail in this district varies much, owing, doubtless, to our uncertain climate. They appear to favour the months January to June; it is not usual to come across them from July to September, while I find I have no record at all of this Quail during the last three months of the year. This does not show any migratory movement, but simply that they avoid these parts during the droughty half of the year. Actually, July to October are our driest months; November and December may bring us early storms, but they are so uncertain and patchy that the Quail would derive little benefit from them until January, when some of the grasses would be seeding and insects had time to multiply.

To me it is pleasant to hear them calling in the evening from the vicinity of a bore stream—"Bee'e quick, bee'e quick," the first two syllables drawn out almost into one, for it reminds me of Partridges in the old country, to which, too, they bear a strong resemblance when on the wing. Commencing a trifle before sundown, they relapse into silence towards midnight, and, starting again as daylight approaches, they ease off towards sunrise and cease calling altogether shortly after. They generally go in coveys up to a dozen, and frequent moist ground where the vegetation is green and grows rank.

On the 10th June this year our cat brought in a bird that proved on dissection to have a hard-shelled dull white egg in the oviduct, which I judge would have been laid within twenty-four hours.

Details of three birds obtained on Wyangarie are given herewith:—

No.	Date.	Sex	Total length. Inches	Wing Inches.	Tail. Inches	Tarsus Inch	Bill Inch
104	Feb., 1905	Male	$7\frac{10}{16}$	$3\frac{13}{16}$	$1\frac{12}{16}$	$\frac{14}{16}$	$\frac{9}{16}$
109	Feb., 1905	Male	$7\frac{12}{16}$	$3\frac{12}{16}$	$1\frac{13}{16}$	1	$\frac{10}{16}$
171	June, 1906	Female	$7\frac{8}{16}$	$3\frac{11}{16}$	$1\frac{10}{16}$	$\frac{15}{16}$	$\frac{10}{16}$

They appear to be partly insectivorous and partly granivorous, as the stomach of one I examined contained nothing but seeds of what is locally called wild sorghum (*Chionachne barbata*). The bird's crop, I may mention, contained a hundred of these large seeds, swallowed, of course, with their husks, while Mr. A. S. Le Souëf, to whom I forwarded two stomachs for examination, kindly wrote me that one contained beetles only, and the other beetles, grasshoppers, and one grass seed. The various species of Quail are often seen out here in cages with other birds, as they are easily reared from chicks in the down, or, if caught adult, take kindly to confinement. Many thousands of Quail are netted on the Continent and shipped to the London markets in long, shallow box-cages, about 5 feet long by 18 inches deep and 6 or 7 inches high, seed and water troughs extending along the front. In these dark and far from cheerful surroundings, and occupying a corner in a poulterer's shop, the little birds thrive and fatten, and are killed and plucked as required for customers.

BLACK-BACKED QUAIL (*Turnix maculosa*).—In February, 1905, the cat brought in and consumed a Quail, of which, I regret to say, it left me only a wing, for I saw at once the bird was a stranger to me. I believed it to be this species, and, on referring the wing to Mr. A. J. Campbell, he wrote—"I think you may put it down as *maculosa*, but with a query in the meantime."

RED-CHESTED QUAIL (*Turnix pyrrhothorax*).—This species is the most commonly seen Quail in the district, but, like the last species, and probably for the same reason, it avoids these parts during the latter half of the year, only odd individuals being seen after June. Just what it is that governs their coming and going I find it hard to decide, for 1904 was anything but a good season from a pastoralist's point of view, yet it was an exceptionally good Quail year about Richmond—and, I think, all over Queensland—while, on the other hand, 1906, so far (October) has been one of the best recorded for grass and water, and yet all Quails have been most rare. I have seen chicks in the down in March, and I once flushed a bird with four small downy youngsters early in July.

Measurements of four obtained here :—

No	Date.	Sex	Total length.	Wing.	Tail.	Tarsus.	Bill.
			Inches	Inches.	Inches	Inch.	Inch.
57	April, 1904	Female...	$5\frac{8}{16}$	3	1	$\frac{13}{16}$	$\frac{9}{16}$
58	April, 1904	Female...	6	$3\frac{3}{16}$	$1\frac{4}{16}$	$\frac{12}{16}$	$\frac{10}{16}$
59	June, 1904	Male ...	$5\frac{3}{16}$	$2\frac{14}{16}$	1	$\frac{12}{16}$	$\frac{8}{16}$
60	June, 1904	Female ..	$5\frac{2}{16}$	$2\frac{13}{16}$	$1\frac{1}{16}$	$\frac{12}{16}$	$\frac{9}{16}$

Dissection of above showed no sign whatever of breeding. No. 57 is, perhaps, four or five months old ; 58 is fully adult.

Found generally on high, dry country.

LITTLE QUAIL (*Turnix velox*).—Not often seen, but during 1904 more came into my hands than usual ; they keep generally to the high, dry downs, and like the other Quail are not generally seen much after June, though I ran down a squeaker at the end of August in 1904. I caught another youngster in the same way early in April that year.

Particulars of two obtained locally :—

No.	Date,	Sex.	Total length.	Wing,	Tail,	Tarsus,	Bill,
			Inches,	Inches.	Inches.	Inch.	Inch,
56	April, 1904	Female...	$5\frac{9}{16}$	$3\frac{4}{16}$	1	$\frac{12}{16}$	$\frac{9}{16}$
107	Feb., 1905	Female...	6	$3\frac{5}{16}$	$1\frac{3}{16}$	$\frac{14}{16}$	$\frac{9}{16}$

Mr. A. S. Le Souëf was good enough to write me that the stomach of No. 107 contained various species of small beetles and grasshoppers, but no vegetable seeds.

PECTORAL RAIL (*Hypotænidia philippinensis*).—May be seen occasionally, generally during the summer months, but its movements are so uncertain that I cannot say whether it is migratory or not. I have one winter record—June, 1903.

The only sound I have heard from it is a sharp slate-pencil-like squeak. They are hard to flush, being so very loth to fly: they are, too, most stupid birds, and fall an easy prey to cats.

A pair nested during January, 1904, within 150 yards of the house here—we had no cat then. The situation chosen was the margin of a small, shallow, rush-grown swamp, formed by irrigation waters. Nest was formed of dry grass in the centre of a tussock of rank growth, the upright stalks of which closed in overhead, making a slight break to the sun's rays; eleven eggs were laid, but the traffic about became too much for the birds' nerves, and they deserted.

When walking they carry the tail very erect, and keep flicking it, like the Porphyrios.

Dimensions of three brought in by a cat:—

No.	Date.	Sex.	Total length. Inches.	Wing. Inches.	Tail. Inches.	Tarsus. Inch.	Bill, Inch.
83	Nov., 1904	Male	12 9/16	5 1/16	2 1/16	1 1/16	—
89	Jan., 1905	Male	12 4/16	5 1/16	2 2/16	1 1/16	1 7/16
97	Feb., 1905	Male	11 7/16	5 1/16	2 1/16	1 8/16	1 6/16

In 83 and 97 the testes were fully developed. Contents of stomach of 83 were portions of small crabs and insects.

SPOTTED CRAKE (*Porzana fluminea*).—Has only come under my notice once. I shot a female at Spring Valley, 25 miles north-west of Hughenden, on the 29th April, 1905, where I had had it and a mate under observation for a fortnight. They kept to the thick beds of bulrushes on some bore water, only showing out to feed along the edge in the early morning and evening, and got back to cover, wading through the water, as soon as disturbed, but not displaying any great shyness.

Their small size, the white under tail coverts, and black vent feathers, which show very conspicuously as they turn their backs towards you, proclaim their species. Total length, 7 5/16 inches; wing, 3 1/16 inches; tail, 1 3/16 inches; tarsus, 1 2/16 inches; bill, 1/16-inch; middle toe, 1 5/16 inches. Eggs in ovarium the size of pins' heads.

BLACK-TAILED NATIVE-HEN (*Microtribonyx ventralis*).—As a rule, these birds show up in January, but they are most erratic in their visitations, sometimes only a few putting in an appearance, while occasionally they come in overwhelming numbers—1905 was a Water-Hen year; just why I could not say, for our wet season, January to March, was a failure that year. We only registered 4½ inches of rain, when we should have had ten or twelve, and it was the same all over this part of Queensland.

But the Native-Hens came—came in thousands; no water-hole was too small, every puddle had its mob; from hole to hole along the creeks they had tracks worn like sheep pads. It was a common sight for a horseman to have five or six thousand running in front of him along a creek, like a mob of sheep; they over-ran the Chinamen's gardens, eating out the young vegetables and quite ruining them for the time being. At the homestead here a flock of some hundreds waited daily for the domestic fowls to be fed; a man had to stand by to keep them off, else they would have had the lot and the fowls none. As it was they got away with a good deal—they were too tame to frighten. The house cat here—a black she-cat with a family to provide for—would have grabbed the Water-Hens without hesitation had she met them down the paddock, but here, as they walked past her under the verandah, she could only sit and watch them with a worried look, for she

could never make up her mind as to whether they were Native-Hens or domestic pullets.

They disappear every year about June.

BALD-COOT (*Porphyrio melanonotus*).—The handsome Bald-Coot, like so many more of the semi-aquatic birds that may be found here throughout the year, is not represented through the winter and spring by anything like the number of individuals that are to be seen during the summer and autumn. This is only natural, as their hunting-grounds, the shallow lagoons and swamps, disappear so quickly once the wet season goes by; but this is not a very numerous species even in the summer. They nest here during January and February among the bulrushes; they appear to commence a lot of nests which are abandoned before completion. It is interesting to notice the gangway of reeds they often construct, sometimes winding a considerable distance, leading up to the nest, which may be placed a couple of feet above the water. I was told of two broods, one in the down and the other half-grown, being seen early in October, 1904. The chick has the frontal-plate from the egg-shell.

COOT (*Fulica australis*).—But seldom seen, and then generally during the wet season, though I have had them reported to me in June. Never very numerous. I have seen as many as thirty on a swamp.

NATIVE COMPANION, OR CRANE (*Antigone australasiana*).—A permanent resident here, generally to be seen congregated in small parties of eight or ten, but at times as many as forty or fifty get together. During the summer, which is their time of nesting, they will more often be seen in pairs.

My record of nests with eggs commences with 28th September, and follows on two nests in October, one in December, January one, February three, March two, and ends up with a nest and eggs on 4th April.

They soar at times to a great height, to an altitude, I believe, of two to three miles. Indeed, at such times they would be unnoticed were attention not drawn to them by their trumpeting. To anyone who has not already done so, I would advise, the first chance he gets, to examine the arrangement of the trachea within this bird. It is most interesting and curious. It is rather too much to go into the subject deeply here, but, put shortly, the whole keel of the sternum is hollow, and largely extended up between the coracoids; the trachea enters this cavity at a spot just behind where the hypoclidium should be, follows the line of the keel downwards, bends back, forming the first loop, takes a sweep upwards, forms a second loop within the inflated portion between the coracoids, and returning downwards comes out again where it went in. The clavicles, too, are very unusual in being solidly connected with the point of the keel of the sternum, the one being apparently simply an extension of the other instead of being disconnected or held to one another by cartilage only, as is the almost universal rule, as carvers of poultry know from their experience with the merrythought.

BUSTARD (*Eupodotis australis*).—It is sad to think that the inexorable law of nature, the survival of the fittest, has doomed this fine Bustard to extinction, but its conspicuous size and low rate of reproduction give no hope for its future; it is only a matter of time—time and arms of precision. It is a pity, for, apart from any feeling of sentiment, the birds are most useful, destroying large numbers of grasshoppers; they are only half insectivorous, as various forms of low-growing vegetation, particularly the bitter fruit of a small wild melon, are eaten. The numbers to be seen here vary according as the season is favourable to them or not. In November, 1903, I saw a flock of 43; in February, 1905, I counted 100 in sight at the one time, and I remember, some sixteen or seventeen years ago, I counted 300

in the course of a ride of eight miles over a piece of country that had been swept the night before by a bush fire.

Bush fires are a great attraction to "Turkeys." The birds may be noticed coming up from different quarters as the rising smoke gives them the signal. At night I have watched them following close behind the fire, darting in and out amongst the flames and smoke, catching the grasshoppers and other creatures driven out, more or less overcome by the heat.

January to April are the nesting months. I have never found eggs in December, and until this year I had no record for April. Very rarely do they nest in the winter. I have only two notes in reference to their doing so occasionally, both in 1901. (See *Emu*, vol. iii., p. 68.)

As regards the number of eggs laid by the Bustard, of twelve nests that I have found, five contained two eggs and seven one only; it is possible that some of these single-egg nests were incomplete at the time, and that a second egg may have been subsequently added to some of them. Only in one instance do I know for a fact that the single egg was much incubated.

There is a big difference in the size and weight of the two sexes; eleven birds, not picked but taken as they came, averaged 15 lbs. 1 oz., seven males going from 11½ lbs. to 19 lbs., and averaging 16¾ lbs.; and four females, all apparently mature, weighed 8, 7½, 6½, and 7 lbs. respectively, averaging 7 lbs. I have measurements of two birds only, both of which I have noted were adults:—

No.	Date.	Sex.	Total length. Inches.	Wing. Inches.	Tail. Inches.	Tarsus. Inches.	Bill. Inches.
91	Jan., 1905	Male	41⅛	23¾	9½	7¾	3½
205	Aug., 1905	Female	33	19	9¾	6	3 11/16

The weight of No. 91 was 19 lbs., and spread of wings 6 feet 8 inches, and No. 205 weighed 6 lbs., with a spread of wings of 5 feet 4¼ inches. In the male the gular pouch was developed to its fullest extent; the ovaries of the female contained eggs of the size of No. 6 shot.

STONE-PLOVER (*Burhinus grallarius*).—A scarce bird in the district, confining its short and irregular visitations to the wettest half of the year, January to June. During the past nine years I have only once met with the miscalled "Curlew" during the period July to December. I flushed a single individual in August, 1899.

PRATINCOLE (*Stiltia isabella*).—During the summer *S. isabella* is here in large numbers, but in April a big exodus of the dainty courser takes place, for which purpose the birds gather in large numbers; thence throughout the winter they are represented by the irregular visits of two or three individuals, while now and again a small invasion takes place, forty or fifty suddenly showing up, but they are birds of passage and only remain a few hours. The date of their return to us varies one year with another. It usually takes place in September or October. This year, for some reason for which I cannot suggest any explanation, they are as I write (12th November) practically total absentees, though the winter has been very mild and the season is one of abundance.

A few very early nests may be found in September, and these I have no doubt belong to some of the old pairs of Pratincoles that have remained with us through the winter. The main nesting season does not commence till October or November, and lasts then till February. Chicks in the down may be seen in March, but they will be hatched in the previous month. The latest date on which I have actually found eggs is 8th February. They make no nest, the eggs being laid on the bare ground without any excavation or depression, but the sitting bird relieves the monotony of its task by getting such fragments of dried vegetation as are within reach, and arranging them round the eggs. The eggs are very hard to find, and the little chicks in the down are still harder, for they not only have their protective colouring, but

they are very smart in seeking shelter and making the most of it on what is practically bare ground, tucking themselves away into the impression of a beast's hoof made during the wet, or crouching close against a small lump of earth that is not as big as themselves ; or, again, should there be no refuge on the surface, they do not hesitate to go down the gaping cracks in the ground with which the parched downs are reticulated.

Particulars of four birds that have come into my hands are as follows :—

No.	Date.	Sex	Total length Inches	Wing Inches.	Tail Inches	Tarsus Inches	Bill Inches
51	March, 1904 .	Male ...	8⅝	7⅞	2 9/16	1 5/16	1 1/16
106	Feb., 1905 ..	Female...	8	6 3/16	2 7/16	1 1/16	1
111	March, 1905 ...	Female...	8	6 3/16	2 4/16	1 3/16	1
113	March, 1905 ...	Male ...	8⅝	8 3/16	2 6/16	2	1 1/16

No. 111 was immature, and No. 113 was fully adult. When laid on their backs, with wings pressed close to the sides, the longest primary of No. 111 did not reach to within half an inch of the point of the toes, while in No. 113 it extended half an inch beyond. In immature specimens the first primary is comparatively rounded, while in adults it is much drawn out towards the extremity and sharply pointed. Food consists of insects of all sorts, generally grasshoppers, small beetles, and ants, but mostly grasshoppers ; the stomachs of odd individuals may contain a small quantity of vegetable matter.

ORIENTAL PRATINCOLE (*Glareola orientalis*).—As far as concerns this particular district, *G. orientalis* is a most uncertain and irregular migrant, and therefore a most unsatisfactory bird to observe. It is usually a late arrival, seldom putting in an appearance before the middle of December, though in 1903 it showed up in some numbers on 5th November. They do not remain long with us ; the latest date that I have seen them is 14th February, 1903—the same year as above, be it noted, but a different season. Some years they do not show up at all, and others we get a call from the spring wave going south, but see nothing of them on their return journey.

RED-KNEED DOTTREL (*Erythrogonys cinctus*).—An occasional visitor that never seems to settle down and make itself at home. You are likely to come across it during any month of the twelve, but it certainly favours the period November to April, though, curiously enough, the most I ever saw together—ten on one comparatively small waterhole—was in August. Usually they are seen singly or in pairs, rarely four or five together.

MASKED PLOVER (*Lobivanellus miles*).—Another occasional visitor, as likely to be seen one month as another. I think it is rare for them to nest here, as they seldom remain long enough to give themselves time, but I am glad to be able to report their having done so this year. On the 10th April, while driving a mob of four or five thousand sheep along the margin of a swamp, I disturbed half a dozen pairs of these Plovers, all of which I am certain were nesting. I found four nests, three containing four eggs each and one with a single egg.

As the host of sheep advanced the birds came out to meet it, uttering their loud cry ; gradually falling back, they took up their stand facing the foe, right on the edge of their nests. One step backwards would have put them on the eggs. Extending their wings, they displayed the full expanse of their white front, and clamorously—very clamorously—defied all and sundry to come on. (I should like to have caught the picture with a snap-shot.) Even when I went up to personally investigate they declined to do anything more than retire a few yards at a dignified walk, loudly complaining all the time. However, they had no cause for complaint—I did not rob them. In each instance the eggs rested on the bare ground within a depression, with a considerable quantity of nesting material—dry stalks of grass and herbage—

collected round them, arranged apparently by the sitting bird gathering all within reach of her while on the nest. These nests were some hundreds of yards apart from each other, and in no way formed a colony. I do not think I ever saw more than two of these birds together.

BLACK-BREASTED PLOVER (*Zonifer tricolor*). — An irregular visitor, generally in small parties, but I have seen as many as two or three hundred together. The cry of this Plover is very similar to that of the preceding species, but I think *Z. tricolor* has a harsher and slightly higher pitched note, while that of *L. miles* is fuller and more musical, but it requires a bit of study to distinguish between the two.

LESSER GOLDEN PLOVER (*Charadrius dominicus*).—Just as the night was getting the better of the day, on the 22nd October this year, I shot one of these out of a pair as they fed on a swamp. The light was very bad at the time, and I could only see sufficiently to tell that the birds were unfamiliar to me. I regretted the act as soon as I picked the bird up and recognized it, for I felt sure it was one of two I had closely watched with field-glasses at a waterhole eight miles away on the 11th inst.—and these are the only specimens I have ever come across.

Details of the bird shot are as follow :—

No.	Sex.	Total length.	Wing	Tail.	Tarsus.	Bill.
		Inches.	Inches	Inches	Inches.	Inches.
176 ...	Female ...	10¼ ...	6 11/16 ...	2 13/16 ...	1 12/16 ...	1 2/16

Ovaries reduced to the minimum.

ORIENTAL DOTTREL (*Ochthodromus veredus*). — Is the most regular migrant of all the Limicoline birds that visit the Richmond district. Arriving in September or October, generally the former, they leave again in March or April, again generally the former. My earliest and latest dates are—8th September, 1904, and 5th April, 1905.

Measurements of one that came into my hands in February, 1905, are as follow :—

No.	Sex.	Total length.	Wing.	Tail.	Tarsus.	Bill.
		Inches.	Inches.	Inches.	Inches.	Inches.
103 ...	Female ...	9⅝ ...	6 15/16 ...	2 5/16 ...	1 13/16 ...	1⅛

Ovaries very minute indeed.

Mr. A. S. Le Souëf wrote me that the stomach contained small beetles only.

RED-CAPPED DOTTREL (*Egialitis ruficapilla*).—Only two records—January, 1900, saw two together, and March, 1904, saw one.

BLACK-FRONTED DOTTREL (*Egialitis melanops*). — This species is practically a permanent resident, though their numbers vary from time to time very largely, and apparently without much reference to the season of the year. Being a wader it naturally avoids dry times, when shallow waters are scarce. Generally seen singly, seldom more than a pair, though one day in August, 1904, I counted twenty-four of this neat little Dottrel on a half-mile stretch of bore water, and on another occasion (January, 1906) I saw eight on a hole you could throw a stone across. Of their nests, which are very hard to see, I have only found two, one in April this year, containing three eggs, and the other in September, 1904, with two eggs. This last nest was a slight depression formed by pushing aside a few pebbles on a quartz gravel bank, the cavity being very slightly floored with small fragments of dried vegetation and portions of the flower-head of the Button-grass (*Eleusine aegyptiaca*). On the 29th November, 1901, I watched a pair with two well-feathered youngsters.

DOTTREL (*Peltohyas australis*).—I have only come across this Dottrel

in four years out of the past seven, as follows :—December, 1901 ; January and September, 1902 ; November, 1904 ; and January, March, and September, 1905. They are always on the high, dry downs, usually in small parties up to ten, sometimes only a single individual ; on one occasion I flushed a mob of thirty-one birds.

WHITE-HEADED STILT (*Himantopus leucocephalus*).—Like many more Waders, the Stilts in their movements are governed largely by the season, and as ours is notoriously uncertain it is not surprising to find that it is as likely to be one month as another when these birds are here. They cannot be relied upon for any one month out of the twelve. They are seen in congregations of four or five up to forty or fifty.

They, I have no doubt, occasionally nest in the district, though I have never found their eggs ; that they do not do so more often is due to our having such poor sites for the purpose, and the presence of sheep everywhere. I saw a pair in February, 1902, that I felt sure by their antics had eggs or young. In February, 1903, and again in the same month in 1905, I watched with glasses birds in immature plumage amongst a mob of old ones. Their yapping cry is evidently common to the family, for Darwin, writing of *Hymantopus nigricollis* in the Argentine Republic, says :—"These birds in a flock utter a noise that singularly resembles the cry of a pack of small dogs in full chase."

RED-NECKED AVOCET (*Recurvirostra novæ-hollandiæ*).—I have only seen it twice—in December, 1902, and February, 1903, a single bird each time, feeding along the water's edge. On following it up on one of the occasions for further observation, without hesitation it took to deep water and swam to the other side, and on my going round it swam back again.

LITTLE WHIMBREL (*Mesoscolopax minutus*).—A migrant that observations show arrives here sometimes as early as 19th September, but as a rule not till October. In 1904 it did not put in an appearance till 10th November, while the springs of 1901 and 1902 were both blank as far as concerns the Little Whimbrels, for I saw nothing of them until the autumns of those two seasons, when the birds were making north again.

During the season 1900-1901 I did not see them at all. They leave the Richmond district to return to their nesting-grounds, somewhere in north-east Asia, in March or April, the 3rd of the latter month being the latest date upon which I have seen them here.

There is a difference between the spring and autumn migrations as the birds pass here. In the former they are represented by single individuals and small parties, but in the autumn they come along in flocks of hundreds, often thousands. I can only account for it by surmising that they reach our shores in big bodies, and then, having attained their object, their troubles being over, and many being weary, they split up, and, as time is no object, work overland southward at their ease.

But starting back north is a different thing ; they have all their work before them, and are bound to time at the other end, for there the serious business of the bird's life takes place—the hatching of eggs and rearing of the young. They are strong and fit for the long journey that lies before them, and each one is imbued with the one idea of reaching that far-off land. There is no indecision, there are no waverers, they leave all together.

I have in my diary two exceptionally late dates upon which I have seen Little Whimbrel—12th April, 1896, and 23rd April, 1905, but as they were solitary birds in each instance, I expect they had been unable, on account of sickness or wounds, to follow their mates in the general exodus that took place some weeks earlier. Under date 14th March, 1905, I have a note as follows :—"10.30 p.m., bright moonlight night, large numbers of these birds passing at no great height overhead, all going N.W." Their cry of "Whai'ut, whai'ut" is easily recognisable.

GREENSHANK (*Glottis nebularius*).—A few Greenshanks may be seen every year, nearly always singly, but occasionally three or four together. November, middle to end, appears to be their favourite time of arrival, but I have one early instance—19th September, 1905. 29th March, 1902, is the latest date upon which I have seen them here.

LITTLE STINT (*Limonites ruficollis*).—It is only a chance visitor to this part of the Flinders. I obtained a specimen on 5th March, 1900, which Mr. De Vis was good enough to identify for me, and on 6th November, 1903, I watched with field-glasses a party of seven feeding on a shallow swamp. These are the only times seen.

SHARP-TAILED STINT (*Heteropygia acuminata*).—Usually it is October before the Stints reach Wyangarie, and some seasons I do not catch sight or them till November; however, this year (1906), a pair of them have broken all their previous records by arriving here on 23rd September. They leave again in March as a rule, but I noted them here in 1900 on 6th April. Though generally feeding in threes and fours, I once saw a mob of thirty and on another occasion fifty together.

PAINTED SNIPE (*Rostratula australis*).—On 26th July, 1906, I flushed a single bird in the vicinity of a bulrush swamp, and, following it, flushed it a second time to make sure of its identification; never saw it out here before.

MARSH TERN (*Hydrochelidon hybrida*).—They show up whenever we get a good wet season, and as the heaviest rains fall during the summer months then it follows that the Marsh Tern is mostly a summer visitor; but we see it during the winter, too, at times, if we get rain. Usually in small parties of eight or ten, sometimes five-and-twenty together.

GULL-BILLED TERN (*Gelochelidon anglica*).—Like the last species, this Tern comes to us in the season of the big rain. Though less frequently seen (we get a visitation about every other year) than *H. hybrida*, it is always in bigger numbers, the mobs varying from twenty to a hundred and twenty. One that I shot for the purpose of identification had been feeding freely on grasshoppers. Fortunately we have a large number of grasshopper-feeders—Ibis, Bustards, Plovers, Quails, Herons, and most of the Falcones, to mention a few. Very few people stop to consider what would happen if the insect-eating birds were exterminated. It would mean that we, human beings, would survive them but a short time; we could not live long on fish alone.

SILVER GULL (*Larus novæ-hollandiæ*).—In the middle of a dry time (August, 1903), a Silver Gull appeared on a waterhole here.

WHITE IBIS (*Ibis molucca*); STRAW-NECKED IBIS (*Carphibis spinicollis*).—It will save repetition if I bracket these two Ibis, and write them up together. They are liable to be met with during any of the first eight months of the year, but after that they leave us entirely, making away, no doubt, to nesting-grounds more favourably situated. They did nest in the neighbourhood on one occasion, early in 1904—March, I think, I was told—the interesting event taking place at Hamilton Downs, a sheep station situated 64 miles S.W. of Richmond. The rookery, I understand, was formed on the border of a sheet of water, the nests being built on the crown of a mass of drift that had been collected by the summer floods and left stranded in shallow water. The White Ibis is only seen in small lots, but the Straw-necked species is generally pretty numerously represented. In February, 1905, we had an immense invasion of them, which was very fortunate, as it was a bad grasshopper year, and these birds must have destroyed millions of the insects. On one occasion I picked up a *C. spinicollis* that had been killed, I think, by a bird of prey; its stomach

contained thirty large chrysalises (1½ inches long) of some species of Hawk Moth (*Sphingidæ*).

GLOSSY IBIS (*Plegadis falcinellus*).—Comparatively seldom seen, and then in small flocks up to five-and-twenty or thirty, during December to February.

BLACK-BILLED SPOONBILL (*Platalea regia*).—A wet-season bird chiefly, and then not to be seen often, usually in small lots up to twenty. It is a decidedly handsome bird.

YELLOW-LEGGED SPOONBILL (*P. flavipes*).—An irregular visitor that may be expected to put in an appearance in small parties, up to thirty individuals, at any season of the year. They feed day and night. I have watched them on a moonlight night at very close quarters.

EGRET (*Herodias timoriensis*).—This handsome Egret puts in an appearance with the arrival of the wet season, and takes its leave again when the shallow waters dry off the face of the earth (our portion of it), say in April.

WHITE-FRONTED HERON (*Notophoyx novæ-hollandiæ*). — A constant resident here. The numbers of this Heron do not seem to vary; it matters not what the season is like, or how other birds may come or go, you can never go out for a day's ride in the vicinity of water without seeing some of them. I have found three or four nests with eggs in February and March, and youngsters in the down in April, also a nest with eggs on 3rd September, 1903. The body of one that I secured at an Eagle-Hawk's nest had the stomach crammed with grasshoppers.

WHITE-NECKED HERON (*Notophoyx pacifica*).—More likely to be seen during the period of the summer rains than any other time. This Heron is nothing like so numerous or constant as the last species.

My only record of a nest, a solitary one in a smooth, white-barked gum (*Eucalyptus rostrata*) on the Flinders River, is on 16th June; it contained three youngsters in the down. I never saw these Herons congregate in any way. Generally they are alone, two at most on a hole.

NIGHT-HERON (*Nycticorax caledonicus*).—From its habit of roosting all day in the thickest-foliaged tree it can find, the Night Heron is seldom seen, and therefore naturally gets the credit of being more rare than it really is, but it is nevertheless a scarce bird about Richmond. The few that I see do not appear to favour any particular season of the year, and the two or three that have come into my hands have all been birds in immature plumage.

I append details of two :—

No.	Date.	Sex.	Total length.	Wing.	Tail.	Tarsus.	Bill.
			Inches.	Inches.	Inches.	Inches.	Inches.
120	May, 1905	(?)	25	11¾	3⅞	3⅜	4¼
124	May, 1905	Female	23	11¼	3⅝	3⅜	3⅞

The stomachs of both contained portions of fresh-water crabs.

At the junction of the merrythought with the sternum, on each hip, and again at the junction of the thighs (inside) with the body, there was a queer powder-patch—a pale primrose-yellow, greasy, ropy-looking down, quite isolated, and devoid of any powder. I have an idea that powder-down birds develop the patch, but do not develop the powder till they reach maturity. Both these birds were in the spotted stage of plumage, without any sign of the occipital crest.

The ovaries in No. 124 were quite undeveloped.

The Emus of Tasmania and King Island.

BY COL. W. V. LEGGE, C.M.B.O.U., &c., Tasmania.

THE interesting discovery of the bones of an extinct Emu, as also those of marsupials, in King Island,* and likewise the subsequent exploration and further acquisition of osseous remains by Messrs. Morton and Johnston in June last, mark a noteworthy era in biological work in Tasmania, and open up the important question of the former geographical distribution of *Dromæus* in Australia.

Before proceeding to a consideration of this matter, it will be well to glance at the remarkable distribution of the allied form *Casuarius* in Papua. There we find that the range of some of the species of that genus is extremely small, their respective habitats being remarkably local. Such a condition is doubtless to be expected in the case of Struthious birds; but nevertheless the restriction of range in the case of the Cassowary is carried to excess in Dutch New Guinea. In the great Gulf of Geelvink, which forms such a vast re-entering curve on the littoral of north-west Papua, there are no less than 3 species of Cassowary distributed round its extensive coast line, while a fourth, *C. accipitalis*, inhabits the large island of Jobi, lying in the entrance of the Gulf. The distance across the widest part of this large bay is about 200 miles, and the deep curve which it makes in the conformation of the coast forms the curious double peninsula with which geographers are familiar. As we pass round to the west coast of the peninsula we come to the island of Salwatti, lying opposite a small indentation in the littoral of the mainland, and here is another species of the genus, which is also found in the country lying opposite the island, the strait separating it from the latter being small and studded with islets.

Continuing further south, still another Cassowary is located on the littoral, and extends to the Aru Islands, lying 90 miles off the coast, and which also hold another species peculiar to their area. Finally, to conclude with the western Papuasian region, which properly takes in part of the Moluccan group, a seventh species of *Casuarius* inhabits the large island of Ceram, situated about 100 miles from the peninsula of Onin, referred to above.

Thus there are four species of this remarkable bird contained within the 420 miles of longitude between the east side of the Gulf of Geelvink and the island of Salwatti; two comprised in the distance of 80 miles between the south coast and the Aru Islands; and finally the Ceram bird, 100 miles from the Salwatti one.

* *The Emu*, vol. iii., p. 113.

The distribution of the remaining species of Cassowary, including the Australian bird, located at no great distance from its nearest congener in British New Guinea, and the more distant form inhabiting New Britain, need not be dealt with after what has been said regarding the restricted habitat of the Western Papuan *Casuariidæ.*

It is reasonable to assume that in any portion of temperate Australia which can be looked upon as being, or having been in former times, the "focus" of the distribution of members of the allied family *Dromæidæ*, their respective habitats would be as restricted as those of their tropical relatives the Cassowaries.

The Emus have been distributed in recent times from North-West Australia to Tasmania, and the farther south they ranged the more numerous presumably were their species, until we find evidences of four being located in the south of the continent and its islands.

The *Dromæus* of Kangaroo Island, now unfortunately extinct, was only known to inhabit that locality, and the Tasmanian species has been considered to be distinct from the continental *D. novæ-hollandiæ* on account of the size of the egg.

As regards the former, it may be interesting to members of the A.O.U. to hear that during the "forties" the Tasmanian Emu used to inhabit, and bred regularly in, a locality known as Kearney's Bogs. This upland moor was part of the Rockfort estate, owned then by the writer's father-in-law, Major W. Gray, 94th Regiment. It is situated about twelve miles to the south of Avoca, in a portion of the Eastcoast Ranges, which flank the valley of the St. Paul's River. One of the shepherds of the estate, H. Wyburn, was resident at the bogs, and used not infrequently to bring eggs to the house, and about the year 1845 succeeded in capturing two young birds, which were conveyed to Rockfort and reared in the goose-yard. They lived about the homestead for several years, and were tame and mischievous, coming to the open "French" windows of the dining-room to be fed, thrusting their heads into the room at times. Mrs. Legge, who was then a young girl, has vivid recollections of these Emus, and avers that they were large birds very similar to the Emu of the continent. Some years afterwards a pair of Tasmanian Emus, which I am of opinion were also brought from Kearney's Bogs, were kept at the Tullochgorum estate, not far from Avoca, and the appearance of these birds, as they ran along the fence of their enclosure, near the road, is firmly impressed on my recollection as a boy. They were slightly smaller* than the average example of *D. novæ-hollandiæ*, but must, from the accounts given of *D. ater* of Kangaroo Island, have been larger than that bird

* This is shown by the dimensions of the egg in Mr. J. W. Mellor's possession, which, however, is broader (3.5 inches) than some of the Australian Emu's eggs.

and much in excess of the species whose osseous remains have been lately found in King Island.

This locality is separated from Kangaroo Island by 400 miles of ocean, and with the evidence adduced as to the distribution of the Cassowary, the allied struthious form, it is out of the range of all probability that the species inhabiting these two distantly separated islands could have been identical.* In fact, were the two forms alike in size, as might be shown, perhaps, by a comparison of the bones, it does not follow that they should be specifically the same unless it were possible to show that they were the same in external character—plumage, soft parts, &c.

I had the pleasure of examining the interesting series of leg bones now in the Museum, in company with Mr. Morton, in August, and comparing them with several examples of those of the Australian Emu. The series of the latter is small, and the Museum possesses no skeleton of this species, but the great difference in size of the smaller species from King Island is so apparent that one requires but a single example of the larger *D. novæ-hollandiæ* for comparison.

In the table given beneath of the leg bones of the King Island Emu it will be seen how much they vary in dimensions, the smaller-sized being probably those of immature examples of the species. This suggests the thought that by some great catastrophe, such as a tidal wave, a whole colony of these Emus was destroyed while taking shelter on or frequenting a sandy hill or dune, which may in after years have been elevated above its former level.

The following are the measurements referred to relating to the legs, the respective joints of which bear no relation to one another as regards individual examples :—

Dromæus, sp. ?

	Tibia.	Metatarsus.	Femur.
	in.	in.	in.
1 ...	11 3/4	... 10 1/4	... 6 5/8
2 ...	10 3/4	... 9	... 6 3/8
3 ...	9 1/2	... 8 1/2	... 6 3/8
4 ...	8 3/4	... 8 1/4	... 6 1/4
5 ...	9	... 7 1/4	... 6
6 ...	8 3/8	... 4 1/4	... 5 3/4
7 ...	10 1/2	... 9 3/4	... 7
8 ...	10 1/2	... 8 1/8	... 7
9 ...	11	... 6 1/8	... 6
10 ...	12 1/4	... 8 1/2	... 6 3/4
11 ...	11 1/4	... 9 3/4	... 6
12 ...	11 3/8	... 9 1/2	... 6 1/2
13 ...	10 3/4	... 8 1/2	... 6 3/8
14 ...	9 1/4	... 9 1/4	... 5 7/8

*At the time of recently writing on the subject and suggesting the name given below for the King Island Emu, I was not so impressed by the facts adduced regarding the restricted habitat of the Cassowaries in Papua, and thought *D. ater* might have inhabited King Island.

D. novæ-hollandiæ.

	Tibia.	Metatarsus.	Femur.
	in.	in.	
1 ...	15	... 14½	... (None
2 ...	15¾	... 14⅜	available)
3 ...	15	... 14¼	
4 ...	16½	... 15	
5 ...	15⅝	... 14⅜	

In a notice of the subject written for the Royal Society, and read by the secretary at the meeting of 15th August, the writer proposed the name of *Dromæus bassi* for the King Island species, but, as this communication will not appear in print till the publication of the *Journal*, he submits the title now for this note in *The Emu*.

It is most desirable that some search should be instituted for the bones of our Tasmanian species. It affected principally remote hill marshes and upland plains and also open country on littoral of the north and east coasts. In the writer's opinion the best locality to prospect for the remains would be Kearney's Bogs, already mentioned. It can either be approached *viâ* Avoca, to which place one travels by the Fingal railway, or (equally well) by the Lake Leake road from Campbelltown to the great reservoir, some 12 or 15 miles from the township. The courteous proprietor of the Benham estate, Avoca, of which the Bogs are the summer sheep run, would no doubt be pleased to allow members of the Union to search them for traces of the extinct Emu, which, like so many interesting flightless forms of the great class *Aves*, has passed out of existence.

As the writer, during this opening meeting of our annual Congress, has learnt that Professor Baldwin Spencer, C.M.G., has just described the King Island Emu* from bones lent him by our Museum trustees, it is only right to state that this is the first indication conveyed to him of the Professor having worked out the subject. The name, therefore, *suggested* in the *earlier* communication, addressed to the Royal Society, becomes a synonym of the title bestowed on the bird by Professor Spencer.

Description of a New Bird-of-Paradise.

BY D. LE SOUËF, C.M.Z.S., MELBOURNE.

Paradisornis rudolphi hunti, sub-species nova.

THE head, neck, and upper portion of back velvety black, with a greenish-coppery sheen on throat, sides of head and forehead; on back of head cherry-brown sheen; a white line above and below the eye of short white feathers, and a small bare patch

* See *Vict. Naturalist*, vol. xxiii., p. 139.

behind the eye. The back is blue and green mixed with black, and nearly black in appearance. The breast is blackish, in some light bluish or greenish, with a few blue feathers, terminating at the belly with a narrow blue band; on each side of the breast is a small patch of chestnut feathers, slightly mottled. The wings are greenish-blue above, but the lower primaries are black, edged with blue on their lower portion; the middle and lesser coverts and tertiaries on the inner webs are edged with light blue. The sides under the wing are chestnut, more or less mottled. The belly is satiny-black, with a broad band of reddish-chestnut at the vent.

The smaller set of ornamental plumes is a rich purplish-blue at their base, the outer portions being greenish-blue; the longer plumes measure up to 7½ inches in length; on one side they are greenish-blue, on the other chestnut-brown; in *P. rudolphi* they measure 10 inches in length.

The tail is dark blue above, some of the feathers having their inner web black; underneath the colour is light blue. The two elongated tail feathers measure 17.06 inches; the shaft is light-coloured at the base, the rest black, except for about 4 inches on the under side at the end, where it is light blue; the feathers are dark blackish-purple above, underneath black with a slight violet hue, except the last 4 inches, which is light blue; the tip is spatula-shaped, but has no spot on the tip, as in *rudolphi*. The wings measure 6.25 inches, tail 3.5 inches, culmen 1.23 inches, and tarsus 1.5 inches; total length, 11.75 inches.

The principal differences between this bird and *P. rudolphi* are the colour and size of the two elongated tail feathers, the length and colour of the ornamental plumes, and the chestnut markings on the breast and sides. The description is of the male only, as I have not had any opportunity of seeing a female. I have named this bird after Mr. Atlee Hunt, the well-known Secretary of External Affairs in the Australian Commonwealth Government, he having procured the bird when in British New Guinea.

Observations on the Rearing of a Cuckoo.

By A. G. Campbell, Melbourne.

This season I have had opportunity of watching the rearing of a young Fan-tailed Cuckoo (*Cacomantis flabelliformis*) in a nest of the Scrub-Wren (*Sericornis osculans*). For some years a pair of *Sericornes* has lived in the garden of the School of Horticulture, Burnley, not four miles from the General Post-Office, the centre of Melbourne. The birds have met with somewhat indifferent success in endeavouring to rear young, for either

their eggs or their nestlings have fallen a prey to the ubiquitous boy or a marauding cat. However, last year, in September, they were noticed feeding a young Cuckoo, apparently the offspring of a pair of Fan-tailed Cuckoos which about a month earlier attracted marked attention by their trilling notes in welcome of the oncoming spring. This year I determined to keep a look-out for a similar procedure, and I was not disappointed. The nest of the foster-bird was built about 3 feet from the ground in a tussock of pampas grass, and when first discovered contained eggs far advanced in incubation. Two eggs belonged to the *Sericornis*, and the third was an egg of the Fan-tailed Cuckoo. The latter was purple-spotted, with a zone round the larger end, and except for its slightly larger size very closely resembled the other eggs in the nest.

Being in such a convenient spot, the nest was kept under observation. The Cuckoo's egg hatched on the 24th, and those of the foster-parents on the 25th September. All the egg-shells were either carried away or eaten by the Scrub-Wrens, as no part of them could be found inside the nest or on the ground in front.

The young Cuckoo on the first day was flesh-coloured and quite naked, but it became much darker the day following. When the Scrub-Wrens hatched, although they were partly covered with long tufts of down,* I was surprised to notice how like in appearance was the Cuckoo hatched before them.

On the 26th, or when the Cuckoo could not have been more than 48 hours old, the ejection of its companion nestlings took place. I regret I did not see the actual operations. When I arrived at noon one young Scrub-Wren was not to be found and the other was lying on the platform just outside the entrance of the nest; its strugglings would soon have caused it to fall to the ground. From its distended abdomen it was evident it had been well fed by its parents while in the nest. Its weight was 35 grains. The other young Scrub-Wren may have been lying in such a position as this and been carried away by the parent bird, for it could not be discovered anywhere on the ground beneath the nest. The young Cuckoo had grown considerably, and weighed about 130 grains—nearly four times as much as its last victim. Its bare skin had now become a deep purplish-indigo colour, and the extraordinary development of its fore limbs and its "pope's nose" was very noticeable. Though it moved about actively when the nest was touched, and opened its mouth, showing its wide yellowish gape, yet it showed no objection to the company

* The down on the young *Sericornes* was half an inch in length, dark grey in colour, and distributed in the following manner:—Tufts on each brow, on the back of the head, on the shoulder, and on the top of each forearm; a line down the back, and a smaller line on each side of the abdomen, extending in curve round to the back of the thigh.

of the young *Sericornis*, which I had put back with it. However, at 4 o'clock, when I next had an opportunity of visiting the nest, the young Scrub-Wren was again lying ejected on the platform outside, and the hen parent *Sericornis* was sitting on her queer charge.

This time, when the young Scrub-Wren was returned to the nest, the Cuckoo immediately became restless, wriggling round so that its rear end instead of its head faced the entrance. In all its movements it used its arms freely, and occasionally raised itself on its feet. The young Scrub-Wren, as replaced in the nest, rested partly on the body of the Cuckoo, which filled the whole of the bottom of the nest. The Cuckoo, having turned round, now raised itself on its feet, carrying the other nestling with it. Feeling its way backwards toward the entrance with its distended arms, with which it could easily span the interior, it reared up, and the Scrub-Wren dropped out on to the very edge of the mouth of the nest. Had the Cuckoo stopped here its victim could have struggled back. But it did not. Rearing itself still further, at the same time straining its head in the other direction to preserve its balance, the Cuckoo then placed its arms outside the entrance of the nest, and with a final heave, in which its "pope's nose" played the most important part, the unfortunate nest-mate was sent to its doom. At this stage of the operations the Cuckoo's body came outside the entrance and were it not for its having retained a tight hold with the feet, straining the head as far as possible inward, it might have been itself in danger of over-balancing. This exhibition of inherent instinct did not take more than one minute, and after the ejectment the Cuckoo hung panting in the entrance for a space of 32 seconds before floundering back into the nest. The young Scrub-Wren was returned thrice and each time it was as summarily ejected. And again in the evening, about 5.30 p.m., when in company with my father, Mr. A. J. Campbell, I visited the nest, the Cuckoo, which the foster-mother was again keeping warm, undertook the eviction three times more, with the same precision. It was noticed that the struggling victim to a small degree can help itself, for on the last occasion it wriggled down twice into the main part of the nest before its enemy got it finally fair and square upon its broad back.

When removed from the nest and placed on a piece of board the Cuckoo showed great activity. With head outstretched it walked, not unsteadily, on its legs, using its strong fore-arms for support in front, much as an old man might use two sticks. If the board were sloped in any direction the young bird immediately turned and went uphill—a habit which is common to many insects as well. When placed on the platform in front of the nest it immediately scrambled up into the entrance.

On the next evening, or 24 hours after the series of ejectments above referred to, the Cuckoo absolutely refused any further exhibition, but as the nestling Scrub-Wren was now dead this may have been the reason. A very significant thing also occurred about this time—a Fan-tailed Cuckoo, which had not been heard about the grounds for about a month, began trilling not 50 yards from the nest. It is not unreasonable to suppose that this was the parent bird returning to see how its offspring was faring. Unfortunately the approach of a heavy rain-storm prevented my following this matter further. Soaking rain fell all through the night, and when in four days' time I visited the scene, having been in the interval out of town, I found the nest empty. The black gnome which had so recently destroyed its fellow-nestling was itself overtaken by fate. Whether it had wriggled out of a damp nest to perish on still damper ground, or whether vengeance in the shape of a wandering house cat overtook it, I know not. There was not a trace of the Cuckoo.

Deductions.—From the foregoing observations it seems reasonable to suppose :—

(*a.*) That a pair of Cuckoos often return to the scene of last year's operations and place their egg or eggs, where the opportunity still remains, in the nest or nests of birds so used before. This is upheld somewhat by my note book, which records that a certain pair of Rose-breasted Robins (*Petræca rosea*), or at least a pair found in a certain part of a gully in the Dandenong Ranges, reared a Square-tailed Cuckoo (*C. variolosus*) two years running.

(*b.*) That the parent Cuckoos exercise a supervision of the nest where their egg is placed. This is corroborated by Mr. G. E. Shepherd, Somerville, who states that he knows a certain pair of Scarlet-breasted Robins (*P. leggii*) that regularly act as the foster-parents of *Cacomantis variolosus*. He has more than once taken the nest of the Robin, containing, beside the proper eggs, an egg of the Square-tailed Cuckoo, and within a few weeks another nest and eggs of the same Robins, containing another Cuckoo's egg, which by its similar shape and markings betrayed its parentage to be the same as that of the first egg.

(*c.*) That a Cuckoo seeks as a foster-parent for its egg a bird whose food is of the required insectivorous nature, and whose eggs are very like its own in size and appearance. To the last statement there is an exception in the Bronze-Cuckoo (*Chalcococcyx plagosus*) whose bronze-coloured egg is unlike any other Australian bird's egg. But the likeness of all other Cuckoos' eggs to those of the foster-parents is well known. The likeness is truly remarkable in some instances—*e.g.*, the above observations; and the likeness, further, is known to vary in the case of the Narrow-billed Bronze-Cuckoo (*C. basalis*) to suit the

special characters of the other eggs. In my collection one egg, taken with a clutch of *Pseudogerygone culicivora* is so finely red-speckled that but for its more rounded smaller end it would be difficult to distinguish from the Fly-eater's; while another egg, taken with the larger-spotted eggs of *Ephthianura albifrons*, is boldly yet sparsely marked with dark spots to suit the case. There are some interesting data to offer in further support of this, indicating the tendencies that have operated to produce these remarkable likenesses. Nothing is on record of a bird leaving its eggs because a Cuckoo's egg was deposited among them, but I have on two occasions discovered the remains of the parasite's egg on the ground beneath brooding birds. I saw the broken shell of the egg of the Pallid Cuckoo (*Cuculus pallidus*) under a nest of the White-shouldered Caterpillar-eater (*Lalage tricolor*) containing the eggs of the lawful owner, and in another instance found the broken egg of the Narrow-billed Bronze-Cuckoo (*C. basalis*) beneath the nest of the Red-capped Robin (*P. goodenovii*). In both these cases the egg that the Cuckoo sought to foist into the care of the other birds with normal habits was so unlike the proper eggs of the nest that it was promptly thrown out. Such difference, of course, will be less noticeable if the nest is a covered one. Occasions are recorded, however, where the eggs of the Cuckoos mentioned were taken in the respective nests referred to, so it is evident that they are not always thrown out. But it is obvious that in a general way those eggs most like the foster-parent's are more likely to be accepted, and the Cuckoos reared therefrom will be still more likely to lay eggs similar to the foster-bird's. Thus in time the suspicious and protective instinct of species of birds has become the selective means by which that species is cruelly saddled with the rearing of a parasite which is so highly developed that it lays an egg surprisingly like its host's. This process of selection has also been the means of altering the size of some Cuckoos' eggs. It is well known that though *Cacomantis flabelliformis* and *C. variolosus* are almost identical in size and plumage the former has much the larger egg. It is large and profusely marked to imitate the general characters of the eggs of the genus *Sericornis*, which acts mainly the part of foster-parent; but the egg of *C. variolosus* is sparsely marked with large spots, approximating to those of certain *Petroæca* which are its nest-mates. It is to Darwin's "natural selection" and "survival of the fittest" that we can look for explanation of many changes and habits of bird life. Mr. C. L. Barrett, in his article on "The Origin and Development of Parasitical Habits in the Family *Cuculidæ*,"* sketched the very simple manner in which parasitism might arise, and a search after the same process of events in other

* *The Emu*, vi., part 2.

phases of the Cuckoo's economy, as well as in that of all birds, cannot but add greatly to the charm of nature study to-day.

(*e.*) That the Cuckoo's egg hatches first, and the young is at first of a somewhat similar appearence to the proper expected nestlings. The advantage of this is obvious. Whether the strange egg is laid first, or really takes less time (as by 24 hours in the above case) to hatch, is not quite proven. I am inclined to the latter opinion, for two reasons. Firstly, among Passerine birds, without exception, the parent does not sit until the full clutch is laid. Secondly, because there are numerous instances of deserted birds' nests being found with a single Cuckoo's egg therein, indicating that the unwonted appearance of the deadhead before the nest-owners had laid any eggs themselves was a sure sign of trickery. The White-eared Honey-eater (*Ptilotis leucotis*), of an ingenious turn of mind, has been known to build a second bottom to its nest to cover up the unwelcome egg of a Pallid Cuckoo. Here again the selective workings of nature for the protection and reproduction of the Cuckoo are evident. The eggs deposited too early by over-anxious Cuckoos are deserted, and only those placed so as to avoid suspicion hatch to continue the race. I believe that a Cuckoo's egg is usually placed in a nest when one of the foster-bird's eggs has been laid. The foster-bird, somewhat puzzled no doubt, about the unexpected arrival, then lays one other egg to complete the number—three—which is its usual clutch. For in most instances where a Cuckoo's egg is taken from a nest the clutch of the rightful owner is not complete in itself. The taking of a full clutch with a Cuckoo's egg is, I fancy, an exception.

A difficulty now suggests itself. Admitting the persistent and relentless "law of natural selection" for the increase of the Cuckoo, what will become of some species of birds which largely play the part of foster-parents? Surely extinction awaits them, and the Cuckoo will then coolly devote all its attention to its other nurses (for no known Cuckoo confines itself exclusively to one species as foster-parent), deliberately effacing them in turn. Its hands in this dire work are strengthened, so to speak, by the fact that the Cuckoo's numbers are increasing annually in proportion to those of foster-parents, for every Cuckoo reared means two, perhaps three, less host birds. My note book helps me in line with these statements. In a restricted mountain gully, in 1895, I discovered nine nests of *Petræca rosea* in one day, most of them containing young Robins. Visiting the locality several times in 1901, I was able to take three eggs of the Cuckoo (*C. variolosus*), all from Robins' nests, and I also discovered two young Cuckoos being fed by their tiny foster-parents. During last season, though I admit I had not the opportunity of hunting as carefully as hitherto, I did not find a

single Robin's nest, nor see a single bird, while Square-tailed Cuckoos whistled on all sides. I do not blame egg-collectors for this, but I accuse the Cuckoos of exterminating a lovely species of Robin in a lovely spot (part of a National Park, in fact), where they ought to be safe from extinction by artificial agents. Egg-taking does not decimate numbers; it has rather the reverse effect, as instanced in the barnyard fowl; it is an incentive to greater fecundity. But the methods of the Cuckoo are more than a match for any other species of bird it insinuates itself upon.

For similar reasons, and also because of its restricted habitat, I think the Scrub-Tit (*Acanthornis magna*) is doomed. This unique bird, at all events in the secluded gullies upon the flanks of Mt. Wellington, Tasmania, is very frequently the foster-parent of *C. flabelliformis*.

The Cuckoo at this rate will become in time the commonest bird in the world, and what will happen then? However, egg-collectors need not yet be afraid, nor museums anxious to gather into their archives specimens of bird life fast becoming extinct. The Cuckoo may never become more a menace to quiet home-loving birds than it it is now. It is not reasonable to suppose that parasites in nature, of whatever kind they be, will entirely exterminate their hosts, or whence would their livelihood come from?

The Cuckoos are foolish birds, fond of perching in exposed positions and whistling as if they had not a care in the world. For this reason they fall easy prey to the smaller *Raptores* (Hawks, Falcons, Kestrels). From observation I believe that the *Cuculidæ* lose greater numbers annually from birds of prey than any other family.

When a surplus of Cuckoos does occur we can expect to find them dying off for some reason or other or vying with one another to find and "break in" new foster-parents, or perchance developing again the respectable nest-building habits they possessed in olden times.

Some Notes on the Cuckoo.

BY A. MATTINGLEY.

DURING a visit to Ringwood on 7th October of this year I found *two* eggs of the Fan-tailed Cuckoo (*Cacomantis flabelliformis*) in the nest of a Brown Tit (*Acanthiza pusilla*). The nest was situated about 9 feet from the ground, in the top of a wild cherry tree (*Exocarpos*), an unusual place for this *Acanthiza* to build in. The finding of two Cuckoos' eggs in the same nest is an unusual occurrence, although not an isolated case (see "Nests and Eggs,"

A. J. Campbell), and has some connection with the mysterious habit that young Cuckoos have of ejecting eggs and young birds from the nest. Both eggs in this instance were fresh, and had evidently been laid by the same Cuckoo, since they were almost identical in size, shape, and colour. There were no other eggs in the nest. One is naturally led to inquire whether the same Cuckoo laid both eggs? If it did, then the Cuckoo must be unaware of the ejective habit of its own species, since it would have known that one egg or its equivalent, a young bird, must ultimately be destroyed by being ejected by the first young Cuckoo hatched out. Then, again, were it two different Cuckoos that placed the eggs in the nest, the bird that deposited the last one should (according to some observers) have "instinctively" known that it was simply "love's labour lost" for it to deposit its egg there; otherwise the Cuckoo must be ignorant of the type of egg its own species lays. In the same district, on the day previous to my finding the two Cuckoos' eggs in one nest, Mr. J. Ross and myself observed what was probably a Fan-tailed Cuckoo (*Cacomantis flabelliformis*) at the entrance to the nest of a Blue Wren (*Malurus cyaneus*). We were making our way along a creek bed, when suddenly we heard a great commotion amongst some Blue Wrens, Crescent Honey-eaters, and other birds. The noise made by the different birds which had combined with the Blue Wrens in vociferously expostulating with some other bird or animal in their vicinity was so pronounced that we hastened to ascertain the cause of so much excitement. On arriving at the spot we observed the complaining Blue Wrens fluttering excitedly around their nest, which was attached to the branch of a fallen limb, about 4 inches from the ground. It was dusk, and the light uncertain, otherwise we might have observed an interesting development of the Cuckoo's habits which would probably have helped slightly to lift the veil that shrouds this bird's breeding habits. Our attention was directed to the nest by the Blue Wrens, which flitted angrily about it. The cause of the excitement of the Wrens was not apparent, so my companion proceeded to investigate the nest, when—whirr-r-r-r—up flew a Cuckoo from the ground at the entrance to the nest and made off through the scrub. We were indeed sadly disappointed owing to the failing light preventing us observing the Cuckoo before we had disturbed it. Search around and in the nest did not reveal any Cuckoo's egg. What was the Cuckoo doing at the nest? Was it spying out the best nest in which to deposit its egg? Or was the Cuckoo in the very act of laying its egg? On the same day I found the egg of the Pallid Cuckoo (*Cuculus pallidus*) in the tiny nest of the Spine-bill (*Acanthorhynchus tenuirostris*)—a nest about five or six times too small for the young Cuckoo, which

would, ere it had reached its adult size, more than likely have been thrown out of the tiny nest as it swayed about on the top of a tall tea-tree (*Leptospermum scoparium*). Why do Cuckoos place or lay their eggs in nests that are too small for their full-grown young? Since writing the foregoing, on 21st October, 1906, I visited the nest of the Blue Wren again, but there was only a clutch of Wren's eggs in the nest. During the same day we found the nest of a *Sericornis* or Scrub-Wren in which was imprisoned (if one may use such a term) a large young Fan-tailed Cuckoo. The *Sericornis'* nest was situated but a few inches above the water in the overhanging bank of a creek. Such a position must necessarily have been somewhat difficult of access to the parent Cuckoo. The opening of the nest was far too small for the Cuckoo to enter and lay its egg. The bird must therefore have used its beak to get the egg into the nest, an act which in this case must have been awkward for the Cuckoo, since the bird would have found it necessary, when placing her egg in the nest, to fly directly on to the nest, meanwhile supporting herself by an unsteady clutching of the nest with her feet. But does the female Cuckoo deposit the egg, or is it the male that deposits the egg with its beak? The Sericornis' nest in question was completely hidden from view, and the Cuckoo must have found out its whereabouts by observing the Scrub-Wrens coming and going as they proceeded with the architecture of their nest, just as we observed them before realising that a nest was there. The more notes that we can collate on these points, the sooner will we have some tangible evidence, some material basis, some established facts about the Cuckoo, and then we can relegate hypothesis to its proper sphere of usefulness.

Stray Feathers.

STRANGE NESTING PLACE.—I took a nest of the Black Duck, containing nine fresh eggs, last week out of an old nest of the Eaglehawk.—SEP. ROBINSON. Bathurst, 26/9/06.

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A WHITE EMU.—Mr. A. C. Le Souëf, of the Sydney Zoological Gardens, draws attention to a letter he has discovered, dated Warialda, N.S.W., 3rd December, 1887, in which a white Emu is offered for sale to the society. It was about 2½ months old and stood 3 feet high. No record is given of its purchase.

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BEE-EATERS IN SOUTHERN VICTORIA.—I have to report that three pairs of *Merops ornatus* appeared in this district during the first week in November. They have taken up their abode on a road cutting through a sandy rise, and their tunnel-

lings indicate that they intend to nest. They appear to be hard to please. A pair starts a burrow, and, not being satisfied with the spot, deserts it to try elsewhere. This is the first time during a residence of over forty years that I have seen Bee-eaters on the Mornington Peninsula.—G. E. SHEPHERD. Somerville, 24th November, 1906.

* * *

FOSTER-PARENTS OF CUCKOOS.—The Scrub-Wren (*Sericornis osculans*) has not previously been recorded as a foster-parent of the Fan-tailed Cuckoo (*Cacomantis flabelliformis*), but I have taken it in this district. Two new foster-parents of the Pallid Cuckoo (*Cuculus pallidus*), which I have also collected, are Orange-winged Tree-runner (*Sittella chrysoptera*) and the introduced Goldfinch (*Carduelis elegans*). I have this season seen a pair of Shrike-Tits (*Falcunculus frontatus*) feeding a young Pallid Cuckoo.—G. E. SHEPHERD. Somerville, November, 1906.

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DROUIN NOTES.—I may add a few to the number of birds in this district mentioned in last *Emu*. Amongst them are the White-shafted Fantail and the Blue Wren, which keep very close in the bracken and other thick scrub, but are so curious to see what my dogs are doing that they come flitting back and peering from the shelter of the bushes, and then running away like mice. Also the dogs have put up Coachwhip-Birds in the scrub in winter; these make a hoarse mewing like a cat when disturbed. Then there are Shrike-Thrushes, Magpie-Larks, Butcher-Birds, Rosellas, and, of course, the ubiquitous Jackass. Next winter I will take more particular notice. Now also the spring birds are here. But this is not a "birdy" place.—L. H. HUTCHINSON. August, 1906.

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DUCKS AND GEESE.—A Black Duck (*Anas superciliosa*) had a nest at the butt of a willow branch, where the end had been cut off and shoots had sprouted up all round. It was overhanging the creek. During the time she was sitting a flood came down, and the nest got covered by the water for the space of two hours, during which time the Duck was swimming over the site in evident distress. As the water went down and showed the eggs again, she again sat on them, and eventually hatched out nine young. It shows the vitality of the eggs that being under cold water for two hours did not destroy the life of the chick. I also used to notice some years ago Cape Barren Geese (*Cereopsis novæ-hollandiæ*) flying in considerable numbers over Mortlake from east to west during the month of October; they were apparently migrating with their young from the islands in Bass Strait to the various salt lakes in the Western District. I

remember on one occasion a pair of them that had been domesticated nesting in my garden, but the birds deserted the nest one bitterly cold, wet evening, and the eggs were left exposed all night. In the morning they were placed under a hen, and, strange to say, all hatched out.—R. V. DENNIS. Warncoort, November, 1906.

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MIGRATION OF SWALLOWS.—Many years ago a pair of Swallows (*Hirundo neoxena*) built their mud nest on a rafter under the gable of the roof of Ellis's auction room at North Melbourne. There is an unobstructed view of this part of the roof, and the Swallows and their nest can be continuously observed. Mr. Ellis informs me that for the last 12 years this pair of birds has never once left the premises to migrate. They have reared their young there, and when the nestlings are old enough the parent birds have been observed to push them over the side of the nest and so teach them to fly. They have three different nests in the roof, and when the old birds consider that the young birds are old enough to look after themselves they desert the nest in which they reared the nestlings and occupy one of the other nests. This is evidently an intimation to their young to feed themselves, and also to depart from the building, and should the young birds be disposed to stay the old birds slightly coerce them until they leave. These Swallows live principally on flies which hover around an adjoining butcher's shop, and during the winter months, when flies are scarce, the Swallows nearly starve. It would be interesting to know if this pair of Swallows are begetting a non-migratory stock.—A. MATTINGLEY. Melbourne, November, 1906.

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PILOT-BIRDS.—On 17th November, in the Dandenong Ranges, Mr. J. A. Ross took a pair of the acorn-like eggs of *Pycnoptilus floccosus* for his collection. Three weeks later, in the same locality, I discovered a nest being built upon the ground among thick scrub. I was astonished to see the greater part of the bulky outer structure built when I repassed the site less than 5 hours later. The female alone performed this task, bringing in long shreds of bark and grass and old leaves with surprising rapidity; the male accompanying her on her excursions, whistling cheerily, and feeding her occasionally.

When the two eggs were laid the female only sat upon them, but she came off occasionally to feed. The male bird would hop about in advance, and when he found any dainty tit-bit would come running back to put it in his mate's mouth. While searching for food the male whistled every few moments his loud, full-throated call (so strong for the size of the bird), and every call was answered quickly by the female. When she

PLATE X.

Home of Rufous Bristle-Bird *(Sphenura broadbenti)*.
Point Addis, Victoria.

FROM A PHOTO. BY A. G. CAMPBELL.

Nest of Pilot-Bird *(Pycnoptilus floccosus)*,
Which contained egg of Fan-tailed Cuckoo *(Cacomantis flabelliformis)*.

FROM A PHOTO. BY A. MATTINGLEY.

returned she usually carried a feather with her into the nest, which was found to be very wet and sodden underneath its thick lining. The young hatch in about a fortnight, and as soon as fledged are like their parents in plumage.—A. G. CAMPBELL. Melbourne.

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PILOT-BIRD AND CUCKOO.—At the request of a friend I visited the Dandenong Ranges on 15th December to take the nest of a Pilot-Bird found building some time previously, and also to photograph the nest *in situ*. I found, beside one egg of the Pilot-Bird, an egg of the Fan-tailed Cuckoo (*Cacomantis flabelliformis*). This is the first record of this nature, but I believe the nest had been deserted as a result of the incongruous Cuckoo's egg. I observed another nest of the Pilot-Bird being built. A small opening was made in some grass about 9 inches above the ground, and the female bird was noticed carrying dead eucalypt leaves to construct the platform in front. With feverish haste the bird hopped hither and thither collecting bark and leaves for her nest. In three hours' time I visited the nest again, when all the external covering of bark had been domed over, and at this rate of progress the nest would be ready for eggs in 1½ days.—A. H. E. MATTINGLEY. Melbourne, 18th December, '06.

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MALLEE (VICTORIA) NOTES, SEASON 1906.—The following migratory birds arrived here (Pine Plains) on or about the date given :—

The Rufous Song-Lark, 17th September.

The White-rumped Wood-Swallow, 18th September.

The Oriole, 1st October.

And, after an absence of four years, that most handsome bird, the Red-backed Kingfisher, made its appearance at Pine Plains. On 20th October its loud, plaintive notes were to be heard ringing through the trees.

18th October saw three young Chestnut-backed Thrushes (Ground-Birds) in the one nest. I have now found one, two, and three young ones in a nest.*

The White-eared Finch (?) made its appearance here for the first time—so far as I am aware—about five weeks ago. Has this bird been recorded as a Victorian bird ?† It is a beautiful bird : the bright yellow on the wings is most noticeable just as the bird is about to rise from the ground, where it is mostly seen, feeding upon the grass-seeds, &c. The numerous colours of its plumage make the bird a most handsome creature.

* Three is a record for this species—usually only two.—EDS.

† Probably the imported Goldfinch.—EDS.

The Wedge-tailed Eagle I have seen on a few occasions this breeding season carry away young Ravens from out of their nest and take them to their own eaglets. On the 16th September I saw a large Eagle swoop down and pick up a Southern Stone-Plover from the ground, and this was also carried to the eaglets in the nest.

A few days ago, hearing the loud cries of a woman, I rushed out of the hut, rifle in hand, and was just in time to see an Eagle with a full-sized domestic fowl in its talons flying low down towards the surface of the ground, about 80 yards distant. In less time than I am writing this I put a bullet into the Eagle and saved the fowl's life, minus a lot of her feathers.

The Raven is a most destructive bird in the way of killing and eating the little young birds out of their nests. They also rob the small birds' nests of their eggs.

Twelve Silver Gulls stayed on one of the tanks here for over two weeks.

The following record of a pine tree may be of some interest. The ravages of some insects have caused the green foliage of the pine to turn into a brownish hue, for it is now partly dead. About 10 feet from the ground there is a fair-sized hole in the trunk, where a Pink Cockatoo laid its three eggs, which were taken possession of by a person on 10th September. Then, by 25th September, that handsome bird, the Many-coloured Parrakeet, had laid its pearly-white eggs, four in number, in the same hole. These also were missing, and on the 21st October following a Kestrel had taken possession of the hole and laid its full complement of four lovely eggs; and now, on one of the drooping branches, a pair of those strange birds, the White-shouldered Lalage (Caterpillar-eater) have built their neat cobweb nest, and, "to finish the contract," a pair of Bee-eaters have burrowed a hole near the butt of the same pine tree and started to lay in it. Can you beat this pine tree for such an interesting zoological record?—CHAS. H. M'LENNAN. Pine Plains, 5/11/06

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THE LINES OF EXTENSION OF BIRDS.—If the above heading seems odd, yet to the writer's thinking it is appropriate. With this short introductory sentence I will proceed to give some notes on the Straw-necked Ibis, a bird that first came under my observation when on the Murrumbidgee River in the sixties. In the year 1869, as there was a severe drought, we had to move a flock of sheep to Mt. William, near Lancefield. Lancefield is 42 miles from Melbourne by the metalled road. One day a flock of Ibis was seen making south, and I was surprised to see those fine birds come so far down into our part of Victoria; but the late Mr. Tom Kissock had noted them at

Bacchus Marsh three or four years previously. From my late brother's statement, Mr. Kissock was out with the gun, and shortly returned with two birds that he had shot, and it is evident that they were quite new to him. When he brought the birds in he remarked that they were very like "Whaups," which, by the way, is the Scottish name for Curlews, which we read frequent the seashores of the British Isles. At the period referred to, Mr. Kissock would have gained a thorough knowledge of the birds of his district, seeing that he would have known it for fully 25 years. Mr. Pinkerton, his father-in-law, according to the late Mr. William Westgarth, held his station on the Werribee as far back as 1843, but he would have settled there prior to that year.* Had the Ibis visited Melton Plains prior to the pair being shot, Mr. Kissock would have known what the birds were. When they began to come about my brother was able to identify them by those he had seen at Bacchus Marsh. Though it was in comparatively recent times that they appeared in the Sunbury region, still there is a possibility that their migratory lines were more to the west and north-east. Of course, this is mere conjecture, nevertheless the fact is clear that the Ibis has taken to wander beyond its former haunts. My people up to 1866 had 20 years' experience of the locality, during which time an Ibis was never seen nor heard of. John William and Edward Page had taken up Glencoe station in 1836, and as the first-named was a keen sportsman, had the bird been about he would have mentioned it. The brothers spoke of the shooting of a solitary White Spoonbill, but it was not till about 1859 that we saw this bird, which in later times is seen at the Melton swamps or haunting dams in Newham Shire. To return to the Ibis: it may be counted a frequent visitor to the Sunbury region, especially when the season is droughty up north. In my opinion hard times are not solely responsible for its migrations towards Melbourne. In former days the aborigines would rob this bird's nests to such an extent that it was prevented from overlapping its food supply. Now that the blacks are extinct the birds have a chance to increase, hence it stands to reason that the line of extension must be in proportion to the higher rate of increase. Settlement in rather too many instances has caused, and is still causing, the extinction of certain birds, whereas in others it has tended unquestionably towards their increase. Here, for example, in this part of Drouin, all the adjacent areas were once a dense forest, with a tangled undergrowth of ferns and scrub. The axe, with the plough, got to work, the country was laid open, then the White-backed Magpie, the Rosella Parrakeet, the White-fronted Chat, and the common Ground-Lark appeared. There was no occasion to tell

* Mr. James Pinkerton first settled on Kororoit Creek, December, 1840.—Eds.

me this, because, knowing the localities they affected, I knew full well that the members of the feathered family named would not be here until the hand of man had changed the original environment. Now, with further reference to Ibis, we see a pack of them circling about, say from one to two hundred yards up, and judging by their leisurely wheelings they appear to be prospecting the ground. Those who make birds their study find that some exceed man in the two senses of sight and hearing, therefore it lies within the bounds of probability that a flock of Ibis in their wheelings have a set purpose. That purpose is to ascertain if insect life is on the surface of the ground in sufficient quantity to justify a halt. This at best is only an opinion based upon conjecture, and put forward with the hope that naturalists will follow on the track of my crude theoretical deductions. On that head, if we have laid up immense stores of knowledge with respect to fauna and avifauna, we have a great deal to learn yet, but in process of time all that pertains to the ways of birds will be made plain to those who study patiently.—ISAAC BATEY. Drouin, 12/11/06.

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THE BRISTLE-BIRD (*Sphenura broadbenti*).—In the *Geelong Naturalist* for March, 1906, Mr. C. F. Belcher gave an account of his observations of this species in the vicinity of Anglesea, to the south-west of Port Phillip. A visit was recently paid by two members of the Bird Observers' Club to the locality, and the present may be taken as supplementary to the above-mentioned article. *Sphenura* is indeed a remarkable genus. Its habits are akin to those other unique forms *Atrichia* and *Pycnoptilus*, which are ground dwellers in the densest coastal forests of Australia. Four species are known—*S. brachyptera*, in southern New South Wales; *S. broadbenti*, in Cape Otway Ranges, Victoria; *S. longirostris* and *S. litoralis*, in south-western Australia. All in the main exhibit the characters that show adaptation to environment—large, powerful legs and feet; small, feeble wings; long, bulky tail, to balance the weight of the body as the bird, rat-like, runs through the undergrowth; and a large, wide-open eye. It is the more remarkable, then, to find small colonies of *S. broadbenti* separating themselves from the main habitat and making their way into new and widely different country. From any prominence of the coast about Anglesea a splendid panorama can be obtained of the whole line of this movement. On one hand lie the bold mesozoic brows of the Otway Ranges, dipping precipitously to the sea and rising inland to an elevation of 1,900 feet. A rainfall of 40 inches and more clothes their whole mass with the thickest of forest, and in the attendant undergrowth *Sphenura broadbenti* has its true home. As in a flash the shore line changes about Point Castries into a broad and sweeping beach, with low, poorly

timbered country inland. Behind the sand dunes are thickets of tea-tree scrub matted with coastal sword grass, and into this the Bristle-Bird advanced.* But further along the vegetation alters; tea-tree clings to the foot of straggling cliffs of soft young sandstone, then undergrowth is less profuse, then the same tea-tree stands out alone in low tufts or brakes upon the rounded sides of the seaward slopes, until finally it is lost in the rolling dune sands of the Barwon mouth. This view extends over about 40 miles of coast line, and along this the Bristle-Bird has gone until it could proceed no further. It has not moved past Point Addis to the eastward. Of course, there are sundry breaks where no cover exists, but still the Bristle-Bird seems to have passed these with ease and taken up its abode wherever any inducement offered. It will be interesting to ascertain what difference exists between birds from the extreme ends of this line of march, for such movement as this, from thick forest undergrowth to sea-blown slopes, where tea-tree tufts provide a forest and an undergrowth in one, must result in some marked changes. Such difference in habitat, when long sustained, will result, in fact, in the making of a new species.

No less than eleven pairs of birds came under our observation in about two miles of scrub. In parts matted with sword grass, they were more often heard than seen, but in one or two more open places the birds, especially when nesting, could be attracted about one's feet by making a squeaking noise. One pair which had a large young one running about with them were quite pugnacious. The male, with spread wings and tail, approached to within 3 feet. The food in the stomach of one bird examined consisted of about three-parts of comminuted brown chafer beetles and one part cranberry fruits. A bird was noticed out on the beach sand in search of these beetles, which were very plentiful, but the cranberry bushes were only found in the higher land to the rear. The birds also eat earth grubs, for which they search after the manner of *Geocichla*, running along a few feet and then standing quite still, moving on again in a few seconds or digging out an insect with a probe or two of the bill. The birds rarely fly, but sometimes mount on to a prominent stick or bush to whistle. In the mornings it was noticed they were always very late with their song. Singing Honey-eaters (*Ptilotis sonora*) were very plentiful, and welcomed the daybreak in all directions with their delightful notes, but they were an hour ahead of the Bristle-Birds.

The nest of *Sphenura broadbenti* hereabouts is built of dead cutting-grass (*Lepidosperma*) leaves, a broad platform at the entrance sometimes being built of broader leaves of sword-grass carried into the structure small end first. The circumference of the nest is about 24 inches. The interior, which is built of

* See Plate X.

grass, measures about 3½ inches across from side to side, and half an inch from the rim to the bottom. The entrance, which is roughly formed by the sides and back of the nest being extended upward and over, usually faces away from the prevalent wind, which comes from the south-west. The structure is placed about 3 feet from the ground, either in a mass of coastal sword-grass or in a dense tuft of tea-tree.

A remarkable circumstance about the eggs is that one is as a rule infertile. This is probably accounted for by the great size of the egg in comparison to the bird, with the deficiency of some important element of food. No less than five old nests contained addled eggs, and two others contained a broken shell. One new nest contained a beautiful pair of eggs recently broken and sucked by some bush miscreants, probably mice. The nest of this animal was discovered built inside another nest of the Bristle-Bird. Two other nests, in which the birds were sitting, contained each a pair of eggs, and while one egg was partly incubated the other proved infertile. As far as we could judge the female alone builds the nest and sits upon the eggs, while the male brings her food and also helps to feed the young. The call of the male bird is loud and penetrating, and is always answered by the mate, wherever she may be.—A. G. CAMPBELL. Melbourne, 15th November, 1906.

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ANNOTATIONS.—*Ptilotis fasciogularis* (Fasciated Honey-eater).—Mr. G. A. Young, Fairymead, Queensland, has kindly sent for my collection the nest and eggs of this interesting bird. His field note says that the species is plentiful in the mangroves bordering the Burnett River, where during the breeding season the Honey-eaters were continuously calling and singing. On the 13th August Mr. Young observed two nests in small, dense mangroves, each with a single egg. Returning in five days he found the nests deserted, the eggs gone, and one nest destroyed, but was rewarded by finding a third nest containing a pair of beautiful eggs. These birds appear to build at from between 4 and 6 feet from the ground, suspending their nests in the smaller mangroves.

Going out again on the 29th September Mr. Young found a fourth nest, containing two fresh eggs, suspended from a horizontal branch not more than 2 feet 6 inches above high tide mark. (Possibly the birds choose these positions to avoid such enemies as snakes or iguanas, which, no, doubt, took two of the previous nests mentioned.) The specimens may be thus described :—

Nest.—Outwardly constructed of dry grass, matted with yellowish and whitish spiders' cocoons, and lined inside with finer grass, a few long hairs, and portions of thistle-down.

Dimensions over all, 3½ inches by 2¼ inches in depth; egg cavity, 2½ inches across by 1½ inches deep.

Eggs.—Oval in shape, somewhat pointed at the smaller end; texture of shell, fine; surface, slightly glossy; colour, light buff or delicate fleshy tint, (1) with a cap or darker wash of the same tint on the larger end, (2) with light markings (spots) of reddish-brown and dull purple on the larger end. Dimensions in inches: —(1) .85 x .64; (2) .88 x .64.

It will be observed that these eggs, with the exception of not being so elongated, are similar to those of this species which I previously described as new from Mr. E. M. Cornwall's collection (*Emu*, iv., p. 137), to whom the species is well known. It may be mentioned that a bird for identification accompanied Mr. Young's specimens.

Chlamydodera maculata (Spotted Bower-Bird).—Mr. Thos. R. Macdougall, of Clermont, Queensland, has been good enough to send a handsome pair of eggs of this species, which, instead of possessing the usual linear markings, are more blotched and splashed, after the fashion of a type of the Satin Bower-Bird. Dimensions in inches:—(1), 1.55 x 1.06; (2), 1.5 x 1.04. The nest was constructed of sticks, and placed about 12 feet from the ground in a sandalwood.

Sphenura broadbenti (Rufous Bristle-Bird).—In my work ("Nests and Eggs," p. 219) for the "Distribution" I show Victoria and South Australia, with a query (?) against the latter State. There was no reason why this Bristle-Bird should not frequent the coastal scrub of south-eastern South Australia, which is similar to parts of Victoria, but there was no recorded instance of it having been found there. During a recent visit to Robe (Guichen Bay), South Australia, I found this remarkable bird, judging by its numerous characteristic calls, fairly plentiful. I got several glimpses of them darting through the short, thick undergrowth, or hopping over the sand between the bushes. The birds were very shy, and it was not until after six hours' patient waiting that I shot a bird, apparently a fine male, which I had pleasure in forwarding to the Adelaide Museum.

Various.—From an esteemed correspondent, Mr. E. M. Cornwall, Mackay, Queensland, I have received two "Nature Study" post-cards, interesting for their pictures as well as for their field notes. (1) Depicts a nest of a Podargus in mangroves, containing a pair of downy young. When Mr. Cornwall discovered the nest a day or two previously it contained *three* young. But when he appeared with his camera for "the record" one youngster had disappeared. Probably it had been "crowded out." (2) Is a pretty illustration of a Reef-Heron's nest, containing two eggs, ensconced among rock on an islet off Mackay. Black Oyster-catchers, Silver Gulls, Brown-winged Terns, and some Ternlets were also reported residents upon the islet, while in the

crevices of rock dozens of Swallows had built their nests. In a former communication Mr Cornwall states he has found the Nutmeg-Pigeon (*Myristicivora spilorrhoa*) in considerable numbers breeding on islands 20 miles below Mackay. This is indeed interesting news to find these fine Pigeons so far south.

Another correspondent, Mr. Isaac Batey, Drouin, Gippsland, informs me that Emu-Wrens are said to be nesting in the crops in his district, and that he suspects the Swamp-Hawk or Harrier of capturing blackfish, because he had seen their (fish) bones about the Hawk's nest Blackfish could be easily taken in the shallow creeks.

Sterna bergii (Crested Tern).—I was fortunate last month (26/11/06) in making a visit to a rookery of these beautiful sea birds. It was situated on a craggy limestone islet in Guichen Bay, South Australia. The birds were in hundreds upon fresh eggs in little, shallow hollows on the rock or sand among the short vegetation (*Helichrysum, Enchylæna, Lavatera*, &c.) on the summit of the islet. It was an impressive sight to a naturalist to witness the cloud of feathered forms rise (see Plate XI.) when an intruder approached too near. But, gaining confidence, the birds soon settled again. In the whole rookery I only observed two nests containing each a pair of eggs, the rest had the usual number—one—while the collection contained one albino egg. It was noticed that among the Crested Terns a single Sooty Tern (there might have been more unobserved) had taken up its quarters, apparently far south of its usual track.—A. J. CAMPBELL. Melbourne.

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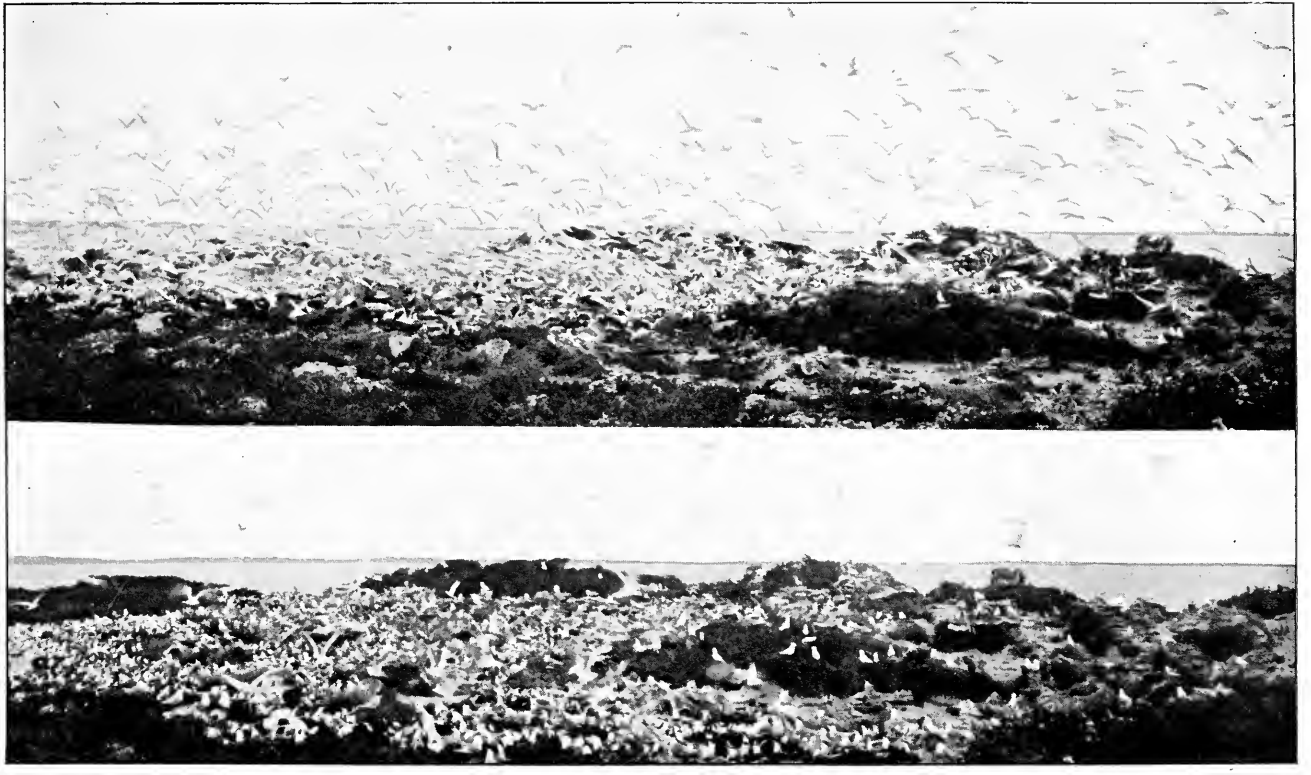
THE WHITE-EYE.*—It seems strange that now, at the end of October, the White-eye should still appear in flocks when all other small birds have paired and are busy with domestic affairs; but it is a smart little bird, which loves society, and is loth to break up the merry, shrill-calling winter company. Mr. H. C. Thompson has found a number of nests in a thick piece of scrub in close proximity to each other, showing that *Zosterops* likes to have chums around even at breeding time, when most birds are very jealous of intrusion by their fellows. Moreover, it is inclined to be a late breeder, and in New Zealand, Tasmania, and Victoria the month of December is a favourable time to look for nests with eggs.

The nest is a good example of the "pensile" style of architecture—a kind which is rare in temperate climes, being specially adapted to puzzle those inhabitants of tropical countries, such as large tree-climbing snakes and monkeys, which have a *pen-*

* These notes are supplementary to those which appeared in the last quarterly issue of *The Emu*.



Crested Terns *(Sterna bergii)* Nesting.
Robe Rocks, South Australia.

FROM A PHOTO. BY A. J CAMPBELL.

chant for eggs or young birds. Except the *Zosterops* and the Honey-eater *Melithreptus melanocephalus*, I do not know of any other species in our island whose nest can be called truly "pensile" —that is, sewed by the rim to supports, otherwise swinging perfectly clear, like a hammock. The Spinebill (*Acanthorhynchus*), however, occasionally adopts a somewhat similar form. In scrub near Launceston a home of this beautiful little Honey-eater was swung by the edge from tea-tree twigs, but there was also a small twig at back of nest which gave some support, and another horizontally beneath the structure. In the case of *Zosterops* building in scrub it prefers not the slightest support from beneath, and two nests found by me while among tea-tree at Table Cape may be cited:—(*a*.) Was swung by the rim from a very frail fork of *Melaleuca* or swamp tea-tree, the supports being barely $\frac{1}{16}$ inch thick, so that total weight of the nest, young, and parent must be extremely small; the opening, almost elliptical in form, measuring 2½ inches x 1½ inches inside, 2 inches deep, swelling out under the rim like an inflated ladle, and with rounded bottom. It was formed of very fine shreds of stringybark eucalypt, with somewhat thicker strips underneath, and the rim sewed to twigs by threads of bark-fibre and spider-web; three spider-cocoons were worked into the outside of nest, and the lining was horsehair. The contents were three eggs, of a delicate blue tint. (*b*.) Bound to two very slender *Melaleuca* twigs in same way as (*a*), the ends of the twigs swinging quite freely; nest rounder at top and more open, not so deep; 2¼ inches x 2 inches across top; inside, 1½ inches; formed of coarse dry grass, lined with fine grass, a little green moss worked in, and many white spider-cocoons stuck on the outside. Bound to twigs with grass-blades and spider-web. It was a very loose structure, not nearly so neat-looking as the bark cradle; but both were constructed so lightly that they can be seen through at almost any part. Neither had the slightest sign of any support other than the very frail horizontal swinging twigs. Many of our birds, of course, suspend their habitations between upright stems, but this differs considerably from the truly "pensile" habit of swinging them by the rim only from slight horizontal twigs.

As to the propensities of the White-eye for good or evil, observers are as widely separated as the poles. At the New South Wales Fruit-Growers' Conference, in 1890, James Norton, M.L.C., condemned our sprightly little friend as "the greatest pest which gardeners in this colony have to contend with; he seems to take a mischievous delight in sampling every fruit, without regard to his own wants." A. G. Hamilton, Mt. Kembla, said, at the same conference:—"Although these little Honey-eaters are very destructive to grapes and stone-fruit, they do an immense amount of good by clearing the trees of aphides in winter and early spring. A flock of them will peep and pry

about a leafless tree and in a short time clear it of many obnoxious insects." In Victoria French marks it as one of the most destructive visitants to orchards and vineyards, while Robert Hall says—"It is the scourge of the aphis and other noxious insects when there is no fruit upon the tree," and quotes Hill, from *The Victorian Naturalist*, as writing that "the White-eye is the chief enemy of the case moth, destroying the young larvæ in great numbers; indeed, but for these useful little birds the case moths might easily become a serious insect pest." So, at a Fruit-Growers' Conference held at Dunedin, New Zealand, in 1901, one grower (very appropriately named "Grapes"), who attended and spoke, said the species was in his opinion one of the worst birds for the fruit garden, while Morrison considered that it was the best friend they had in his district (Mahurangi), although the easiest of all to poison: a great deal of spraying was done, and the insects thus poisoned were eaten by thousands.

An observer, writing in the "Transactions of the New Zealand Institute," makes the curious statement that when the White-eye grew numerous and bold, and took to invading the garden, and setting its nest in, rather than suspending it from, a bush or thicket, it laid in that case four eggs to the clutch, instead of the former three, as though the change of climate (for he believed the bird not to be indigenous) had caused it to lose its fear of marauders and also increased its fecundity. The same writer also mentions that the *Zosterops* is very easily tamed when young, and instances one which grew so familiar that it was allowed the freedom of the house, and used to hop about the table while the family was at dinner and help itself to whatever it fancied! Having heard, on one or two occasions, a sweet little strain of song, he thinks only a few individuals have this power of utterance, although it may be possessed by nearly all. My own opinion, based mainly on bush experiences at Table Cape, is that the power of song is possessed by all male White-eyes, but the strain is so inward, so subdued, that it is not heard at all unless one happens to be close to the bush in which the songster is concealed. A quite recent note on this occurrence (9th October, 1906) runs:—"A male of this species was heard to sing very sweetly in a tree-lupin near my cottage at West Devonport; the strain is very gentle and inward, and can be heard to advantage only when close to the bush, which near approach the little songster will allow, being so wrapped up in his love-ditty that he is unconscious of all else. This fact, among others, makes me discredit the assertion recently made by an English writer that bird-song is wholly induced by a spirit of emulation and self-assertion. It may well be conceded that the loud, bold whistle of the Shrike-Thrush or ringing laugh of the Butcher-Bird are actuated by the spirit of rivalry: but no one who has spent his leisure hours in watching and listening to the smaller

warblers of the bush can have the least doubt that those delicate strains, audible only a few feet from their source, are prompted by the spirit of affection, and by that alone. The poet is close to the truth when he sings of "the low love-language of the bird."—H. STUART DOVE. West Devonport, Tasmania.

From Magazines, &c.

THE REDTHROAT.—Mr. Donald Macdonald in his "Nature Notes" in *The Argus*, quotes from a correspondent ("Mallee Bird") an interesting field note regarding the Redthroat (*Pyrrholæmus brunnea*):—"It is shy and vigilant, its haunt being generally thick scrub or turpentine bush, so that it is difficult to find the nest. This is oval in shape, of great size compared with its tiny architect, wondrously compact in its blending of dry strips of bark and grass. It is warmly lined with feathers, and has an entrance near the top. Three eggs of a rather dark tint are the full complement. The nest is built entirely by the female, and, like most of the Wren family, it will, on the slightest suspicion of being watched, leave a nest half finished and begin a new one. It seldom associates with other small birds, and on a calm day its sweet, low note can be heard 50 or 60 yards away. The sound is something like that made in whistling through the teeth, yet in a high key. It might be called a warble."

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BOURKE PARRAKEET.—In May 1904 Mr. W. R. Fasey purchased in England a pair of Bourke Parrakeets (*Neophema bourkei*). He lost the hen shortly afterwards, but in March, 1905, procured six more birds, of which one hen lived. "The survivor," says Mr. Fasey in *The Avicultural Magazine* for July, "is the parent of the two strong and healthy birds now flying about as well as any birds I have. There is practically nothing to record. They appear to be easy to breed, and sit very steadily, the hen never leaving the nest even when I have tried to disturb her. They are quiet and peaceable birds, and not in the least interesting, excepting in the evening before going to roost, when they fly about very wildly. The young are marked exactly as the adult pair, the only difference I can discover being their rather smaller size. The old pair are now nesting again. Neither these birds nor any of the Grass-Parrakeets (excepting the Budgerigars) can stand much cold, and I am of opinion they cannot be kept alive for any lengthy period without growing grass to eat."

SOUTH AFRICAN BIRDS.—*The Journal of the South African Ornithologists' Union* for May contains a very interesting paper by Mr. W. L. Sclater, M.A., F.Z.S., on "The Migration of Birds in South Africa." Africa, south of the Zambesi, has 814 species of birds, which the author divides into five categories—Residents, Northern Migrants, African Migrants, Partial Migrants, and Island Breeders. The Northern Migrants are mostly European birds, which every year journey from the Northern Hemisphere to the Southern and back. Of the visitors in this category, he says:—"While there can be no doubt that the great majority of these birds, especially among the waders, make no attempt to breed, there is undoubted evidence that some few do so." The African Migrants arrive with the northern birds, nest in South Africa, and return to winter in tropical Africa. Many of these are Cuckoos. Partial Migrants are described as those species which, while subject to migratory movements, appear to be always present in South Africa in fair numbers. Food and climate conditions determine their partial migrations. The Island Breeders number 36, are most abundant on the coasts of South Africa in winter, and breed in distant oceanic islands, such as Kerguelen. To increase knowledge on the subject of migration it has been proposed to issue schedules to be filled in by lighthouse-keepers, teachers, and others. What strikes an Australian at once is the readiness with which the birds of Southern Australasia would permit of a similar classification. The area is, of course, much smaller, and the number of species to be dealt with correspondingly less. A noteworthy point of difference is that all our "Northern Migrants," with the exception of the Swifts, are Limicoline, the reason probably being that there is no continuous land space which the land birds of weaker wing powers could follow on a southern migration to Australasia; and yet the "Northern Migrants" of South Africa must have crossed the Mediterranean.

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THE CEYLON JUNGLE-FOWL.—The conclusions arrived at by the great naturalist Darwin were that the progenitor of our races of domestic fowls was the Jungle-Fowl of India (*Gallus bankiva* or *sonneratii*), and that the other three species of *Galli* had no lot or part in modern poultry, although the evidence was very scanty so far as the Ceylon Jungle-Fowl (*G. stanleyii*) was concerned. From time to time doubts have been expressed as to the position assumed by Darwin, more especially in Ceylon, where it was claimed that the wild fowl of that country interbred with the common hen. With the object of obtaining further evidence on this question, the Ceylon Poultry Club commenced in 1903 a series of experiments, which have just been brought to a conclusion, the results of which are published in

Spolia Zeylonica. Great difficulties were experienced, chiefly in the direction of securing wild birds and taming them sufficiently to be kept in enclosed runs. "Attempts have been made to produce the hybrids both ways – *i.e.*, by mating the jungle cock with domestic hens, and by the domestic cock with jungle hens. The latter way was a complete failure. On the whole, it was found that the jungle cocks seemed to be more amenable in captivity than the jungle hens." Many of the wild birds died within a few weeks after they were captured, generally about the fiftieth day. Eggs taken from the wild hen's nest hatched badly. After many trials, some of the jungle cocks were secured and kept alive long enough to be bred from. They would, however, only consort with one hen, as they are monogamous.

Seven different matings with hybrids took place, the results of which are very suggestive. From the crossing of the jungle cock with domestic hens several of the hybrids of both sexes were reared, which were utilized for further experiments. First, between a hybrid cock and domestic hen. In every case fertile eggs have been produced and strong, healthy chickens hatched out. Secondly, a hybrid cock with a hen produced from the first lot, which may be said to be one-fourth jungle and three-fourths domestic. This also proved successful, as chickens were reared. The test of the experiment was mating a hybrid cock with a hybrid hen, for if that could be achieved the question would be settled in favour of the Ceylon Jungle-Fowl being regarded as a parent stock. It was failure in this direction that led Darwin to his conclusion. To that extent the great naturalist has proved correct, as not a chicken has been obtained from this mating. "Each hen has laid several clutches of eggs, and the eggs have been incubated by the hybrids themselves and by other hens, but no chicks. The great majority of the eggs have been infertile; only in one or two instances have two or three of the eggs been addled, which points to the egg having been fertilized." Other experiments gave the same results, but whenever the jungle or hybrid cock was mated with a wholly or partly domestic hen chicks were obtained. "The mating of the domestic male with jungle female gives a negative result. That of the jungle male and domestic female gives the hybrids, male and female. The hybrid female mated back to the jungle cock gives negative results," as does the mating of the two hybrids.

This valuable and interesting experiment, which it may be hoped will be continued on a more extended scale, proves that the hybrids will breed under certain conditions, and would indicate that the Ceylon Jungle-Fowl has probably exerted some influence. But it does not afford sufficient evidence to lead us as yet to accept it in any way as responsible for our races of domestic fowls. That opens a wider question which has not been touched.—*The Times*, 28th September, 1906.

BIRD SANCTUARY.—In regard to the Sounds National Park, New Zealand, Mr. Donne, Superintendent of the Tourist Department, in his annual report to Parliament, states that owing to the invasion of stoats and weasels from the Eastern district, the native bird life is diminishing, more especially the Kiwi and Kakapo. Good work for the preservation of these birds is being done on Resolution Island, but the question of obtaining a small island of the Steward group for this purpose might be considered.

Mr. Richard Henry, the caretaker on Resolution Island, reports that fishermen and others visiting the Sounds have given him a good deal of trouble by destroying the Ducks and other birds. When visiting neighbouring localities, such as Chalky and Preservation Inlets, he says he "did not see a Duck of any kind, but dogs and guns at every camp, and a litter of Kaka and Pigeon feathers." He was told that this was the result of havoc caused by ferrets and weasels, but he could not believe that these animals were to blame for all he saw. It was very desirable that stringent regulations should be made, providing heavy penalties for persons landing in the Fiordland district with dog and gun. Until this is done the native birds will inevitably be decimated. Mr. Henry now has a motor boat, in which he patrols the shores of Resolution Island whenever the weather permits, and visits the neighbouring mainland in search of wingless species of birds—Kiwi, Roa, and Kakapo—many hundreds of which he has during his residence in the Sounds transferred to Resolution Island. In the latter part of last year he liberated seven more Kakapo or Ground-Parrot on the island. Kaka and Pigeon, according to Mr. Henry, are still numerous, and he found native Robins (which he had thought were all gone) on one of the small islands. The beautiful Paradise Duck breeds close to Mr. Henry's place at Pigeon Island, and in his report he places on record some interesting observations with regard to their habits.—*The Press*, Canterbury, N.Z.

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THE QUAIL SEASON.—In the *Age* of 29th October we are informed that the Stawell Game Protection Society is agitating to get the opening of the Quail-shooting season altered from 1st March, as at present, to 1st February. On 31st October Mr. G. A. Keartland writes to the *Age*:—"In February the Quail are breeding all over the State, and in the very earliest districts eggs and young broods may be seen as late as the end of March. If the alteration is made as desired the birds will soon be as scarce as they were ten years ago, and the sportsman will have to content himself with the little Hemipodes which breed in the spinifex in the far north, and some of which occasionally visit the

northern parts of the State when driven from their usual haunts by drought. The Stubble Quail, so keenly sought by sportsmen and Quail-slaughterers, is just starting breeding now, and as they rear three or four broods in a season it is at once apparent that to commence killing the old birds on 1st February means that only half the complement of young will be reared. The Quail suffer from two afflictions—the impatient pot-hunter, who wants to get to work before the sportsman thinks of doing so, and the Quail-slayer, who delights to brag of the thousands of birds he has killed in a season. On 1st March of this year three out of the first four birds my dogs found had broods of chicks following them. I called on the farmer who had invited me to shoot, and told him that I would come again a month later, as by killing a few brace then I was wasting the lives of all the little ones. Many sportsmen were in hopes that after the experience of two seasons, during which the birds enjoyed extended protection, no further attempt would be made to tamper with the *Game Act*; but in response to an appeal from some of these same gentry Mr. Cameron made an alteration somewhat on the lines now proposed, with the result that parcels of little chicks were sent to the officers administering the Act to show the folly of the change. Mr. Bent tried to meet their wishes, but after a few days' trial had the good sense to cancel his alteration of date. I would suggest that the Stawell society alter its name to that of the 'Game Extermination Society,' and that its members advocate the abolition of the *Game Act* altogether, and then they could get some nice bags directly the hay was cut for a season or two, and in a few years Quail-shooting would become a matter of ancient history."

* * *

Is the Kea Carnivorous?—The Kea (*Nestor notabilis*) or Mountain-Parrot is found only in the middle island of New Zealand, where it lives among the peaks and valleys of the Southern Alps.

When discovered by Mr. Wm. Mantell, in 1856, the Kea's chief food seemed to consist of insect larvæ and berries. However, as early as 1868 it was suspected not only of eating meat, but of becoming a bird of prey of no mean order. Rumours were heard to the effect that the bird attacked and killed sheep for the sake of the kidney and the kidney fat, which formed its special delicacies.

The first recorded instance, which was published in the *Otago Daily Times*, runs as follows:—

"For the last three years the sheep belonging to a settler, Mr. Henry Campbell, in the Wanaka district (Otago), appeared to have been afflicted with a new kind of disease. The first appearance of this supposed disease is a patch of raw flesh on

the loin of the sheep about the size of a man's hand. From this matter continually runs down the sides, takes the wool completely off the part it touches, and in many cases death is the result. At last a shepherd noticed one of the Mountain-Parrots sticking to a sheep and picking at a sore, and the animal seemed unable to get rid of its tormentor.

"The run-holder gave directions to keep watch on the Parrots when mustering on high ground. The result has been that during the present season, when mustering high up on the ranges near the snow-line, they saw several birds surrounding a sheep, which was freshly bleeding from a small wound on the loin; on other sheep were noticed places where the Kea had begun to attack them, small pieces of wool having been picked out."

Though this record casts grave suspicion on the Kea, it does not by any means absolutely prove that it was the culprit.

However, though nearly 50 years have passed since the record was first published, there has not been one genuine attempt to inquire into the case, and, up to the end of 1905, this is the only definite case recorded where a man actually saw a Kea picking at a live sheep.

The strongest evidence against the bird was the circumstantial, which may be classed as follows:—

Against the Kea—

a. The account of the Wanaka shepherds.

b. Only where Keas were known to live were the sheep wounded after the Kea's method. Where they were unknown, no instance of this special kind of sheep-killing had been seen.

c. If sheep had been killed, and the birds in that place were shot, the killing at that spot ceased.

d. Keas had been seen to fly off the bodies of sheep, and wool and fat had been found in their crops.

e. Some Keas in captivity would eat meat, fat, skins, &c.

This evidence may be sufficient to satisfy the general public, but it is inadequate to prove it conclusively as a scientific fact.

For the Kea—

a. The lack of recorded eye-witnesses.

b. In many places where Keas were known to live no sheep had been killed after the Kea's method.

c. Many Keas in captivity would not eat meat, &c.

d. Many of the men who accused the bird were paid for exterminating them, and they would naturally wish the story to be believed.

In response to several requests we have received a large amount of evidence from men who live, or have lived, in the Kea country—namely, musterers, shepherds, head shepherds, managers of stations, run-holders, and station-owners.

These, it is true, are probably not trained scientific observers. Nevertheless, they all live in contact with facts ; and we are sure to get nearer to the truth by taking the experiences of men who have spent most of their lives in Kea country, than that of men who judge the birds mostly from caged or preserved specimens.

To make the evidence as reliable as possible, the following precautions have been taken :—

I. Nothing but accounts from eye-witnesses themselves has been taken.

II. Evidence without the writer's name and address has been cast out.

III. All details, as year, station, &c., have been received in each case.

IV. The witnesses, if necessary, have been cross-examined by post.

V. All the accounts of Keas attacking sheep have been forwarded with a written statement that, if necessary, the writer will be willing to swear to his evidence before a Justice of the Peace.

Among numerous correspondents over 30 state that they have seen the Keas actually attacking sheep. These witnesses do not consist only of musterers and shepherds, but in many instances they are either managers of the sheep stations or the station-owners themselves. Summing up the different accounts, the bird's mode of procedure seems as follows :—They may attack in ones or twos or in numbers, but usually one or two birds do the killing and the others share the spoil. The Keas do not, as some people think, attack the sheep that are in poor condition, but always seem to choose the pick of the flock. The bird settles on the ground near its quarry, and, after hopping round for some time, it leaps on to its prey, usually on the rump. If it cannot get a firm grip with its feet, the movement of the sheep causes it to fall off, but it persists until it has firmly perched itself on the sheep's back. Then the Kea begins its operations by tearing out the wool with its powerful beak, and at last gets its beak into the flesh.

The sheep, which for some time has been moving uneasily about, gives a jump as the beak pierces the flesh, and then begins to run wildly about in vain efforts to rid itself of its tormentor. When, however, the sheep finds it cannot dislodge its enemy, it seems to become terrified by pain and fright, and rushes blindly about, usually at a high speed.

Sometimes the sheep tears round the flock until it is played out and cowed, when it sinks to the ground and lies with its neck stretched out, a picture of misery.

If snow is on the ground the poor beast flounders about until it gets into a snowdrift, and then it becomes an easy prey to the relentless birds.

At other times the terrified sheep, as if making a last despairing attempt to get rid of its enemy, rushes madly forward in one direction, usually down hill, at a terrific speed, quite oblivious of rocks and pitfalls, the Kea meanwhile holding on and balancing itself with outstretched wings.

Very soon the sheep strikes a rock or stumbles and rolls over and over down the hill, only to get on its feet again and repeat the performance time after time. When the beast stumbles the Kea rises on its wings, and settles down again on to the sheep when it has regained its feet.

This awful race is continued until, bruised by its numerous falls, utterly exhausted by its death struggles, and maddened with pain, the terrified animal stumbles to rise no more, and becomes an easy prey to the Kea.

The blind rushes often end even more tragically. The sheep in its blind rush often comes to a precipice, and, with the same mad impulse that brought it so far, it leaps over the edge, and is dashed to pieces on the ground below. In this case the Kea leaves go its hold as soon as the sheep begins to fall, but follows the unfortunate animal in the descent, to satisfy its hunger on the result of its labours.—The Canterbury *Press*, N.Z., 8th October, 1906.

Reviews.

["A Key to the Birds of Australia, with their Geographical Distribution." By Robert Hall, F.L.S., C.M.Z.S. (Second edition.) Melbourne: Walker, May and Co., Mackillop-street. London: R. H. Porter, 7 Princes-street, Cavendish-square, W.]

MR. Robert Hall is a busy work-a-day man, therefore it is more to his credit that he has been able to find time to rewrite in a measure his useful "Key," with additions bringing it up to date. No working ornithologist can afford to be without this veritable *multum in parvo*.

The 74 well-executed half-tone pictures of birds from photographs by Mr. F. Verrell Heath, taken from John Gould's celebrated folio work, are a welcome additional feature to the "Key" from an educational standpoint. Fresh interest is also added by giving the meanings, as far as could be ascertained, of the technical names of genera and species. For these the author courteously acknowledges the assistance of Professor T.G. Tucker, Litt. D., and of Messrs. E. R. Pitt and W. J. Stephen.

The "Key" comprises a concise digest of all known species of birds found in Australia (including, of course, Tasmania), and is built practically on the lines laid down in the classical "Catalogue of Birds" of the British Museum. Regarding "Distribution," Mr. Hall has adopted Professor Baldwin Spencer's idea of sub-regions—Torresian, Bassian, and Eyrean—first promulgated

in the "Horn Expedition Report," and while retaining Dr. E. P. Ramsay's division of provinces, &c., Mr. Hall has, for convenience sake, substituted the numerals 1 to 9 respectively for these areas. Touching "Species and Sub-Species Recently Described as New," Mr. Hall's annotations are brief: in many cases he merely—wisely, perhaps—records the reference to which students can refer and make their own deductions. In his "Additions to and Suggested Alterations in Text" the author enters more debatable ground. For instance—(1) That *Acanthizadie menensis* (Gould) equals *A. ewingi* (Gould). Students now accept these as distinct. See *Emu*, vol. iii., p. 179 (Legge), and "Nests and Eggs of Birds," vol. i., p. 273 (North). (2) That *Melithreptus lætior* (Gould) is a fully adult form of *M. gularis* (Gould). Evidence in the shape of an authenticated series of each is against this. See *Emu*, vol. iv., p. 71, also "Nests and Eggs," p. 369 (Campbell). It is of much interest to local ornithologists to learn that there is a second Gallinule or Moor-Hen in Australia—namely, *G. frontata* (Wallace), found in North Queensland; also a new Stint—*Limonites damascensis* (Horsfield)—found in North-West Australia.

Mr. Hall is to be highly complimented on the thoroughness of this excellent and useful Key, which, it may be suggested, forms a capital foundation for the committee of the Australasian Ornithologists' Union for the "Check-List" of Australian birds (of which, by the way, Mr. Hall is the official "convener") to work upon. The "get-up" of the "Key" also reflects the greatest credit on the printers, Messrs. Walker, May and Co., for their clear and careful work. No work of reference is absolutely safe without a really first-class printer.

SPECIAL CATALOGUE NO. 1, AUSTRALIAN MUSEUM, SYDNEY.

After a cessation of over two years, this important work, "Nests and Eggs of Birds Found Breeding in Australia and Tasmania," has been continued under the authorship of the official Ornithologist, Mr. A. J. North, C.M.Z.S., by the publication of part 1 of vol. ii.

This part contains the families *Laniidæ*, *Certhiidæ*, *Sittidæ*, and part of the *Meliphagidæ*—fascinating groups, in which Mr. North furnishes specially full and interesting information from personal observation of those species found breeding in and around Sydney. The figures of eggs, which are life size, are reproduced by the heliotype process at the Government Printing Office, Sydney, from photographs taken under the direction of Mr. W. A. Gullick and the supervision of Mr. A. E. Dyer.

The only fault that can be found with this artistic and classical work is, as has been previously pointed out, its "sins of omission." For the work's sake these omissions are greatly to be regretted. (1) Reference to Mr. Robert Hall's "Key to the Birds of

Australia" (reviewed above) will illustrate some of the more striking oversights. On page 31 of the "Key" Mr. Hall has given "*Gymnorhina dorsalis* (Campbell)," reference "Proc. Roy. Soc. Vict., 1895, p. 206." Regarding this species Mr. North is silent, notwithstanding the *nest and eggs* having been also fully described. It may be also mentioned that Mr. North places a query (?) against Western Australia in his "Distribution" of the continental form of the White-backed Magpie. He is doubtless aware that *a* White-backed bird is found in the great Western territory. If not *leuconota*, why not give it its proper name, *dorsalis*, and do away with an unnecessary query? (2) Mr. North, while careful to give a reference from a foreign journal—*Novitates Zoologicæ*, xii., p. 230 (1905)—for Dr. Hartert's *Gymnorhina tibicen longirostris*, quite overlooks his own home journal—*The Emu*, vol. iii., p. 97 (1903)—for a prior reference to Mr. A. W. Milligan's *G. longirostris*, which is quoted in Mr. Hall's "Key" on page 112. By the way, it is a most singular coincidence that the same specific name has been adopted independently by two authorities—an almost conclusive argument that the species, or sub-species at all events, is a good one. (3) Again taking "Key" *v.* "Catalogue," on page 116 of the former it is mentioned that *Pachycephala rufogularis* is amalgamated with *P. gutturalis*—Proc. Roy. Soc. Vict., 1900. But the "Catalogue" leaves the student unaware of the fact.

Coming to the main object of the "Catalogue," namely, "Nests and Eggs," there is another serious omission—*Sittella* (*Neositta*) *striata*, the nest and eggs of which have been described by Mr. D. Le Souëf, C.M.Z.S., &c. Moreover, the specimens were collected by Mr. R. Hislop, one of Mr. North's own correspondents. The references for Mr. Le Souëf's previous descriptions are found in *The Ibis*, p. 314 (1896) and a figure in *The Victorian Naturalist*, xiii., p. 63.

"GLIMPSES OF AUSTRALIAN BIRD LIFE."

Under this attractive title a booklet is now offered to the public containing 31 original photographs direct from nature of Victorian birds, by Messrs. A. H. E. Mattingley, R. Hall, A. H. Lord, and the late Mr. H. P. C. Ashworth, with a few words descriptive of each plate by Mr. Hall. It is excellently printed by Messrs. Walker, May and Co., and published by Mr. T. C. Lothian, Melbourne, at the modest sum of one shilling. The little book is a commendable attempt to bring under popular notice the bird-life of our fair land, and the unique camera work will stand equal with any nature photography in any other part of the world. As an Australian souvenir the booklet will supply an oft-expressed need among ornithologists.

[Owing to unavoidable circumstances several other reviews are held over till next issue.—EDS.]

Correspondence.

GALDENS.

To the Editors of "The Emu."

SIRS,—In a short paper read before the Bird Observers' Club on the birds observed by Dampier during his voyages to Terra Australis,* I commented on his mention of "Galdens," remarking that I had been unable to trace the word, though I had consulted the "New English Dictionary," Newton's "Dictionary of Birds," and a number of other dictionaries. The publication of the paper has had the happy effect of bringing a very interesting letter from Professor Alfred Newton, the author of the extremely valuable book to which I referred.

One is glad to be able to acknowledge that the Professor's Dictionary is not at fault, though at the same time it is right that I should say that I had read what he has entered under the heading "Gaulding" without connecting the word with Dampier's "Galden," because Professor Newton's references are confined to Scottish allusions, and mention neither West Indian nor Australian birds. The "New English Dictionary" is, however, at fault, because the scheme upon which it is constructed makes a feature of giving the varieties of spelling of all words included in it, with quotations from authors by whom the words have been used at different periods. It nowhere gives Dampier's word "Galden," though it gives "Gaulding," with the cross-reference "see Gaulin," and under "Gaulin" adds another form of spelling—"Gawling." The word is there described as of Jamaican origin, and is defined as "a kind of Egret." Illustrative quotations are given from Ray, writing about 1705; from Sloane's "Jamaica," 1725; from Hughes's "Barbadoes," 1750; from Browne's "Jamaica," 1756; and from Gosse's "Birds of Jamaica," 1847. But there is no quotation from Dampier, and his way of spelling the word is omitted.

Newton's "Dictionary of Birds" does not, it is true, give Dampier's spelling, nor does it mention the West Indian use of the word, but as his concern was not orthography but ornithology, the omission was not, in his case, of much importance. I am glad that, by calling attention to the point, I have been the means of clearing up an obscurity. Indeed, "Galden" is so good a word that one would venture to suggest that it would be a better popular name for the bird to which Dampier applied it than "Little Mangrove Bittern." Why should not the brave old navigator's word, spelt in his own way, be used?

Professor Newton, writing from Magdalen College, Cambridge, says in his letter :—

"I notice that in the last number of *The Emu*, which reached

* See *The Emu*, vi., p. 21.

me a few days ago, you say (p. 23) that you are puzzled by the meaning of the word 'Galdens,' used by Dampier, and that it is not mentioned in my Dictionary. Now, 'Galden' is only one of the many ways of spelling the word 'Gaulding' or 'Gaulin,' which you will find I have mentioned on page 310 of that work; and I think there can't be a doubt that Dampier meant by it one of the smaller Herons—probably of the genus *Butorides*—of which I think you have three or four species in Australia, though I should not venture to say which of them it was. Dampier, as you must well know, had been much in the West Indies, and there, according to my experience, the word 'Gaulding' is generally given to the familiar Little Green Heron (of North America)—*B. virescens*—though I have heard of its being applied to some of the other Herons. I have always looked on Dampier as a very good observer, and what he says is almost always to be trusted. Of course, he was not so wise as he would have been had he lived at the present day, but there were few, if any, to equal him in his own. 'The head and bones of a hippopotamus' which he says a few pages further on were found in the maw of a shark were, I take it, those of a dugong."

It is worth mentioning that Professor Newton, in his Dictionary, gives three other spellings: "Goldeine" and "Goldynis" from an Act of the Scottish Parliament of 1555, and "Golding" from another Scottish Act of 1600. He suggests a connection with the Icelandic word "Gulond," meaning the Goosander.

With this key, consulting Gould's "Birds of Australia" and Campbell's "Nests and Eggs of Australian Birds," Dampier's Galden can be marked down with little risk of error. It was, I do not doubt, the Little Mangrove Bittern (*Butorides stagnatilis*), figured in vol. vi. of Gould, and dealt with on page 963 of Campbell. The latter author says of it:—"It will be observed that this interesting little Bittern enjoys a goodly range, its favourite haunts being small islets covered with mangroves, and low swampy points of land running into the sea." He also observes that Gilbert found a colony of Little Mangrove Bitterns on two small islets in Coral Bay, near the entrance to Port Essington. They may well have been the same colony as observed by Dampier.

As suggested by the Professor, Dampier picked up the word in his West Indian buccaneering days. He first went to the West in 1674, when 22 years of age, and there was hardly a phase of the wild life of that time and region that he did not experience, from honest logwood-cutting to rank piracy. His adventures there are well known. The latest to relate them is Mr. John Masefield, in his "On the Spanish Main" (1906). The quotations given under "Gaulin" in the "New English Dictionary" indicate the common use of the word there. Dampier simply spelt it in his own way, when writing of his Australian voyages;

and his way, to my thinking, makes it a finer word than any of the alternative spellings.—Yours, &c.,

14th November, 1906. ERNEST SCOTT.

South Australian Ornithological Association.

THE bi-monthly meeting was held at the residence of Dr. A. M. Morgan on 31st August, 1906, when Mr. J. W. Mellor presided over a good attendance. Notes were received from Mr. E. Ashby upon native birds found breeding at Blackwood. The Chairman notified the members that the Australasian Ornithologists' Union's sixth congress would take place in Tasmania from 22nd November to about 8th December, when Launceston and Hobart would be visited, and meetings held to discuss bird subjects, following which a working camp would be held at Mount Barrow. Mr. M. Symonds Clark drew attention to an extract from the journal of the late John M'Douall Stuart upon his exploration in Australia in 1860, in which the intrepid explorer mentions a strange Cockatoo shot near Mounts Rennie and Peake, Central Australia. The wings were of a beautiful crimson hue, with a light leaden colour on the back. The description as given could not be placed. Dr. A. M. Morgan recorded several birds found breeding early at Ironbank, near Upper Sturt; while Mr. J. W. Mellor and Capt. S. A. White gave notes upon birds at the Reedbeds, the former testifying to the tameness of the feathered friends of mankind when treated kindly. Mr. A. H. C. Zietz, F.L.S., noted the Red-chested Quail (*Turnix pyrrhothorax*) breeding at Meningie, Lake Albert. Mr. Alfred Crompton recorded the Straw-necked Ibis (*Carphibis spinicollis*) having laid in captivity. Mr. E. Ashby sent evidence of having found the egg of the Bronze-Cuckoo (*Chalcococcyx plagosus*) in the nest of the White-bearded Honey-eater (*Meliornis novæhollandiæ*), which was considered a rare occurrence. Mr. F. R. Zietz observed the Flame-breasted Robin (*Petræca phœnicea*) at Teatree Gully on the recent holiday, which was late in the year, as this little bird does not breed here, but departs early to lay and rear its young in southern highlands. Mr. Robert Crompton presented interesting notes regarding a trip recently taken to Lake Frome, where he had studied the bird life, which was somewhat different to that nearer Adelaide. Mr. Crompton showed several birds, including the Tricolored Chat (*Ephthianura tricolor*), the Red-breasted Babbler (*Pomatorhinus rubeculus*); also eggs of these and several species of birds from the Lake Frome district. Mr. J. W. Mellor displayed a rare clutch of eggs of the Rock-Warbler (*Origma rubricata*) from New South Wales. Mr. E. Ashby showed a species of Honey-eater from the Northern Territory resembling the genus *Myzomela*, but longer in the tail, which was queried as new. He also had several species from New South Wales, including the Grass-Warbler (*Cisticola exilis*), the Leaden Fly-catcher (*Myiagra rubecula*), the Fuscous Honey-eater (*Ptilotis fusca*), and the Little Field-Wren (*Chthonicola sagittata*). Mr. A. H. C. Zietz., F.L.S., exhibited a series of small Honey-eaters, including the Brown Honey-eater (*Glycyphila ocularis*), the White-breasted (*G. fasciata*), Brown-backed (*G. modesta*), the Black Honey-eater (*Myzomela nigra*), the Sanguineous Honey-eater (*M. sanguinolenta*), and the Red-headed (*M. erythrocephala*). Dr. A M. Morgan exhibited a number of species of birds' eggs for comparison with others exhibited.

The bi-monthly meeting of the South Australian Ornithological Association was held at the residence of Dr. A. M. Morgan on Friday, 26th October, 1906. Mr. J. W. Mellor presided. Dr. Morgan reported having been able to identify by observation in 14 days 82 species of native birds while on a trip to Mount Gunson, a district which to the vision of

the ordinary individual was almost destitute of bird life. The Chairman reported that the arrangements connected with the sixth annual congress of the Australasian Ornithologists' Union, to be held in Tasmania this month, were now completed, and that the undertaking promised to be of an entertaining and instructive nature, occupying between a fortnight and three weeks. Many subjects relating to birds in the various States would be dealt with by experienced scientists and bird-observers. Mr. J. W. Mellor and Capt. S. A. White were appointed delegates to the congress. An expression of regret was manifested at the wanton destruction of native birds from time to time, and it was thought that more stringent means should be exercised by the authorities in dealing with cases. Strong remarks of indignation were expressed in reference to the report in *The Register* of the molestation and destruction of the Pelicans on the Coorong by Government officials, and Messrs. J. W. Mellor and M. Symonds Clark were appointed delegates to interview the Chief Inspector of Fisheries to ascertain under whose authority these depredations had been committed, and take the necessary steps to prevent a recurrence. Mr. J. W. Mellor and Capt. S. A. White recorded a large increase of the useful little Blue Wren (*Malurus cyaneus*) at the Reedbeds this season. The former noted that the young males (hatched early in the year) were already assuming their blue uniform. Dr. Morgan exhibited a clutch of eggs of the Rock-Warbler (*Origma rubricata*), from New South Wales, in whose nest the single egg of the Fan-tailed Cuckoo (*Cacomantis flabelliformis*) was found, and eggs of the Striated Tit (*Acanthiza lineata*). Mr. J. W. Mellor exhibited several birds which had died in captivity, and which at one time were numerous at the Reedbeds, notably the Cockatoo-Parrakeet (*Calopsittacus novæ-hollandiæ*), the Warbling Grass-Parrakeet (*Melopsittacus undulatus*), and the Red-rumped Parrakeet (*Psephotus hæmatonotus*).

Publications Received.

Geelong Naturalist, The, III., No. 1, Oct., 1906.

Linnean Society N.S.W., Proc., XXXI., Part 3.

Victorian Naturalist, The, XXIII., Nos. 6, 7, 8, 1906.

Hawkesbury Agricultural College Journal, The, III., Part 12.

Zoologist, The, X., No. 118, Oct., 1906.

Biological Survey, U.S.A. Bulletin No. 26. Distribution and Migration of North American Ducks, Geese, and Swans.

Biological Survey, U.S.A. Circular No. 54.

National Association of Audubon Societies. Leaflet No. 22. The Blue Jay.

Bird, The: its Form and Function, by C. W. Beebe, Curator of Ornithology of New York Zoological Park.

The Emu

Official Organ of the Australasian Ornithologists' Union.

"Birds of a feather."

VOL. VI.] 1ST APRIL, 1907. [PART 4.

Field Notes on Birds of the Richmond District, North Queensland.

PART V. (*concluding*).

(*Continued from Vol. VI., p. 115.*)

BY FREDC. L. BERNEY.

BLACK-NECKED STORK (*Xenorhynchus asiaticus*).—I have but few records of this fine Stork, and they are confined to the summer months of the years 1899, 1900, 1903, and 1906. Solitary individuals on each occasion, though last year there were two in the district at the same time, but I never saw them together.

LITTLE BLACK CORMORANT (*Phalacrocorax sulcirostris*). — While carrying the gun one day for the benefit of the pot, one of these was dropped with some Black Duck as the birds rose together. I was glad of the opportunity to examine it. It was a male bird in fine feather, the marking and sheen on the base of the neck, the wing coverts, and scapularies giving these portions of the plumage a very handsome appearance. The foot is webbed to its fullest extent, the three front toes and the hind one, which comes round on the inside of the foot, being all connected by a soft, black membrane, which extends to the extremities of the phalanges, and forms an excellent foot for swimming with. The inner edge of the claw of the middle toe is pectinated. Measurements of this specimen :—Total length, 26$\frac{6}{16}$ inches ; tarsus, 1$\frac{5}{16}$ inches ; wing, 10$\frac{4}{16}$; bill, 2$\frac{4}{16}$ inches ; tail, 6$\frac{7}{16}$ inches.

Contents of the stomach consisted of a large quantity of small fish bones. It may be seen pretty frequently in ones and twos, while last November I counted 140 together at a waterhole in the Flinders ; but this is a most unusual number for these parts.

LITTLE CORMORANT (*Phalacrocorax melanoleucus*). — The Little Cormorant may often be seen on the waterholes, where it appears to subsist chiefly on fresh-water crabs.

DARTER (*Plotus novæ hollandiæ*).—This species is seen occasionally, but is far from common on our larger and deeper waterholes. When chasing fish beneath the surface of the water it pierces its prey through the centre with the upper bill, and coming to the surface tosses it into the air, catches it, and swallows it. I think the prey is taken by impaling every time.

PELICAN (*Pelecanus conspicillatus*).—There appears to be no regularity in the movements of the Pelicans that visit us, summer or winter, good seasons or bad. As often as not it is a solitary bird that is seen ; from that to half a dozen, while in midwinter of 1902 I saw between forty and fifty together, which constitutes my record mob for these parts. Their visits, though fairly frequent, are of short duration. When soaring in wide circles

overhead, with wings outstretched and motionless save for an occasional flap, they are a decidedly interesting sight.

BLACK-THROATED GREBE (*Podicipes novæ-hollandiæ*).—The Dabchick, as most natives of the old country call this diver, is a constant resident hereabouts, generally seen in couples on quiet pools. They seldom congregate, though one day in January, 1906, I saw ten together on a small but deep hole in the bed of the river. I have watched an old bird with half-grown youngsters in October, and another lot with chicks in down in February. They formed a pretty sight, this last little family party, as they floated on the water, the youngsters scrambling on the mother's back and pushing one another off, till the old bird ended the proceedings by diving.

BLACK SWAN (*Chenopis atrata*).—I have never come across the Swan on the Flinders, but Mr. H. F. Harrison, one of my neighbours, tells me that a solitary bird took up its quarters last November at Tamba, a pastoral property five and forty miles down the river from here, remaining for some weeks.

GREEN GOOSE-TEAL (*Nettopus pulchellus*).—Two birds were shot out of three that were seen at Maxwelton woolshed, on Alec's Creek, in this locality, during November, 1906. As the birds were strangers a wing was saved for me, enabling me to include them in my local list.

WOOD-DUCK (*Chenonetta jubata*).—One of our commonest Ducks during the summer, but it mostly appears to avoid us during the months of April to July inclusive. I have only come across a single instance of its nesting in the district ; two ducklings in mottled brown down were captured at the end of March, 1904, and were successfully reared by hand. They are no favourite with the gunner, being very watchful and wary, besides being deemed inferior eating to Black Duck or Teal. They weigh about a pound and a half. They are generally rather exclusive, not mobbing with other species of Duck. Fifty or sixty would be the most I ever saw together, but this is not a favourable locality for this class of bird ; we have no large sheets of water or swamps to attract them.

WHISTLING DUCK (*Dendrocygna arcuata*).—A rare visitant, of whose visits I have only three records—February, June, and December. Doubtless it is at times overlooked, and put down as *D. eytoni*, but it is undoubtedly rare.

PLUMED WHISTLING-DUCK (*Dendrocygna eytoni*).—The Whistler, as it is always called, is to be seen commonly during the summer, and less so from May to September. Although other Ducks may be seen more frequently, *D. eytoni* holds pride of place for numbers, for I have seen a hundred and twenty to a hundred and fifty on two or three occasions, and once a flock of three hundred. They have a rather laborious flight, and are comparatively easy shooting. They seldom nest here, but nests of eggs have been reported to me in February.

Details of four shot :—

No.	Sex.	Length. Inches.	Wing. Inches.	Tail. Inches.	Tarsus. Inches	Bill. Inches.	Weight. Lbs.
112	Male	17¼	9	3⅜	2 5/16	1⅞	1½
145A	Female	18⅝	9½	3⅜	2 9/16	2	1¾
145B	Female	17½	9⅛	3⅛	2 4/16	1⅞	1½
146C	Female	18½	9½	3⅜	2 8/16	2	1¾

BLACK DUCK (*Anas superciliosa*).—The bonnie Black Duck is, among the aquatic game birds, the most constant resident. They nest with us every season, selecting the months January to April for the purpose, the most eggs being hatched during March and April, but I have a note that I saw a brood of six downy ducklings on 6th June, 1903, and I flushed a

family of flappers on 2nd September in the same year. They do not flock here like Whistlers or Wood-Duck, but distribute themselves in small parties among the bulrushes and lignum along the bore streams, where they can be walked up, and make excellent shooting. They weigh from 2 to 2½ lbs.

GREY TEAL (*Nettion gibberifrons*).—Although of this species and the former the Teal is the more commonly seen, I have only on one occasion come across evidence of its nesting here. On the 12th April, 1906, I saw an old bird with six ducklings in the down. They will average a pound weight, going up to a pound and a quarter.

SHOVELLER (*Spatula rhynchotis*).—Very seldom seen in the Richmond district; there were a few about in January, 1900, and I saw a single bird in January, 1902.

PINK-EARED DUCK (*Malacorhynchus membranaceus*).—The quaint little Pink-ear is one of the more uncommon Ducks with us, not too often seen, and then as a rule in small numbers; its irregular visits are confined to the wet season. While at a waterhole on one occasion a mob of five and twenty of these birds (the most I think I ever saw together), in company with a dozen Teal, swept over my head and dropped on to the water 30 yards farther down. They appeared little disturbed by my presence, so I determined, as I could touch bottom with my feet, to cultivate a closer acquaintance. With only my nostrils and the top of my head above water I approached them steadily. Allowing me to get right amongst them, they evinced considerable interest in my proceedings, with but little or no fear; they chased one another about, they courted or preened their feathers, within a few feet of my head, now and again one standing up to flap its wings in my face. All the time the mob kept up a subdued running conversation in their soft, musical notes. At times I could almost have caught some of the birds by the feet and drawn them under, blackfellow fashion—I could certainly have done it had I had a covering of rushes or bushes for my head. This refers to the Pink-ears; the Teal of the party more discreetly watched the development of proceedings from the outside of the mob. They are very confiding little Duck, and easily shot, but are not much sought after by shooters, as they are so small, only going from half to three-quarters of a pound, and are reckoned dry and poor eating.

Measurements of a female:—Total length, 15¼ inches; tarsus, 1⅛ inches; wing, 7¾ inches; bill, 2⅝ inches; tail, 3 inches.

Mr. A. S. Le Souëf, who examined the stomach of this specimen, reported that it contained vegetable matter and fresh-water shells.

WHITE-EYED DUCK (*Nyroca australis*).—A far from common and a shy Duck in these parts, showing up with the summer rains, and leaving again as soon as they cease and the outside waters dry up.

A male bird, shot January, 1905, gave the following details:—Total length, 19½ inches; tarsus, 1½ inches; wing, 8½ inches; bill, 2¼ inches; tail, 2¾ inches; weight, 2 lbs.

The stomach was examined by Mr. A. S. Le Souëf, who reported that it contained, "roughly, 50 per cent. gravel, many broken small shell-fish, grass or plant-fibres, no trace of bones or insects."

EMU (*Dromæus novæ-hollandiæ*).—Although the exceptionally long run of droughty seasons which we have been experiencing recently has played havoc with the Emus, some, I am pleased to think, still survive. I know of fourteen on Wyangarie, but of these only one pair nested last winter and they have succeeded in rearing only two of their brood.

My notes of their nesting are as follow:—

2nd May, 1905, one egg, new laid.

9th May, 1904, seven eggs, new laid.

12th June, 1903, seven eggs, new laid.
22nd June, 1903, thirteen eggs, considerably incubated.
28th June, 1903, nine eggs, considerably incubated.
1st July, 1903, eleven eggs, new laid.
22nd August, 1904, six eggs, new laid.
23rd August, 1903, seven eggs, much incubated.
2nd September, 1901, twelve eggs, much incubated.

The earliest dates on which I have seen chicks is 16th July, 1903, but I have seen on the 29th July, 1905, a family of seven youngsters that I feel sure were a couple of months old, which means that the eggs must have been laid in March. I weighed three eggs taken haphazard out of a rather fine-looking clutch; they averaged a fraction over 1 lb. 9 ozs., and were equal, therefore, to about fourteen of the ordinary fowls' eggs. I never tried one boiled, but in omelettes they are excellent, preferable, in my opinion, to the eggs of everyday use. The birds seem particularly fond of the leaves of the nardoo (*Marsilea*), and I have watched them eating the "Emu apples" and picking the berries off the mistletoe (*Loranthus*).

ADDENDA.

LETTER-WINGED KITE (*Elanus scriptus*).—Only seen on two occasions, June and October, 1906, single bird each time. I got a good view of its under surface as the bird sailed composedly overhead displaying to the best advantage the conspicuous black W or double V on the under side of the wing.

LESSER MASKED OWL (*Strix flammea*, sub-species *delicatula*).—A dead specimen that I picked up in July last year was the means of my adding this species to my list. I not unfrequently see a Barn Owl-like bird in the bush, but owing to the similarity of this species to *S. candida* I find it impossible to distinguish between the two species in the twilight.

GREY JUMPER (*Struthidea cinerea*).—I saw a good many of these noisy birds in April, 1904, about the scrubby country on the road leading from Cambridge Downs to Saxby. This is the only time I have come across them here, the district being mostly unsuited to them.

BROWN SHRIKE-THRUSH (*Collyriocincla brunnea*).—Among the gidea scrubs on the basalt ranges on Spring Valley I often saw this species, and shot one, July, 1905, a male, for identification, which gave the following measurements:—Total length, $9\frac{7}{16}$ inches; tarsus, $1\frac{5}{16}$ inches; wing, $4\frac{1}{16}$ inches; bill, $1\frac{1}{16}$ inches; tail, $3\frac{14}{16}$ inches.

Although it possesses a variety of notes, many of them very liquid and sweet, it cannot, so far as my experience goes, be credited with having a song.

WHITE-THROATED FLY-EATER (*Gerygone albigularis*).—A single specimen that I obtained at Spring Valley in August, 1905, is my only record of this bird. Total length, $4\frac{6}{16}$ inches; tarsus, $\frac{11}{16}$ inch; wing, $2\frac{5}{16}$ inches; bill, $\frac{8}{16}$-inch; tail, $1\frac{2}{16}$ inches; sex, male.

I may have been overlooking this little bird, but I do not think so. I fancy it is unusual to find it so far from the coast in this direction.

TREE-MARTIN (*Petrochelidon nigricans*).—An uncommon, if not rare, Martin about here.

From one that came into my hands in July, 1905, I took the following measurements:—Total length, 5 inches; tarsus, $\frac{7}{16}$-inch; wing, 4 inches; bill, ½-inch; tail, 2 inches; culmen, ¼-inch; spread of wings, 10⅞ inches; sex, female.

CARTER HONEY-EATER (*Ptilotis leilavalensis*).—A common Honey-eater along the river banks, or at any waterhole surrounded by eucalypts or tea-tree (*Melaleuca*). I have found their nests, containing two eggs, in August and October.

The following measurements were taken from two specimens procured for identification :—

No.	Sex.	Length. Inches.	Wing. Inches.	Tail. Inches.	Tarsus. Inch.	Bill. Inch.
155	Male	$6\frac{7}{16}$	$3\frac{4}{16}$	$2\frac{15}{16}$	$\frac{13}{16}$	$\frac{12}{16}$
156	Male	$6\frac{9}{16}$	$3\frac{5}{16}$	3	$\frac{13}{16}$	$\frac{11}{16}$

The Australasian Ornithologists' Union in Tasmania.

BY J. W. MELLOR, A.O.U., ADELAIDE.

DURING the Sixth Congress of the Australasian Ornithologists' Union, held in Tasmania in November and December, 1906, good work was accomplished by the members in exploring that paradise of the naturalist, Mount Wellington, where, in its secluded gullies and elevated spurs, amid dense vegetation, observations were conducted for several days. The somewhat moist weather retarded progress considerably, and made the ascents inconvenient for the ladies of the party; but naturalists are not to be disheartened. The Cascade Gully was the first place visited, by permission of the manager of the brewing company. A whole day was spent on their extensive and picturesque property. The bright plumage of the Flame-breasted Robin (*Petrœca phœnicea*) was conspicuous in the sylvan glades, where the sun shone down through the high eucalypts, myrtles, and a hundred and one varieties of forest trees and shrubs. A peculiarity about these birds is that in Australia they all leave the lowlands at the approach of spring, and repair to the elevated regions and to Tasmania to breed. Another species of the Robin family seen was the Pink-breasted (*Petrœca rhodinogaster*), whose bright pink breast contrasted greatly with the sombre black back and head. The Scarlet-breasted Robin (*Petrœca leggii*) was identified as the same species found breeding on the mainland, but was not plentiful. The Dusky Robin (*Petrœca vittata*), a native of Tasmania, was noted to be fairly abundant in places where the timber was large and scattered, and its prettily formed nest was discovered in the crevice of a large, charred tree, being the place usually selected. The beautiful little Tasmanian Blue Wren (*Malurus gouldi*), with its sombre female, was twittering among the sweetbriar and thick bracken. The colouration was closely akin to that of the Blue Wren of the mainland (*Malurus cyaneus*). Two Thickheads inhabit the leafy bowers—the Grey-tailed (*Pachycephala glaucura*), corresponding closely with the South Australian variety (*P. occidentalis*); also the Olive Thickhead (*P. olivacea*), of more

sombre colouration and robust physique. The notes of these birds are most varied, but of sweet and melodious tone. The clear, ringing voice of the Tasmanian Shrike-Thrush (*Collyriocincla rectirostris*), a fine member of this well-known family, was heard calling to its mate, whose nest was in the recesses of the forest. In an overhanging fern tree near one of the pretty forest hut retreats, the nest of the Brown-rumped Tit (*Acanthiza diemenensis*) was found, hidden beneath the long, drooping leaves, close to the water, and in it the young of the Fan-tailed Cuckoo (*Cacomantis flabelliformis*), being fed and cared for by the diminutive foster-parent, which showed much concern at the close approach and keen interest of the naturalists. The Dusky Fantail (*Rhipidura diemenensis*) was observed among the thick boughs, where gnats and other insects were on the wing in profusion. Here that pretty little feathered friend of the garden was most energetically at work, ever and anon darting with jerky flight into the air, and returning to a twig to swallow the minute tit-bit, which it never failed to capture in its flight. Another useful little friend that was discerned high in the lofty eucalypts was the Yellow-tipped Diamond-bird (*Pardalotus affinis*), which is only found in Tasmania, and does good work in searching out scale, blight, and injurious insects among the leaves. Their familiar note of "Chucky-chuck" was continually heard, although the birds were obscured from view through their smallness of body and distance from the ground. A bird of totally different habits, but as useful, was the Brown Scrub-Wren (*Sericornis humilis*). These were seen in pairs hopping on the ground among the dense decaying vegetation that abounds at the base of the thick scrub and forest trees, and harbours a multitude of small insects upon which the birds feed. The rare Tasmanian Scrub-Tit (*Sericornis magna*), which was found in this locality upon the previous visit of the Union, some three years ago, was diligently sought for, but it could not be seen. Several species of Honey-eaters were observed: the Yellow-throated (*Ptilotis flavigularis*), found all over Tasmania; the White-bearded (*Meliornis novæ-hollandiæ*), and the Crescent (*M. australasiana*), both widely distributed species; the Strong-billed Honey-eater (*Melithreptus validirostris*) and the Black-headed Honey-eater (*M. melanocephalus*) were also identified high in the lofty trees among the fresh bursting blooms of the eucalypts. Several Black Cockatoos (*Calyptorhynchus funereus*) of large size were seen on the topmost limbs of a lofty giant tree, and their harsh cries, yellow ears, and banded tail feathers of the same colour soon made their identification clear beyond a doubt, while from another quarter a large Parrakeet darted from a hollow tree, and proved to be the Yellow-bellied species (*Platycercus flaviventris*), a species peculiar to the island. Another, seen on one of the steep slopes on the opposite side of

PLATE XIII.

Crescent Honey-eater (*Meliornis australasiana*) and Nest.

FROM A PHOTO. BY A. H. E. MATTINGLEY.

Mt. Wellington, was the Swift Lorikeet (*Nanodes discolor*), its beautiful green, red, and blue plumage being greatly admired. On the lower levels, where the gum trees are more bushy and low, the Small-billed Cuckoo-Shrike (*Graucalus parvirostris*), with its slaty-blue plumage, was seen flying from tree to tree in search of the larger grubs and insects. Its nest, placed on the horizontal limb of the tree, is composed of cobwebs and spider cocoons woven over a few shreds of bark from a neighbouring stringybark tree, and so shallow that one would hardly think that the eggs would be safe from being tipped over the side.

Further excursions were made up the mountain from the Mount Stuart side, when the ascent was encountered by way of the Newtown track. This proved an arduous task, but revealed fresh treasures in both bird and plant life, and notes and specimens were gathered which will be valuable for future investigation in more leisure hours. Ferns were in great variety, from the huge tree-fern, growing to a great height, down to the small moss-like species growing parasitically on the decaying trunks of trees and the logs that cover the ground in profusion. Mosses and lichens were gathered in much variety of shape and colouring.

LAUNCESTON.

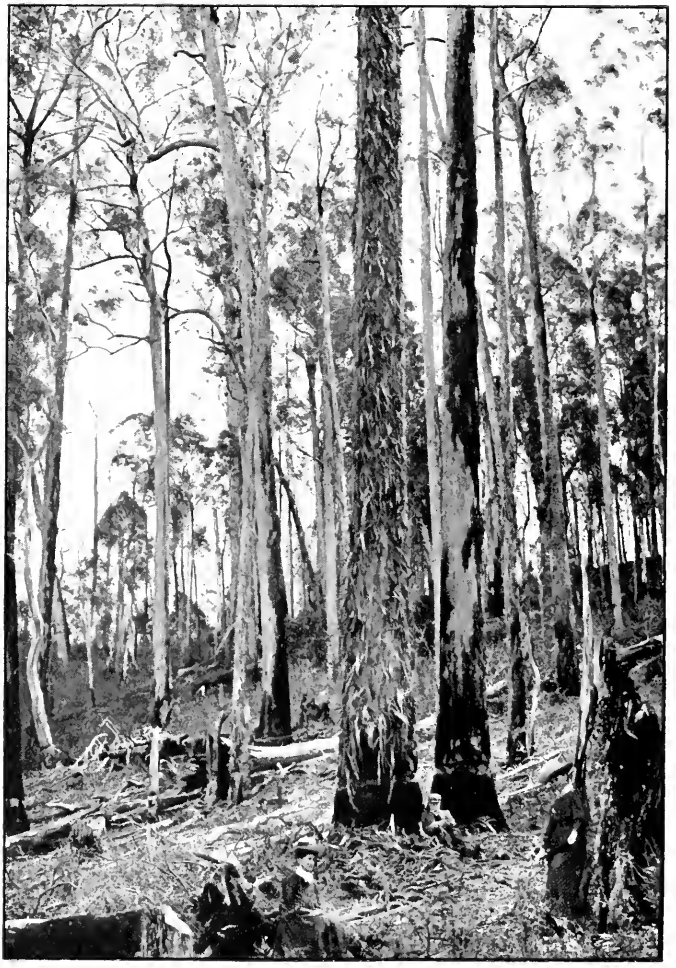
Many interesting notes were taken while the members of the Union were in Launceston, although the time was very short. Numbers of birds were seen and identified in and around the city, the locality being an ideal spot, as so much growth abounds on every hand, where shelter and food can be obtained. The Cataract Gorge Reserve, with its steep, rocky cliffs and mountain crags, shelters many of our feathered friends, and here a peculiar incident was noted in two different Cuckoos having placed their eggs in the nest of the Brown-rumped Tit, commonly called the Brown-tail. The Cuckoos were the Bronze (*Chalcococcyx plagosus*) and the Fan-tailed (*Cuculus flabelliformis*). The nest was not disturbed, and various ideas were expressed as to the results when the young birds hatched ; but, unfortunately, a day or two after, some one of a destructive turn of mind destroyed both nest and eggs. In the swamps near the city a fair number of Swamp-Hawks (*Circus gouldi*) soared above the flags and reeds in search of their prey, and in appearance they seemed to differ but little from our mainland species.

MOUNT BARROW.

One of the most interesting and enjoyable of the many functions arranged by the Tasmanian members of the Union for the visiting delegates from other States was the working camp at Mount Barrow, held from 27th November to 5th December. The locality is admirably situated, being the source

of the St. Patrick's River, in the north-eastern corner of the island State, and from which the water supply for the city of Launceston is ultimately drawn. The headquarters of the camp were at Mr. Edwin J. Prestidge's farm, "River-Made," on the banks of the clear, cool stream, and we soon christened it "Veronica Camp," on account of the large bushes of a small-leaved species of this plant that grew around, and had been trained into symmetrical forms. Here Mrs. Prestidge and her daughter attended to the material comforts of the party in a thoroughly competent manner. Rain somewhat marred the pleasure and success of the undertaking for a couple of days, but as this cleared off, and the genial sunshine appeared, the birds came forth in abundance, and their many and varied voices made the dense woods and hillsides resound with melody. It was some little time ere the visitors could accustom themselves to the somewhat changed notes of the birds, some species resembling those of the mainland, while others are peculiar to Tasmania; but by close observation and careful study these difficulties were soon overcome, and quite a number of species were identified during the sojourn of the naturalists in the district. Several species of Robins were seen, most of which were noted with young, the plumage of which is dull, and different from the bright uniforms of the male parent birds. The Robins construct their nests very prettily of shreds of bark, lined with fur and hair, and on the outside little pieces of green moss and lichens are stuck to make the abode look like the tree on which it is placed, and so deceive the little birds' enemies, who would fain prey upon the eggs and young. The best example of this deceptive mimicry was observed in the nests of the Pink-breasted Robin (*Petroica rhodinogaster*) and the Scarlet-breasted Robin (*P. leggii*); the nest of the Dusky Robin (*P. vittata*) was always found in some crevice or ledge of a charred tree trunk, or placed in the upturned roots of a giant eucalypt that had gone down before a gale years ago. These sombre little birds were plentiful. Honey-eaters of several species were noted, the Yellow-throated (*Ptilotis flavigularis*) being a native of Tasmania. The peculiar Yellow Wattle-Bird (*Acanthochæra inauris*), whose long, fleshy, pendent wattles make it at once an interesting object of study, was rare. The Spinebill, with its peculiar awl-like bill, flitted about the many flowers, and its pleasant note of "Ting-ting-ting" was often heard. The colour of this bird was noted as of more sombre hue, but otherwise the markings are identical with those of the mainland species (*Acanthorhynchus tenuirostris*). The Strong-billed Honey-eater (*Melithreptus validirostris*) and the Black-headed (*M. melanocephalus*) were seen in the tree-tops, where they hang their cup nests free from harm's way. Both these species are peculiar to the island State, and are fairly

PLATE XIV.



Eucalypt bark ripped by Black Cockatoos in search of larvæ.

FROM A PHOTO. BY A. H. E. MATTINGLEY.

abundant. The work of the Black Cockatoo (*Calyptorhynchus funereus*), in searching for its food in the dead eucalypts, was very noticeable, these birds literally shredding the bark off the stringybark species and picking out with their hard, strong bills the larvæ of injurious insects which destroy the forest trees, but it was noted that only the dead trees were worked upon, and so the birds are exceedingly useful in keeping in check large insects that would fast multiply and menace our forest possessions. (See illustration, Plate XIV.) In the swampy situations the plaintive note of the Swamp-Quail (*Synœcus diemenensis*) was heard, and the bird occasionally flushed; also the Spotted Ground-Bird (*Cinclosoma punctatum*), which was greatly admired on account of the pretty spotted appearance of the plumage. The Brown Scrub-Wren, whose habits take it in the dense scrub, was often seen under the shady bowers, picking up insects in the decaying leaves and vegetation, its sombre plumage being in marked keeping with its lowly surroundings and occupation. Tasmania's only Finch (*Zonœginthus bellus*), or the Fire-tail, as it is locally called, on account of the brilliant patch of scarlet above the tail, was here identified, being only moderately plentiful. It searched out its food in the long grass and herbage. The Small-billed Cuckoo-Shrike, locally known as the "Summer-Bird," was noted nesting, and likewise the Tasmanian Butcher-Bird (*Cracticus cinereus*), the latter being exceptionally pugilistic whenever a bird approached its nest of young, even should the intruder be of many times its own size, and would even fiercely attack a large Brown Hawk, and drive it off. A Raven with young was noted in the vicinity, and it was stated that these birds are exceedingly troublesome on the farm, worrying poultry and carrying off eggs. The Wedge-tailed Eagle (*Uroaëtus audax*) has also a bad name in the district, and is said to have carried off a small pig to its aerie. These birds were observed soaring at great altitudes, but they always kept in these elevated positions, and avoided their enemies. Night-birds were scarce; indeed, the only species identified from its notes was the Spotted Owl (*Ninox maculata*), whose mournful cries were heard on several occasions in the dead of night, as it uttered in subdued tones the words "More pork," being much more feeble in tone than that of the mainland species (*N. boobook*). Much work was also done in botanical collecting, the place being rich in dense masses of verdure, especially in the limited gullies where tall myrtles, blackwoods, sassafras, and other kinds of moisture-loving trees grow to a great height, and on the more elevated positions the giant eucalypts raise their lofty heads above the lower and more bush-like herbage of acacias and other pinnate-leaved plants and shrubs. Much regret was expressed by all at the great destruction of the beautiful and noble forest trees by ring-

barking, merely to kill and get rid of them. Some of these slain giants, as they lay in decay, measured 220 feet in the barrel, almost without a limb, and beautifully straight and workable in the grain, and it was pointed out that some day the abuse will have to be accounted for, although several generations may pass away ere that time arrives, and those not responsible will surely suffer. Various excursions were made at intervals to outlying places, so that more varied specimens could be collected, and not the least profitable of these was that to the summit of Mt. Barrow, whose topmost peak is 4,644 feet above sea-level, or about 500 feet higher than Mt. Wellington, and here from the pinnacle a splendid panoramic view was obtained of the country for miles around, while beyond the sea was visible, with some of the Strait Islands dotted on its surface. The climb, which is of circuitous route, occupies the best part of a day, being 5 or 6 miles in length, but the scenic effect well repays the trouble taken. The vegetation resembles that of a cold region, being of extremely hard and tough growth, to withstand the fierce gales and the ice and snow that perpetually cover the summit in winter time, and this season being exceptionally cold and wet, these elements have kept up far into the spring and summer, and the naturalists were able to indulge in a little pastime of snowballing. On another occasion two members of the party had some exciting experiences in being caught in a snow storm on the mountain heights when far from home, but, happily, reached camp none the worse for their exposure. Camp was struck on 5th December, and most of the members made their way back to Launceston and home to their several States, high in their praise of the courtesy and attention shown by the Tasmanian people in assisting in scientific research, the names of Mr. W. M'Gowan, Superintendent of City Parks and Reserves at Launceston, and Messrs. H. C. Thompson and F. M. Littler, of Launceston, being specially mentioned.

MOUNT ARTHUR.

After the members had returned to their several homes I had the pleasure of yet another mountain region exploration in company with Mr. H. C. Thompson, of Launceston. This expedition was directed towards that high eminence, Mt. Arthur, which is situated in a north-easterly direction from Launceston. It was on the 15th December we set out by the afternoon train for Lilydale, a station some 3 miles from the foot of the mount. Here we started to carry our swags, which were heavy, but "a friend in need" happened to pass our way who proved "a friend indeed" by carting us to our destination, "Craigellachie," the property of Mr. W. M'Gowan, who kindly placed at our disposal his mountain retreat, a small unoccupied house

used for week-end and holiday excursions by his family. Here we soon made ourselves at home, and it was not long ere we were seated before a warm fire, with hot tea and bush eatables, and right glad we were, as, although the day had been warm, the night air in these elevated situations was sharp and keen. Next morning we were early astir to catch sight of anything new that might cross our path, and a number of birds were identified in the thick bush growth and timbered country. Where giant trees had gone down before the fierce blasts of the mountain gale and their upturned roots stood gaunt and high in the air, we ever and anon came across the nest of the Dusky Robin placed in a sheltered spot among the gnarled roots. These birds also like to build in the recesses of a dead giant of the forest which has been burnt out, and here in a ledge we found a nest with three olive-brown eggs, but in nearly all cases the nests were empty, the young having not long left them. They were flying about with their parents, their mottled plumage distinguishing them from the more uniform brown of the old birds. A nest with three eggs of the Dusky Fantail was found, placed on the low horizontal branch of a tree. Our rambles during the day were long and rough, as the country is not opened up to any extent, and the deep gullies are well-nigh impenetrable, the growth of huge tree-ferns and bushy trees being so thick that daylight is quite subdued beneath their leafy shade. Single leaves of the tree-ferns measured 12 feet long from stalk to tip, and up their moist and thickened trunks numerous small ferns and mosses grow in rich luxuriance, the delicate green of these contrasting greatly with the dark brown, pithy trunks on which they grow. Here the beautiful Pink-breasted Robin and the Brown Scrub-Wren were seen. The melancholy boom of the Brush Bronzewing Pigeon (*Phaps elegans*) was heard, and in such dense surroundings the notes were decidedly lonely and uncanny, and as evening shades arrived came the still more weird notes of the Spotted Owl.

A sharp look-out was kept for the appearance of a Tree-creeper which, it is stated, has been seen in these localities, but which has not up to the present been properly substantiated, but not a sign of the bird was forthcoming, although on more than one occasion notes resembling a Tree-creeper's were heard, but on finding out the bird in the leafy boughs of the eucalypts it in every case proved to be the Black-headed Honey-eater; but should a Tree-creeper inhabit these localities it will in all probability be allied to the White-throated species (*Climacteris leucophæa*), which is found in like country on the mainland. The liquid notes of the Tasmanian Shrike-Thrush (*Collyriocincla rectirostris*) were heard on every hand, and two species of Thickheads were identified—*Pachycephala glaucura* and *P.*

olivacea. The notes of these birds were loud and clear, and but for their frequent repetition the birds would be passed even by the close observer, as they delight to frequent the thick, low eucalypt and acacia scrubs, where they build and rear their young. Both species had their offspring full grown, the colour of the latter being of a peculiar rusty-red colour on the under surface. A fairly common bird was the Brown Scrub-Wren, which hopped over the logs in the shaded and damp places, often followed by two young ones, which were occasionally fed by their parents with some insect tit-bit. These birds were extremely inquisitive if one lay down and quietly watched the birds at work. The Flame-breasted Robin was abundant, while the Scarlet-breasted variety was scarce. In the way of Tits, the secluded leafy retreats formed beautiful hunting grounds for these little friends of the garden and field, which are ever on the alert to search out and devour in their small yet ever persistent way the small insects that do such damage to trees and flowers and all vegetable life. The species were few but individually well represented—the Brown-rumped Tit (*Acanthiza diemenensis*) and the Yellow-rumped Tit (*A. chrysorrhoa*). *Zonæginthus bellus* was fairly plentiful, and had just commenced to nest, as pairs were seen carrying bits of straw to construct their nests, which were afterwards found in the high acacias and low gum trees. The Honey-eaters were fairly numerous, as their food supply is in abundance, especially when the multitudinous species of flowers are in bloom, with plenty of insects to vary their diet, as the Honey-eater likes a certain portion of these to keep up its healthy condition, especially in the cold weather. The largest of the family was the Yellow Wattle-bird, which was rare indeed. The Brush Wattle-Bird (*A. mellivora*), with its harsh, cackling note, was in evidence, but the most plentiful was the Yellow-throated Honey-eater. The White-bearded and Crescent Honey-eaters were also abundant, while the Tasmanian Spinebill flitted from tree to tree in search of its honey food. The Strong-billed Honey-eater (*Melithreptus validirostris*) was often seen in the low trees, while its ally, the Black-headed (*M. melano-cephalus*) kept in more elevated positions in the tops of the high towering gums, almost out of sight. The Grey Butcher-Bird (*Cracticus cinereus*) was seen on several occasions in the timbered localities, and the Magpie (*Gymnorhina hyperlenca*) frequented more open country, while Ravens were observed in the giant trees of the forest, well up out of harm's way. The Small-billed Cuckoo-Shrike was fairly plentiful in all situations, its habits being identical with those of its near ally of the mainland. The Yellow-tipped Diamond-Bird was also a common bird, while the Spotted variety (*P. punctatus*) was rare. A sharp look-out was kept for the smaller and more sombre species, the Forty-spotted

Diamond-Bird (*P. quadragintus*), peculiar to Tasmania, but no sign of it was seen. A thing that strikes the observant naturalist as peculiar is the absence of Kingfishers in such a well-watered country as Tasmania, the only species being the Blue Kingfisher (*Alcyone azurea*), formerly thought to be different from the mainland species and termed *A. diemenensis*. This bird does not seem plentiful either, as it was only once seen during our sojourn in Tasmania. The hearty laugh of the Laughing Jackass, the king of Kingfishers, is a bush note that one misses in the timbered hilly country which covers the most part of the State, but Mr. M'Gowan some little time ago imported several pairs from the mainland and set them at liberty on his estate. There is no evidence of their presence now, and it is not known whether they have survived or not. The absence of the Lyre-Bird is another strange point that puzzles the ornithologist, as the gullies and ravines in many places are identical with those of Victoria, even to the trees and general flora.* It was suggested at the Congress meetings that this bird should be introduced from Victoria and let loose in some remote place where it would be free from molestation, and it was the opinion of the best authorities on the subject that it would undoubtedly breed and multiply even better than in its native habitat, as no foxes would here disturb its tranquillity.

In the open forest land, where the old gum trees stood dead and gaunt, was seen the Tree-Martin (*Petrochelidon nigricans*). It occupies the old dead limbs in which to rear its brood. Cuckoos were plentiful, doubtless, in such a bird paradise, finding plenty of facility for getting their eggs hatched and their young reared by the various foster-parents upon which they impose this arduous task. The well-known spring call of the Pallid Cuckoo (*Cuculus pallidus*) could be heard again and again in the bush country, and the smaller Fan-tailed variety was even more plentiful, while yet a third species of smaller size was present in the Bronze-Cuckoo (*Chalcococcyx plagosus*).

An excursion to the summit of Mount Arthur, known in the early days as "Row Tor," was amongst the items set down to be accomplished during the short time in camp, but it was not for several days that the weather cleared up sufficiently to warrant the undertaking, consequently it was the morning of the 18th December when I packed my satchel and shouldered my little collecting gun and set forth in the glow of the rising sun. Ere long it shone down with all the ardour of a summer's day, and it was only when in the depths of some densely grown gully with a trickling stream winding its way at the bottom that one felt at ease. In one of these sylvan glades a Black Cockatoo (*Calyptorhynchus funereus*) was flushed from a tree where it was

* See "Some Comparisons of Victorian and Tasmanian Birds," *Emu*, vol. iv., p. 109.

busily tearing away the dead bark in strips to get at the grubs that live on the wood. These birds were seen on several previous occasions, but were flying high above the trees, and were decidedly wild in their habits, not allowing one to get within shot of them. Higher up the mountain smaller birds were met with, such as the Flame-breasted Robin and the Crescent Honey-eater, but as one pushed on up the rocky heights even these at length disappeared, and the aspect was solitary indeed, with little or no vegetation, the rocks bare and weather-worn with the gales of centuries. The summit was reached at 2 p.m. There I was surprised to find four ladies and a gentleman who had just completed the ascent. There, at an altitude of close on 4,000 feet above the sea level we viewed the splendid panorama that opened out on every side, and were exceedingly glad to rest after the heat and toil of climbing the rugged slopes. But the heat did not continue long, for, in a short time, a grey mist sprang up from the south, and with a freshening breeze the summit was soon enveloped. Within a comparatively short time the mist had changed to snow, which settled down thick and fast and covered all trace of tracks, making it impossible to be sure of one's foothold, as rocks and crevices and low bushes appeared alike to the eye. Things began to look serious, but by dint of perseverance and hard work we steadily pushed on, and although wet and drabbled from head to toe, and sore from bruises sustained from the falls on the slippery rocks, the party were soon safe on the track. Our freezing limbs and fingers were made to tingle with warmth by the exercise of a little friendly snowballing. The descent of the mountain was finally accomplished, and right glad we were to partake of a cup of good warm tea and get round the log fire which waited our return.

THE GREAT LAKE DISTRICT.

It was my privilege to be able to pay a visit to the Great Lake district, which is situated on the top of the Western Tiers at an elevation of nearly 4,000 feet above the sea-level, a locality that has not been opened up to the traveller until quite recently, consequently of more than ordinary interest to the naturalist, as nature is practically undisturbed. Not having a companion of like tastes, I had perforce to travel alone. Taking train from Launceston to Longford, I took coach the same evening for Cressy, where shelter for the night was obtained. Inquiries soon elicited a favourable reply that access to the "great unknown" could within the next day or two be an accomplished fact, as my host would be starting away next morning with a visitor from Ceylon on a fishing tour to the Great Lake. Arrangements were soon made for me to join the

party. Next morning, being early astir, we three were conveyed to the foot of the Western Tiers by horse and cart. Assisted by a local guide and his son, with a pack horse, we began the steep ascent. A fairly accessible track now winds up the mountain side, though almost inaccessible gorges and rocky precipices abound on either side. A beautiful panorama opens up as the top is gained—the plains away to the north and the sea beyond, and in a huge basin on the top of the heights the Great Lake, with a circumference of 96 miles, winding about in bays and points like a huge inland sea, the water being perfectly fresh, with here and there a tree-covered island in its midst. The trees and shrubs are dwarfed and of a hard and rough nature, similar to those found in alpine latitudes. The day had been very hot for the ascent, and we were glad to pause after our day's travel and have some billy tea and snack of food. The lake is some 2 miles from the summit of the surrounding heights ; the intervening slopes and flats are swampy spaces covered with alpine growth. With care they can be crossed dry shod, but just a slight slip and one is up to the knees in water and bog, as the ground is peaty and treacherous in the extreme. At the shores of the lake I took my leave of the fishing party, and was fortunate in securing shelter and food from a shepherd, whose lonely house stands near the lake shore. Next day observations started early. I was rewarded for an early rise by being able to see numbers of birds, although the varieties were somewhat limited. Here the Yellow Wattle-Bird (*Acanthochæra inauris*) was fairly plentiful, and could be detected by its harsh, guttural notes as it fed upon the honey of the flowering eucalypts. Some of these were full-grown young ones, showing that the time of breeding was past. Two species of *Strepera* were plentiful—the Hill Crow-Shrike (*S. arguta*) and the Sooty Crow-Shrike (*S. fuliginosa*). The latter could be easily distinguished even at a distance on account of the clear ringing cries, resembling the words "Cre-ling-g-g-g, cre-ling-g-g-g," with the accent on the last syllable and a drawing out of the sound, while the former's note is more of a harsh guttural sound, resembling "Cralack-a-lack-a-lack-a-lack," with the accent on the "lack" each time. Numbers of old nests of both birds were seen, and large young were with their parents flying about, and in one instance a fresh nest was found with one fresh egg. Two seemed to be the usual clutch. A few Ravens were present, but owing to not killing any their exact identity was not settled, but they appeared to be the same as those on the lower levels. The Wedge-tailed Eagle (*Uroaëtus audax*) soared high above the mountain peaks, and was the only member of the Hawk family met with in these parts.

Numbers of smaller birds were seen in the thicker scrub and undergrowth in more sheltered spots, several Honey-eaters

being noted, the most plentiful being the Yellow-throated, a conspicuous bird in nearly all parts of Tasmania, which is its sole habitat. The Crescent Honey-eater could be seen and heard on all sides, giving forth its loud call of "Egypt," uttered with a liquid sound that corresponded well with the damp and dewy surroundings. The White-bearded Honey-eater was also present, identical with the low-level bird and those found on the mainland. The Tasmanian Shrike-Thrush, a bird confined to the island State, occupied the thicker leafy bowers, its beautiful liquid notes of exceptionally strong sound ringing out again and again. It was pleasing to identify the Spotted Ground-Bird (*Cinclosoma punctatum*) in these localities, and it would rise with a whirr-r like that of a Quail and alight a few dozen yards ahead, running along the ground with great rapidity. Out on the swampy flats several large Snipe (*Gallinago australis*) were flushed from their feeding grounds, which somewhat resembled localities on the slopes of Fusiyama, in Japan, where these birds repair every year to nest and bring up their brood of young. One could hardly think that they need go to such distant climes to carry on their nidification, and the question is asked "Why?" but as with others of the Snipe family we can only conjecture their motives for so doing. Amongst the bushes which grow near the small streams crossing the open flats the Long-tailed Blue Wren, with its sombre female, was often seen, and brought out of its hiding place by gently twittering with the mouth. In these places also a few specimens of the Striated Field-Wren (*Calamanthus fuliginosus*) were observed, but they were extremely shy, and kept well to the cover. The Welcome Swallow (*Hirundo neoxena*) skimmed over the surface of still pools in search of gnats and small insects, while the Tree-Martin (*Petrochelidon nigricans*) was also present. There seemed to be a great scarcity of water birds, and only occasionally they were met with, in the shape of a White-fronted Heron (*Notophoyx novæ-hollandiæ*) or one of the Duck family. Perhaps the season was too early for these, as it is stated that numbers of Cormorants and Silver Gulls are to be seen at certain times of the year, but during the middle of winter the water freezes to the extent of 12 or 15 inches thick. A sharp look-out was kept for a species of Diver that Colonel W. V. Legge states having seen on the lake on one occasion, but nothing further could be ascertained as to its identity.* The absence of house flies here was noted, but they are more than replaced by the common brown meat fly, while at night a small, darkish sandfly proves a nuisance. The waters of the small rivers and inlets of the lake are plentifully supplied with the duckbill platypus, and as

* See *Emu*, vol. iv., p. 109.

PLATE XV.

Paradise Ducks (*Casarca variegata*).

FROM A PHOTO. BY RICHARD HENRY.

evening shades come on these are to be seen swimming about in dozens, but they are extremely shy, and will dive or dart away at the least noise. On the morning of leaving the lake I was fortunate in observing a peculiar phenomenon in the shape of a waterspout, or, more correctly speaking, a water whirlwind, for such it was, the water being caught up into the air by the rushing wind and whirled away over the surface of the lake to the height of about 30 or 40 feet. On descending the Tiers heavy rain was experienced, which made progress slow, but as lower levels were reached the weather became clearer, and many more species of birds were seen, which correspond with those plentiful on the plains below, but a bird not seen previously was the Blue-winged Grass-Parrakeet (*Neophema venusta*), a few specimens being seen feeding in the grassy localities. The Shining Flycatcher (*Myiagra nitida*) was nesting in the forest land, the round, cup-shaped nest being seen high in a lofty eucalypt out of harm's way. The Black Cockatoos were about in search of grubs and insects in the soft outer wood of the dead stringybark trees. Robins and various species of Flycatchers were noted, and after a week's sojourn a return was made to Launceston, the time having been very profitably spent, from a naturalist's point of view, in this comparatively new country.

Paradise Duck at Resolution Island, New Zealand.

(Casarca variegata.)

BY RICHARD HENRY, DUSKY SOUND.

ON the 20th September I saw my tame Paradise Duck going into holes in the bank and climbing up sloping old stumps, evidently looking for a place for her nest safe from the Wood-Hens. About a week later I missed her in the morning through hearing her mate calling for her, and took it that she had started the nest somewhere. Instead of coming out of some nook about the cove she came flying high from the southward. I thought then that she had her nest out on some of the little islands where there were no Wood-Hens, and was very eager to know where it was. During her absence her mate was often calling for her, and would go away northward looking for her. Then she would come and call and go away after him, and I was disappointed, for I thought them intelligent enough to manage better than that. However, it only lasted a few days, and then he would wait, perched on a stump, expecting her. She would call out when she would be coming, and I could hear her loud voice far away. That was how I knew the way she came. He would hear it too, and fly up to meet her, and they would have such a greeting when they pitched in the cove. He would bring

her straight up to the house to the food-box, and stand by without eating a grain himself until she had finished. He was a perfect gentleman.

Later on she stayed away longer and longer, as if training him to have patience, in view of the time when she was hatching. At first I thought he knew nothing about the nest. I believe now that he did, for he stayed here as if on duty to protect the feeding ground for the family. He chased the Teal away altogether, and he would not even let a Shag come into the cove. The two Gulls used to insult him, but now they keep wide of him, also the Wood-Hens. He used to run after the Wood-Hens and hiss at them, but now he flies at them if they come on the beach, and they cannot bear the sight of him. So it is evident that he knows what he is about. All breeding Paradise Ducks claim an exclusive right to their feeding ground, and will fight all intruders.

The female has her nest in a hole, because her beautiful white head is always soiled with the earth where she touches it going in and out, but it is not far in, because she is often scratching her head, and the sand-flies will not go into dark places. She would not have the slightest chance of saving an egg on Pigeon Island if she left it unprotected for five minutes in the daytime, there are so many Wood-Hens. If they once located the nest they would watch there until she left it, and then have the eggs. We saw them at that with our Goose nest. And if she has gone to a place where there are no Wood-Hens, there is not a scrap of difference between her reason and knowledge and the very best that a man could apply. She will need it all to rear a family here. Imagine her swimming in a mile or two with the little ones exposed to the rough sea and the ravenous sea birds, and then the cunning, thieving Wood-Hens when she lands. To be successful would be a task for all the highest qualities of reasoning humanity. Yet I have no doubt those two Ducks will rear a fair proportion of them, if the guns are kept out of their field. Later on, when she came for food, she was always in a nervous hurry, would gobble up a few mouthfuls, and take him away with her, and sometimes she came and took him away without touching her food. I thought she was trying to teach her mate that he should take his turn at hatching, for one day she came and did not call for him at all, but took a leisurely outing. But he was either too blockheaded or wanting in experience.

She was about twenty days hatching before I even found out the locality she was in, though I spared no pains to try and do so whenever I was at home. I had cut a track on to a cliff on the south side, so that I could go over quickly and see the way she went. Several times I was too late, and when I did get over in time the pair came flying along the south coast, going

eastward instead of south as they always started away. They turned in over the end of Pigeon Island, and went up a wooded valley on Resolution Island. Some days later I was coming home in the launch, and saw the female flying high, going for food. I knew she would not be long, so stopped and waited, and in a little while the pair came back, flew right past me, and turned round a point out of my sight. I turned back, expecting to see the drake on the beach near the nest, but had to go over a mile before I saw him at the mouth of Earshell Creek. Then all my good opinion of the duck's judgment disappeared, for I knew that place to be full of Wood-Hens. However, I brought down her food-box and set it up on a stump, where she could see it, so that she could stay there to mind the eggs; also scattered some wheat on the beach for the mate. I wanted to get a photograph of the nest, so went down again, snared all the Wood-Hens to be found, and waited a long time without a sign of the duck. Her mate stayed there hunting up the wheat among the gravel. On the 18th November, just a month after she started hatching, as I thought, I was coming home again, and went round that way, stayed to catch a few fish, and by good luck saw the pair coming. The duck gave a twirl, and went down under a cliff nearly a quarter of a mile before she came to the beach, and the drake sat on a rock at the mouth of a glen, and by the time I got there the duck had disappeared and the drake had flown away to his beach. What a swindle, after all my trouble bringing the food and catching the poor Wood-Hens! However, she may have intended that beach for feeding the ducklings, and a good place it is. That beach is about one of the best for stranded mysis, which the young ones will largely depend on for food. The sound is full of it now, but the weather is very bad.

Next day the duck came in a great hurry, called for her mate, and off again without stopping. She must have covered up the little ones and left them in the nest, knowing that she could not take them out and protect them for a moment without his assistance. The following day was so stormy and wet that I was indoors and pitied the poor ducklings. The next morning was little better, but I went down in the launch. There was no sign of the Ducks, but I had a long look for the nest without finding it. There were plenty of benches and clefts about the rocks and plenty of Penguins' holes, with their young ones, under rocks and the roots of trees. A Wood-Hen would not go into a hole if there were any chance of a Penguin in it—it might get its head crushed—and I think the duck's eggs were quite safe in any of the holes about there. Many birds breed near others for protection, and that is probably why the duck chose that place for her nest. While I was looking for the nest the wind and sea got up so that the little engine had a struggle to take me up

the rough coast to the shelter of Pigeon Island. When I got home the two Ducks with four young ones were on the beach! They were tiny little things, the colour of the sand, with two dark stripes down their backs. How did they manage to get up such a day as yesterday? Of course there was only half a clutch, but it is wonderful that they brought any in such rough water and against the wind, for while I was looking at them a gust nearly blew them all into the scrub, they were so light. They would not let me near enough for a photo., but went in the rough water, so that I had to come away and leave them, but they stayed in sight of my window all the afternoon. The drake devoted his whole attention to protecting them. He seemed not to eat a morsel himself, though there was plenty of food on the beach in stranded mysis. More than half his time he was after the Wood-Hens, for there was nearly always one peeping out behind some bush or stone in case a young one would come near enough to be grabbed. That night (22nd) was awfully rough from the south-west, with squalls and roaring hail storms about every hour, and so cold that I had to get another blanket. I did not expect to see any young Ducks in the morning, but planned to be up early for a dead one to get its photo. I saw the mother settling for the night on the cold, stony beach, afraid to go in the scrub for shelter. With the glass I saw that she had her wings so low that the little ones could stand on the quills. In the morning the whole of them were at the door and the young ones busy plucking the grass. With perfect confidence they brought up their precious charges and presented them at the door—about the greatest compliment I was ever paid, for these are real wild Ducks in their natural state, and at this time of year are independent of the food I give them. They saw that I was friendly, and trusted me. But think of the intelligence it required for them to understand that so clearly.

By the 25th the drake has not half the trouble with the Wood-Hens. He has a single note, a new note to me, which he uses like a sentinel. It means, "I am on duty, keep wide," and the Wood-Hens obey promptly, for all of them that live here have had a few lessons. The duck has also a new note to call his attention, but she does not need to use it often. When she does so, it is like an electric shock to him, for he jumps on the wing ready to fight anything. When the little ones are coming through the narrow place on to the grass he knows it is dangerous and keeps right over them while they are passing. I think he would have protected the whole family of twelve if he could have brought them up that rough day, his attention is so keen and constant. Yet the first day I saw the performance I thought he had a hopeless task, and that he might as well give it up. Fancy some imported Duck trying to rear a family here, without his

knowledge and attention! The young ones only eat a little grass, and depend on animal food such as mysis, sand-hoppers, shrimps, and items that they get at low tide. They do not appear to eat a grain of the wheat out of the old ones' food-box, but they have eaten a little porridge out of the water in the food-box, which the old ones will not eat. The little things hunt for their own food, and must be able to choose what is right without any teaching from the old ones. The 27th was another solid day's rain. I heard the duck's scream, and looked out the window and saw the drake thrashing something on the beach. He twirled it over, and flapped it on all sides. When I got down I found it was a little blue Penguin, a tender, young one, and that he had killed it. I believe he could kill a Hawk if he once got hold, for his fighting knobs are far out on the wings, giving a leverage like the handle of a hammer.

If there had been extensive grass land here the year the caterpillars were a pest (1903) the Paradise Ducks might have reared large families on them, for I remember a beach on Te Anau Lake where every green thing about it had been eaten by caterpillars, even the rushes, and the Paradise Ducks had their young ones there then. The little Ducks here now are continually looking and feeling for something in the grass which they do not seem to find. I do not think the Paradise Ducks could rear their families out on the plains every year now, as they used to do, if there are no grasshoppers. Their only chance would be to rear them in seasons of insect pests, as we call them, but which in reality may be part of the plan for carrying all things on together.

2nd December.—When the wind blows off my beaches the seaweed is all cleaned off at high tide, and then no food comes ashore, so that even the Wood-Hens desert them. I knew that this might happen any day, and wondered how the little Ducks would manage then. The first day it happened I missed the drake, when I was preparing to go in the launch, and some hours afterwards met the whole family of them out in the rough water. They knew my boat and took no notice, but kept their course north-east. I was so much interested in their trip that I went up in the evening to see where they were. I was twenty minutes going before I saw them, and that amounted to a mile and a half. They were right at the head, all very busy catching live mysis in the calm water. The little ones, in particular, were very lively, diving and darting about like fish. I saw they were all right in a good place, and came away. About dusk they all came home, though there was a good breeze against them for more than half the way. The old ones did not come up asking for food, so that they must have got all they wanted in their day's outing. Evidently the drake flew away round the harbour in the morning looking for mysis, found some, came back and

told the family and took them to it, for it was the only patch in the harbour at the time—I could tell that by the Gulls.

9th December.—It is a regular thing now for the drake to go away in the mornings looking for food, and if he finds any to take out the family and bring them home at night, and then come up asking for wheat for himself. The little ones will eat wheat since they were 14 days old, but it is evident that they would prefer the insect food. One of them disappeared a few days ago in my absence, and there are only three now. The mother was also hurt, as if hit in the back, and I am almost sure it was a Sparrow-Hawk.

Now when the drake is absent she makes the little ones lie among the stones where they cannot be seen, and lies herself on the brown seaweed that suits her colour. Perhaps it was then the Hawk came. The Skua Gulls are also about, and just as bold as Hawks. I saw one of them trying for a duckling, but the drake blocked him. They have lots of enemies, and will require all the little arts and plans to rear the young ones. The little fellows are growing rapidly, and can run like rabbits now and dive like Shags, so that they have a fair chance of surviving. The drake has no end of courage, and would go for anything that went near his young ones, even the dog. Think of the time it takes to rear these Ducks, and of all the little arts and plans for their protection—the accumulated experience of thousands of years. Yet we destroy them for amusement!

Birds of Ararat District.

BY G. F. HILL, WELLINGTON, N.Z.

PART I.

DURING a residence of nearly ten years in the Pyrenees, a range of hills near Ararat, in the north-west province of Victoria, I had many and excellent opportunities of observing the bird life of that region. It must be remembered that the Pyrenees are the extreme western flank of the gold-bearing slate rocks of Victoria, and so they come to partake, in the nature of their avifauna, of the character of the central and southern regions, seventeen species of Passerine birds not being found any further to the north-west. The Grampians, however, unique sandstone ranges, standing an easy day's journey to the westward, probably possess the same quota of bird life.* But the Mallee, which occupies the north-western horizon in a long, unbroken line, has little in common with either—only one species of bird peculiar to its great domain (namely, the Chestnut-backed Ground-Bird)

* See *Emu*, vol. vi., p. 71.

comes on to the Pyrenees. The following are the birds found about Ararat :—

HARRIER (*Circus gouldi*).

GOSHAWK (*Astur approximans*).—The commonest and most destructive of the Hawk family. Green trees on the thickly timbered stringybark and box ridges are invariably chosen for nesting places. The nests are built of small sticks, and lined with about 1 inch in thickness of green leaves. Four eggs are generally laid.

SPARROW-HAWK (*Accipiter cirrhocephalus*).—This species is seldom seen.

WEDGE-TAILED EAGLE (*Uroaëtus audax*).—Ten or twelve pairs nested in the district—sometimes in the dead trees, on open, level country, but more often in growing timber on hillsides. The nests, like the Goshawks', are lined with green leaves. In 1898 one egg was taken from a nest, and on returning eight days later two more were found, one of which was similar to the first, while the other was smaller, lighter in colour, and marked at the reverse end. On one occasion a large male bird was seen to hunt a calf three or four months old, while its mate flew from tree to tree, watching the proceedings. But for the timely arrival of the owner there is little doubt that the calf would have been killed.

WHISTLING EAGLE (*Haliastur sphenurus*).—Usually found along the creeks, where the topmost branches of the red gums are selected for nesting places. These birds are numerous throughout the year, but become more plentiful in December and January, when they are attracted by the smell of poisoned rabbits.

BLACK-CHEEKED FALCON (*Falco melanogenys*).—Rarely seen except on the rocky western slope of Mt. Mistake, where there is little doubt they build.

BLACK FALCON (*Falco subniger*).—A very rare visitor, seen only during the rabbit-poisoning period.

STRIPED BROWN HAWK (*Hieracidea berigora*).—Only one specimen was identified, though no doubt the apparent scarcity may be due to the fact that for some years I believed that there was only one species of this genus in the locality.

BROWN HAWK (*H. orientalis*).—A common bird in all parts of the district, though the eggs are rarely taken, owing to the inaccessible positions selected for nesting. Unlike the Goshawks, they usually build in exposed places in isolated trees. They live principally on rabbits, and during the summer months, when rabbit-shooting becomes a part of the farm work, I have seen these birds follow a shooting party, and even fly over the dogs when hunting in order to secure the dead rabbits.

BOOBOOK OWL (*Ninox boobook*).

SPOTTED OWL (*Ninox maculata*).

WINKING OWL (*Ninox connivens*).—One pair nested regularly in a hollow branch not far from the house. Last year one of the birds unfortunately was shot before the young had left the nest, and, although the other remained in the vicinity of the tree for some time, both the young died when nearly old enough to leave the nest.

RAVEN (*Corone australis*).—A common bird during the summer. Young rabbits, small birds, eggs, grain, and fruit of all kinds form the greater part of their diet, which also includes carrion. I have seen Ravens fly away with walnuts and crack the shells by striking them against stones, but seedlings found in the bush prove that they are not always successful in opening them.

GREY CROW-SHRIKE (*Strepera cuneicaudata*).

CHOUGH (*Corcorax melanorhamphus*).—The nests, which are built of mud and lined with bark, are added to year after year until they fall from the branches on which they are built. From two to eight eggs are laid, though I think that in some cases more than one female lays in a nest.

BLACK-FACED CUCKOO-SHRIKE (*Graucalus melanops*).

LITTLE CUCKOO-SHRIKE (*G. mentalis*).—One specimen only was seen.

WHITE-SHOULDERED CATERPILLAR-EATER (*Lalage tricolor*).—A late spring arrival, which leaves the district after nesting.

BROWN FLYCATCHER (*Micraca fascinans*).

SCARLET-BREASTED ROBIN (*Petraca leggii*).—A common bird in scrubby country, and noted as a foster-parent of the Narrow-billed Bronze Cuckoo (*Chalcococcyx basalis*).

FLAME-BREASTED ROBIN (*Petraca phœnicea*).—A few birds arrive in the winter, but do not remain long.

RED-CAPPED ROBIN (*P. goodenovii*).—A rare bird here, generally seen amongst the wattles.

HOODED ROBIN (*P. bicolor*).

SHORT-BILLED TREE-TIT (*Smicrornis brevirostris*).—These birds are readily recognised by their loud, cheerful note. The nests are built in the tops of the low gum scrub, and are most difficult to find.

BLUE WREN (*Malurus cyaneus*).—Noted as the foster-parent of Narrow-billed Bronze-Cuckoo (*Chalcococcyx basalis*) and Black-eared Cuckoo (*Mesocalius palliolatus*).*

WHITE-SHAFTED FANTAIL (*Rhipidura albiscapa*).

RUFOUS FANTAIL (*R. rufifrons*).—One specimen was seen.

BLACK-AND-WHITE FANTAIL (*R. tricolor*).—A specimen with uniform black plumage was seen many times, and appeared to be unmated.

LEADEN-COLOURED FLYCATCHER (*Myiagra rubecula*).—I have only one record of this bird being seen here.

RESTLESS FLYCATCHER (*Sisura inquieta*).—Fairly numerous six or seven years ago, but now very scarce

REED-WARBLER (*Acrocephalus australis*).—A few birds nested in the reeds along the Wimmera River.

GROUND-THRUSH (*Geocichla lunulata*).—Found only by the tea-tree creeks at the foot of Mt. Mistake. The nests are sometimes built 3 or 4 feet from the ground in very slender tea-trees, but more often in the forks of gum trees at greater heights. Bark is used almost entirely in the construction of the nests, moss being rarely used, owing, no doubt, to the fact that there is very little of this material to be found in the locality.

LITTLE FIELD-LARK (*Chthonicola sagittata*).—Noted as a foster-parent of the Black-eared Cuckoo (*Mesocalius palliolatus*).

LITTLE TIT (*Acanthiza nana*).

BROWN TIT (*A. pusilla*).—A foster-parent of the Narrow billed Bronze-Cuckoo (*Chalcococcyx basalis*).

STRIATED TIT (*A. lineata*).

YELLOW-RUMPED TIT (*A. chrysorrhoa*).—Instances were recorded of these Tits building their nests in the lower portion of occupied Eagles' nests.

BUFF-RUMPED TIT (*A. reguloides*).

* See "Annotations," p. 197.—EDS.

SCRUB-WREN (*Sericornis*, sp.*)—I was not able to identify the species, which is fairly plentiful on Mt. Mistake and Mt. Cole.

SPOTTED GROUND-BIRD (*Cinclosoma punctatum*).—Formerly plentiful in the scrub country, but has become scarce.

CHESTNUT-BACKED GROUND-BIRD (*C. castanonotum*).—A pair was seen on the southern slope of the Dividing Range, where they brought out a brood of young. This is the only note I have of this species being seen here.

BABBLER (*Pomatorhinus temporalis*).—These birds are numerous on the red gum flats, but are seldom seen in scrubby country or far from creeks.

WHITE-BROWED BABBLER (*P. superciliosus*).—Generally found on higher country than the former species, and in the vicinity of acacia hedges. Nesting commences in July.

RUFOUS SONG-LARK (*Cinclorhamphus rufescens*).—A late spring visitor. In 1898 and '99 they were fairly numerous, and eggs were taken during the first week of November both years, but I do not recollect seeing them since 1899.

BROWN SONG-LARK (*C. cruralis*).—Unlike *C. rufescens*, this species is not found in all parts of the district, but is peculiar to the low country lying on the southern side of the Dividing Range.

WHITE-FRONTED CHAT (*Ephthianura albifrons*).—A regular spring visitor, found usually in the more open parts, and about the vineyards, where their nests may be found resting on the crowns of the vines.

WHITEFACE (*Xerophila leucopsis*).—This bird remains in the district throughout the year. As regards sites for their nests they are not particular. Nests were found in bushes, hollow branches of both standing and fallen trees, under loose sheets of bark, in mortice-holes of fencing posts, and even in hollow branches lying on the wood-heap.

WHITE-BACKED MAGPIE (*Gymnorhina leuconota*).—When insect life is scarce I have seen old Magpies become so tame that they would eat from the hand, but when grain or grapes are to be had they become both destructive and difficult to shoot. I am unable to say if they are increasing in numbers here, though I think that poisoned grain and pollard laid for rabbits will prevent any noticeable increase.

BUTCHER-BIRD (*Cracticus destructor*).—An occasional bird may be seen in the winter.

SHRIKE-TIT (*Falcunculus frontatus*).

BELL-BIRD (*Oreoica cristata*).—Usually found in the thickest scrub, where the nests, which are built of bark, leaves, and twigs, and lined with fine grass, rootlets, and a few flat pieces of bark, are found resting on the tops of small stumps which have been cut down a few feet from the ground and have thrown out a strong second growth. I have watched these birds with a view to finding out whether their rich notes are made by the male birds only, or partly by the males and partly by the females, and I am satisfied that the latter is the case.

YELLOW-BREASTED SHRIKE-ROBIN (*Eopsaltria australis*).—On 9th October, 1898, two eggs, of uniform sky-blue, each measuring .76 inch x .66 inch, were taken from a nest, and in the following year a nest was found on the same branch containing two eggs of the usual shape and colour.

WHITE-THROATED THICKHEAD (*Pachycephala gutturalis*).

RUFOUS-BREASTED THICKHEAD (*P. rufiventris*).

* Probably *S. osculans*.—EDS.

The Family Certhiidæ in Australia.

BY A. G. CAMPBELL, MELBOURNE.

THE family of birds containing the genera *Climacteris* (Tree-creepers) and *Sittella* (Tree-runners) is of no small interest and importance—of interest because of the birds' peculiar habits of living and the modification of their structure in strict accordance with surroundings; of importance because of the unique position they occupy as protectors of forest trees. All nature is interdependent, but the co-existence of our *Certhiidæ* with the eucalypts, especially of the rough-barked type, is, indeed, very marked. In return for their means of subsistence, as well as for friendly shelter during nesting operations, the Tree-creepers and Tree-runners patrol the trunks and branches of forest trees, and keep in abeyance those persistent destroyers of vegetation, scales and boring insects, which ravage timber trees to such an alarming extent in Australia. The Tree-creepers play their part upon the trunks and large branches only, and work in an upward direction or with a spiral movement around the tree, usually commencing on each tree near the base; but the Tree-runners, much smaller birds, confine their attentions mainly to the lighter branches, upon which the Tree-creepers never go, and are very active, running down or up, seeming able to feed with the greatest of ease head downward.

Allied to the Woodpeckers of Europe and America, these birds, which are not found beyond the confines of Australia, are well adapted to their work. The feet are powerful, the spread from the tip of the longest front (middle) toe to that of the hind toe, which is specially strong even for a Passerine bird, is about one-quarter the total length of the body. The tail is very short and of no apparent use except during flight. The bill is down-curved in Tree-creepers and upturned in Tree-runners, and the tongue of both is, like that of the true Woodpecker, provided with a sticky secretion to enable the bird to secure its food. An interesting feature of the family is the light-coloured patch upon the primaries of each wing—fawn, rufous, or white—which serves as a recognition-mark during flight. In the genus *Sittella*, the members of which are small and live in quick-moving flocks, much more so than in *Climacteris*, where they live in pairs, is this recognition-mark prominent, so that the mates may be easily seen and followed on the wing. The food consists mainly of the eggs and young larvæ of tree-destroying moths and beetles, taken usually before they have had time to penetrate far into the bark and timber.

The eight species of *Climacteris* are almost uniform in size, measuring about 6 inches in length; and in the genus *Sittella* the seven species are also uniform in size, though smaller by 1½

inches. The colouring, also, of each genus is very much the same in all its members—that is, allowing for regional modifications. Perhaps the size and colour systems of *Certhiidæ* are as remarkable as those of any other family that could be named. Similarity of habit and of food supply doubtless decided this, though climate and latitude have played a secondary part. In each of the genera a common ancestor is easily conceivable for all the species. This ancestor (to take the genus *Climacteris* first) sent out some of its progeny into somewhat open country, and they became sombre-coloured and brownish (*C. scandens*), or in the harsher conditions of south-west Australia a redder form (*C. rufa*) developed. Those that went into the heavier forest became dark and strongly marked. These two primary divisions of the genus are further distinguished by the brown section having reddish-brown eggs, while the other has white eggs sparsely marked. The brown section, too, does not feed entirely upon trees, for either of its species may often be seen hopping over the ground in search of insects. This habit may have its origin in the fact that the sparse, open forests are somewhat devoid of boring insects, and the Tree-creepers living therein are obliged to supplement their supply with insects from the ground. The other primary division of *Climacteris* is still further divided ; its six species are scattered over Australia in varying degrees of denser country, north, south, east, and west. One sub-section, inhabiting the sub-tropical growths of the Northern Territory, might be termed the black section, for its two members (*C. melanonota* and *C. melanura*) are extremely dark. Then the white-throated sub-section, comprising *C. leucophæa* and *C. pyrrhonota*, inhabits south-east Australia ; while the fourth sub-section, having many affinities with the last-mentioned, includes the bold-striped, slaty-throated species, *C. erythrops* and *C. superciliosa*, which range from north-west Victoria to south-west Australia.

The genus *Sittella* proves even more interesting than *Climacteris* in the subdivision by natural characters. Firstly : three species have the prominent wing-patch, already referred to as the recognition-mark, of a rufous colour ; in three species this is pure white, while in one species (*S. tenuirostris*), inhabiting New South Wales and South Australia, it is half white, half rusty. Of the brown-patch section, one species (*S. leucocephala*), in South Queensland and New South Wales, is white-headed, while *S. chrysoptera* and *S. pileata*, the former of eastern and the latter of eastern and Western Australia, have dark heads, and are distinguished from each other by the latter having a pure white under surface. The white-patch section has a somewhat similar subdivision, containing one species with a white head, *S. albata* (North Queensland), the two remaining species, *S. striata* (Northern Territory and Queensland) and *S.*

leucoptera (north-west Australia and Northern Territory), being separable from each other by the latter having a white under surface while the former is streaked.

In nidification the genus *Sittella* is far more interesting than *Climacteris*. The Tree-creeper builds a nest in the hole of a tree, which offers little scope for architecture, but the nest of the Tree-runner, placed in a dead fork of a eucalypt,* is a masterpiece of ingenuity, for it assimilates perfectly with its surroundings. It is placed like a filling of rubbish in an upright fork of a branch, usually about 2 inches in thickness, and is built of bits of lichen, smoothly finished outside with little flakes of bark, glued on with mucus, to resemble natural bark. The birds themselves, in fact, offer a likeness to the bark where they commonly live. They are grey in colour, and the back is in some species faintly striated. A great contrast in under surfaces, however, may be noted between *S. chrysoptera* and *S. pileata*, two species from southern and northern Victoria respectively. The former has under surface similarly striated, though lighter in colour than the upper surface, while the latter, probably through living in a hotter locality, has a white under surface, which in the stronger light reflects the bark in such a manner that the under parts appear to be striated also. The eggs, too, of *Sittella* are quite in accord with the remarkable adaptive colour protection that is evident with bird and nest. They are light grey-green in colour, with bold black blotches—a good representation of the grey-green and black-blotched lichen of which the inner part of the nest is made. Mr. F. P. Godfrey, at a recent meeting of the Bird Observers' Club, when this family of birds was under discussion, mentioned that he had seen a breeding *Sittella chrysoptera* leave its nest when approached and cling on to the limb near by. The uncovered eggs might be detected from some distance if they were not protectively coloured. At the same meeting Mr. G. F. Hill pointed out the adaptiveness of the *Sittella pileata*, for those nesting in the dead branches of certain eucalypts which have bark in long strings, instead of in flakes, used long strings of bark instead of flakes for their nests.

The genus *Sittella* are pre-eminent among our common birds in evidencing the governing influence of environment on protective colouring. The colour of the bird assimilates with that of the tree branches on which it lives; the colour of the nest resembles that of the branch, and therefore that of the bird as well; and the colour of the eggs imitates the colour of the nest inside. Further research may yet reveal other striking fitnesses. It might also be pointed out that the plumage of the male is

* A pair of *Sittella chrysoptera* (perhaps young birds) built a somewhat clumsy nest in a live branch of a bull oak (*Casuarina*) in October, 1897, at Springvale, Victoria.—A. G. C.

PLATE XVI.

Pilot-Bird (*Pycnoptilus*) and Nest.

FROM A PHOTO BY A. H. E. MATTINGLEY

lighter in tone than that of the female—a paradox when compared with other birds—and the lores or cap where grey in the male are black in the female. Does the male with these little birds carry out the task of incubation ?

Observations on the Pilot-Bird (Pycnoptilus floccosus).*

BY F. E. HOWE, ALBERT PARK.

DURING the recent months a "triumvirate," consisting of Messrs. Mattingley, Ross, and myself, spent many hours in the Dandenong Ranges with the object of improving our acquaintance with the Pilot-Bird (*Pycnoptilus floccosus*).

Although the bird is plentiful enough, it is so very shy and retiring in its habits that it is more often heard than seen, and one is led to think it is very rare. The eggs, on the other hand, are exceedingly rare, and the nest is seldom found, on account of the class of country the bird inhabits, and the skill displayed in concealing the nest. Why it is called Pilot-Bird I cannot quite make out, nor have I been able to ascertain, although I have made exhaustive inquiry. One observer says that as the pilot fish is always found in the company of a shark, so the *Pycnoptilus* is always to be found where the *Menura* (Lyre-Bird) is. Certain it is that wherever I met the first-mentioned bird, the *Menura*, though seldom seen, was always to be heard.

The Pilot-Bird is strictly a ground bird, and in the dense scrubs of secluded gullies that it loves so well finds such shelter that the legs have been greatly developed at the expense of the wings. This is, of course, obvious, as it obtains its food on the ground, and covers a lot of country in search of it, and will only fly when forced to—as, for instance, when crossing a track or open part in the scrub or, if alarmed, and even then it will only fly a short distance, trusting rather to its legs for safety. Its dexterity in getting through the sword and wire-grasses is marvellous, and it goes with such pace that it resembles a small-sized rat more than a bird when in motion. It is a near ally of *Sericornis frontalis* (White-browed Scrub-Wren), but is considerably larger. When in quest of food it has the same strange habit of "flicking" the tail in a smart up and down motion. It is insectivorous, and is also very partial to worms, which form the staple part of its food (I saw a male eat half a dozen in as many minutes, besides giving his mate a few), and often uses its feet to turn over the larger pieces of bark in search of some such morsel.

* Supplementary to Pilot-Bird Notes, *Emu*, vol. vi., p. 130.

The calls of the birds are sweet and varied. They have at least half a dozen different calls, and at nesting time the female joins in the latter part of the song with a call entirely different from that of the male, just as the female of *Psophodes* (Coach-whip-Bird) does. One note, sounding like "Tui-wit" softly uttered, is often heard when the nest is building, and also when they are feeding. The description of a call given in "Nests and Eggs" (Campbell) as "Guinea-a-week" is easily recognised, but is not heard so frequently as other calls, and appears to be used when the bird is moving rapidly through the scrub. For instance, on the 10th February a bird was heard to utter this call in a gully about 30 yards ahead of our party. The next call was less than 15 yards from us, then came two calls quite close to us, then another about 20 yards past, again two calls about 40 yards distant, and then another rather more than 60 yards in the same direction. We did not move whilst this performance was going on, and there was only a pause of a few seconds between the calls, the longest being that between the last two calls, and the whole did not take more than a minute. I do not think that any bird-note is more beautiful than that of this species; it comes with such piercing sweetness, and from the volume of it one would think it was made by a much larger bird. When singing the head is thrown rearwards, so much so that the head appears to be resting on the back, and the little throat can be seen working from a fair distance off. It rarely calls when motionless, and rather likes to sing when running along a log or on a fallen bough.

The nest is generally made and finished ready for eggs in a day and a half, or at most two days. This, no doubt, is due to the fact that it has not far to go for material. One example was seen building at 8.30 a.m., there being merely a few leaves noticeable, but on visiting the spot at 4.30 p.m. the nest was nearly finished. Nine days after it contained the usual clutch, two. (I do not think that more than two eggs have yet been observed in a nest.) Example 2, very little more advanced at 7 a.m., was finished same day. A week later this was visited, and contained one egg, but on going again in two days we found the egg broken in the nest. We laid this to the credit—or, rather, discredit—of a bush-rat, as that pest was plentiful in the locality. Example 3, found building, was completed in a day and three-quarters, and a fourth took little over a day.

The clutch as a rule was not completed until eight days after the completion of the nest. A few of the nests were lined with feathers, but most of them were finished with fine grasses. The site chosen was generally in sword-grass (*Lepidosperma*), a few were in wire-grass (*Ehrharta*), two in fallen branches and *débris*, and two were placed flat on the ground without any covering whatever.

At the laying period the bird is exceedingly timid, and if the nest contains eggs and the bird be watched it will not go near the locality unless the eggs are nearly incubated, and then she is loth to leave them ; but I have not yet seen a bird enter or leave a nest. If the nest be touched before an egg is laid, or the birds watched too closely when building, they often desert it and commence operations elsewhere. This they did on three different occasions this year. Incubation takes about 15 or 16 days, and the young leave the nest when three weeks old, at which stage they are almost as agile as the parents. The plumage, too, is identical, but the gape is more yellow in the fledgling.

The breeding season apparently extends over five months—from October to February inclusive—and two broods are reared. The first nest noticed this season was on 17th November, 1906, and on 10th February, 1907, two nests, both containing eggs, were noticed. The eggs of one had been broken only a few hours before, and undoubtedly the blame was again attributable to a bush-rat. The *Pycnoptilus* has no doubt many enemies, among them being the pest just mentioned and that imported curse, the fox. The remains of a Pilot-Bird were found by one of the party littered about the nest, and close handy I found the beautiful bronze feathers of a Pigeon scattered about the scrub. The *Pycnoptilus* is also a foster-parent to the egg of *Cacomantis flabelliformis* (Fantailed-Cuckoo).* On the other hand, the nest is so well hidden, the bird is such a recluse, and the country that it inhabits so dense, that it generally has ample warning of its enemies' approach. All things considered, I do not think there is any immediate fear of its numbers being greatly diminished. But settlement is going on, and the gullies are being cleared so rapidly that shortly only in the mountain fastnesses will its glorious song be heard in thanksgiving to its Maker above—the Almighty.

A Rookery of Storm-Petrels.

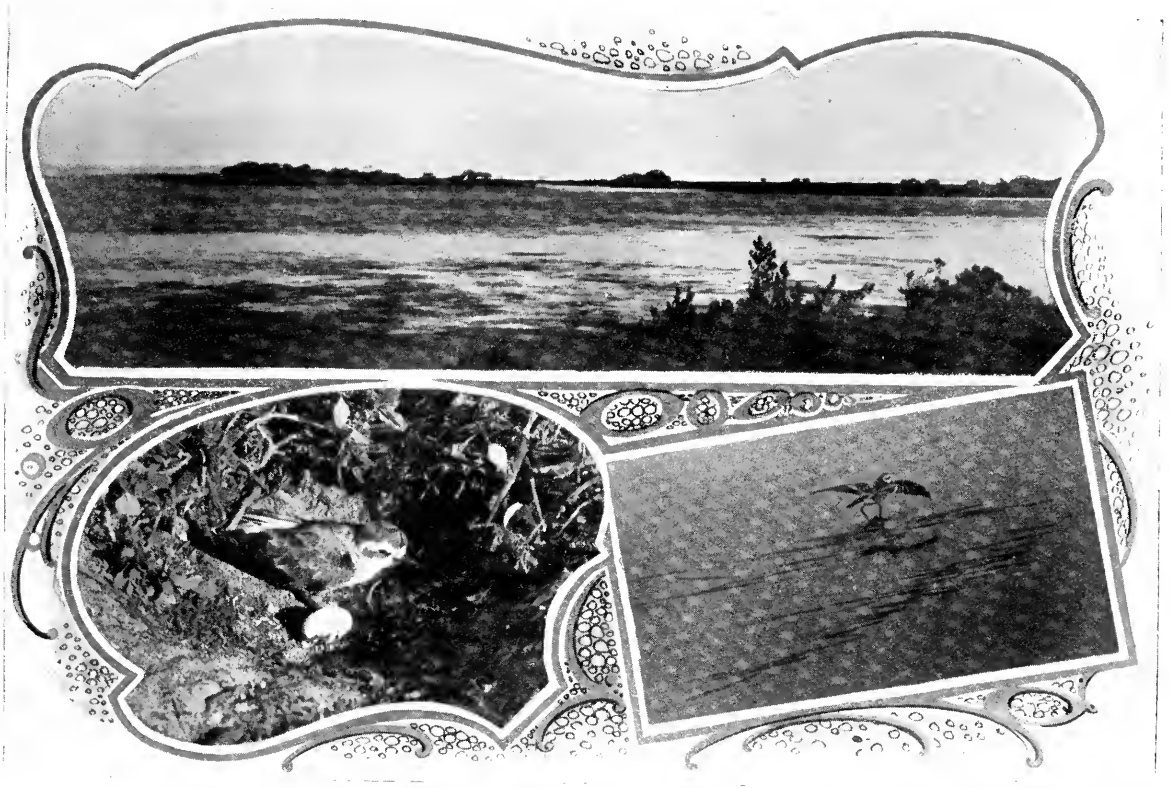
BY A. G. CAMPBELL AND A. H. E. MATTINGLEY.

OPPOSITE the entrance of Port Phillip Bay, and some 4 miles in from the actual Heads, lies a long, narrow strip of land known as Mud Island. The name is somewhat of a misnomer, for the island consists mainly of sand. The island, which is perhaps 3 miles around, stands sentinel over the entrance to the harbour of Melbourne, arresting the onrush of sand that would block the opening, piling it up in the shallows and in the banks that form its flanks. Mud Island is unique in being one of the few spots on the south coast of Australia where a species of

* *Emu*, vol. vi., p. 131.

Storm-Petrel (*Pelagodroma marina*) comes to breed. Through the kindness of Mr. S. P. Townsend, A.O.U., and in company with him and two friends, I was enabled to visit this rookery during the last week of the old year.

We took a walk round the island on the evening of our arrival; for, after a long and boisterous trip from the Melbourne side, our yacht gained its shelter only an hour or two before sunset. As we passed along the strand a Ternlet (*Sterna nereis*), one of the daintiest of sea birds, with silver livery and black cap, rose from the shingle, but its nest, or at least its dappled-brown eggs, for it makes no nest, could not be discovered, so well were they identified with their surroundings. Its complaining cries attracted its mate, and the pair circled about as daintily as the Swallows, from which this family of birds takes its popular name of Sea-Swallows. Stranger bird noises were heard ahead of us, sonorous croaks and piping trills. The Ternlets by their cries had alarmed some wading birds, which could be seen standing about, singly or in groups according to species, silhouetted against the setting sun. The guttural noise of the Black Swan was identified, and three birds, about the size of Plover, as they wheeled to our rear, showed themselves, by their white-barred wings, to be Turnstones. Passing round to the south of the island we had to cross the neck of a marsh or lagoon. The water was running out, but at high tide it is evidently covered by a large sheet a few inches in depth. In the mud and ooze of its surface the wading birds find abundant food. What a collection was there! Such a place, where land and sea meet, is the rendezvous of birds of many climes. The great order of Waders is always well represented. Before us were flocks of long-legged and long-winged Godwits from Kamtchatka, a few Whimbrel, and a solitary Sea Curlew, which, with its curved 8-inch bill, was probing for crabs and other tit-bits. They nest, we are told by Seebohm, within the Arctic Circle, and when their young are full grown, by about August, when the long northern winter is coming on, they all leave on a southern tour, the majority arriving here in the month of September. Their life is a perpetual summer, for they leave again before our winter returns, and reach their northern haunts in time to revel in the Arctic spring, with its abundant food supply of berries, insects, and molluscs. What a journey for such quaint birds—20,000 miles every year. But the wonder of it is only intensified on seeing flocks of Stints of three kinds (Sharp-tailed, Curlew, and Little), which, though not much larger than Sparrows, have also come from the Arctic tundras. Size is no bar, apparently. The provision for it all is found in the long-pointed wings, the long and abundant secondary feathers, giving an increased wing surface, and the broad chest, where the pectoral muscles can be well fixed for extended flight. Theirs is a long day and a long



Mud or Cygnet Island, Port Phillip.

(1.) Sea Marsh. (2.) White-faced Storm-Petrel (*Pelagodroma marina*) and Egg (exposed). (3.) Off to sea.

FROM PHOTOS. BY A. G CAMPBELL AND A. H. E. MATTINGLEY.

life. Just when we saw them they were taking their fill of the prolific life of the marsh. Soon they will begin to put on fat to help them on their March journey north. Among these wading birds stalked solitary Gulls, both the large Pacific and the small Silver species, scavenging the marsh banks of sea offal, and ever on the look-out to rob some of the tinier birds of their heads. On the bank beyond, preening their feathers for their evening flight to Western Port, were a dozen or two Black Swans. They passed over our camp later in the evening, flying V-shaped across the bay, and they returned just after daylight next morning. The marsh has other interests also. It points out how the island has been growing in size. Between the sandbanks mud is deposited by the high tides, and when the marsh has gathered enough of this sediment to encourage salt-loving plants to grow thereon, it will rise from the water and become dry land. The samphire moor, touched with all the greens of spring, yet mellowed with the browns and purples of autumn, looks a veritable garden of heathy bushes, but at closer quarters it is seen to mark a further stage in the raised mudbanks. Tracks of Land Rails were here observed, and later a little jet-black chick, which must have lost its mother, was picked up dead. Grass-Birds and White-eyes also inhabit the samphire.

Passing over to some of the sandbanks, we came across what was the real object of our summer visit—the Petrel rookery. Little burrows, just large enough to put one's hand in, each with a little heap of sand outside, were seen, among native spinach and saltbush, sometimes so thickly that every square yard held one of them. Inserting the hand we could reach to the end, where a large chamber was found and a White-faced Storm-Petrel sat quietly upon its egg. There was not a sound save our own voices, yet there must have been thousands of birds within earshot. Each was intent upon its task of incubation, now very near completion, for most of the eggs we examined were already chipping, and in three burrows we discovered a tiny, fluffy, grey chick. When brought out to the light the Petrel, which is about 8 inches long, seemed very stupid, and scrambled away on being released. On the wing, however, it is the perfection of ease and grace. All writers of the sea have made mention of Storm-Petrels. Known to sailors as "Mother Carey's Chickens," they have been credited with bearing, by their cries at certain times, the tidings of a coming storm. But whether that be true or no, it is none the less wonderful that such tiny birds should be able to weather out the storms of the sea and spend all their life upon the wide waste of the ocean, only coming to shore during the months of December and January to rear their offspring.

As it was now far past sunset, and the Christmas moon

was shining brightly, we decided to await the arrival of the other batch of birds, the mates of those sitting quietly in the burrows. Very little has been written about this species of Storm-Petrel, so it was with eager interest that we awaited the progress of events. We had been on far-off islands when the Mutton-Birds (*Puffinus tenuirostris*), a larger species of Petrel, returned about this time of evening in thousands and tens of thousands to feed their mates, and we had witnessed the scuttling to and fro, and the fighting as birds got into wrong burrows, and had had our ears filled with the din of wranglings, croakings, and croonings that lasted till almost daylight; and we naturally expected somewhat similar performances. We marked ten birds in the burrows, to see if this could give any clue to their habits. The same musty smell that pervades the Mutton-Bird rookery, arising from the natural oil with which the birds' plumage is greased, was noticed here, and it soon permeated our blankets and clothes. It was at 9.30 p.m. that the first Storm-Petrel came in from sea, and circled swiftly and silently close to the ground, as if searching for its own particular burrow. What a problem, especially if the night be dark, to find one's own home amid such tens of thousands of a similar nature! Bird followed bird every few minutes in silence, until about 10.30 the numbers had increased so that two or three could be seen at once. But where were the numbers scuttling about the ground and cutting the air in all directions amid noisy arguments and welcomes? Two hours later, still no great increase—ones and twos still passed our vantage point, flashing their white under surfaces as they occasionally turned in the moonlight, but none settling within sight, though the night was clear and bright. Not a sound until we beat or stamped upon the ground, when an impatient or hungry bird near by would call from a burrow with a low, rasping voice as untuneful as all sea-birds' notes are.

We estimated that at the very least there must be 50,000 nesting burrows in the sand rises about us, and we were forced to the conclusion that all the birds cannot return every night. It appears as if some only, and that a very small proportion, return to change places with the brooding mate. Search as we would, in the small hours of that moonlit morning, we could only find one burrow where two birds were at home. We then snatched an hour's sleep under the friendly shelter of a salt-bush, and about 3.30 a.m. were awakened by two Storm-Petrels, with low cries, running on to us from behind and taking wing. This illustrates the habit Petrels have of running on to a mound, or throwing themselves from a cliff, before taking flight. Their long wings prevent them rising easily from flat ground. By daylight not a bird was to be seen. We visited our marked burrows soon afterwards, and of ten birds which were each

labelled with a small piece of twine seven were still at home, two had changed shifts, and one burrow was empty. This corroborated somewhat our opinion that a small proportion only of the birds belonging to the rookery come in each night. The sitting bird must therefore be four or five days without food. We felt we had only touched the fringe of these interesting questions, and that a longer stay on the island was necessary for their solution. But we had not the time to spare; we must be off.

While returning to our boat we got a hint of the reason the Petrels nest in burrows and not on the surface of the ground. A large Harrier was beating up and down the rookery in search of late birds, and in a clump of saltbush we disturbed another Hawk from the remains of his early morning meal—a fat little Petrel.

Not long since a manure manufacturer leased Mud Island, and proceeded to dig up and ship away the surface sand of these Petrel rookeries, to utilise the bird remains and lime contained therein. But, thanks to the vigilance of the authorities, at the instigation of Mr. S. P. Townsend, this was stopped, and the rookeries have now been reserved. In days to come it is to be hoped that they will be looked upon as one of the curious and rare sights adjacent to the first city in the Southern Hemisphere.—A. G. C.

* * *

Further visits to the Petrelry were undertaken on the 16th and 17th February, and again on the 23rd and 24th February, 1907, to extend and make more complete our observations on the breeding habits of "Mother Carey's Chickens." On the former occasion so fierce was the gale that the fishermen in their 6-ton craft were doubtful of starting. However, we reached calmer water near the island in half an hour's time. After wading knee-deep in mud, a landing on a sandy beach, covered with many varieties of shells, was effected. What a vast congregation of birds met the eye! Driven in from their feeding grounds on the vast areas of mud flats about the island, which were now storm-swept, were thousands of Barred-rumped Godwits, Little Stints, Lesser Golden Plover, and Sharp-tailed Stints, whose combined flocks, when disturbed, simply darkened the sky in one direction. A flock of about 250 Black Swan were seen feeding on the plants, chiefly *Halophila*, on the mud-banks in the water. Ever and anon one would plunge its long, graceful neck beneath the surface to pluck the grass-like growth from the sea-floor. Regarding these graceful birds the Rev. Robert Knopwood, H.M. ship *Calcutta*, and chaplain of the convict settlement at Sorrento, 5 miles distant, under Lieut. Collins, writes:—"Tuesday, 11th October, 1803, wind S.S.E.,

a.m. The party and self went on shore to the island in the middle of the bay, now called Cygnet (Mud) Island, where we saw a great number of Black Swan. I was the first that killed one on the island. We killed three and caught many alive, and caught many Pelicans and sea-birds. Captain W. and the Governor, with Mr. Tuckey, went on the west side of the bay to procure water. Could not find any. On the day before, the 10th October, John Skilhorne, a free settler, died, the first death of a white man in Victoria." To the Rev. R. Knopwood, therefore, belongs the credit of being the first "bird observer" on Mud Island, and from his account the Black Swans should have been nesting there for them to have caught so many alive. It is unlikely that moulting birds would be found at that place—besides, the island was then called "Cygnet" Island.

Wading across the lagoon the southern rookery was reached, and examination of the White-faced Storm-Petrels' burrows revealed young birds in several stages of development. There were tiny fat little fluffy balls of slaty-grey down from out of which peeped a pair of beady black eyes situated behind a slender black bill which was surmounted by the long tube nostrils peculiar to the Petrel family. Most nestlings were to be found more advanced, however. In many the abdomen had become covered with white feathers interspersed with down, the tail was beginning to show, and the primary wing feathers were prominent. It was noticed, too, that the white abdominal feathers had extended up to and over the pectoral muscles, whilst the markings from which the bird derives its vernacular name were showing up strongly through a few threads of down. In the next stage of growth the whole of the feathers were more strongly developed. The down, which freely covered the wings, back, flanks, nape, and crown in the previous stage, had almost disappeared, whilst the general contour of the burrowling resembled that of its parents, although it was still very fat. These birds had just been deserted by their parents and left to their own devices. Whilst lying out in the rookery at night some fully fledged birds were observed running and flapping about the rookery, stimulated by the pangs of hunger. It is owing to this that they gain sufficient muscular development both in the legs and in the wings to enable them in about a week's time to fly away one night with the adult birds, who no doubt assist and encourage them. At sea they use the feet almost as much as their wings, as they go tripping along over the billows (*vide* Plate XVII.) It is owing to this last-named fact that the members of the family to which they belong have been called Petrels, after the apostle Peter.

Up to the final stage the parents feed their offspring nightly with about a teaspoonful of fishy, oily paste, principally com-

posed of "whale's food," a small species of crustacean found floating on the surface of the ocean. This they regurgitate, and when they enter their burrows a faint purring note of welcome is made by the nestling, evidently in anticipation of its evening meal. Opening its mouth wide over the head of its young one, which forthwith thrusts its beak into that of the adult and opens it, the parent bird brings up the dainty and juicy contents of its stomach. With this meal the young one has to be content until next night, but as it lives an indolent life, quietly ensconced in the cool shade of its burrow, it waxes exceeding fat, so much so that in some parts of the South Sea Islands, where these birds also nest, the natives, passing a dry rush through a dead young one's body, form thereby an excellent candle.

Lying out, wet and cold, and with eyes filled with sand which was being whirled about by the gale, observations of the home-coming of these fragile ocean wanderers was anything but pleasant. About 8.30 p.m. the first bird arrived, and not until 9.10 p.m. did the next one put in an appearance. They flickered over the rookery for a few seconds to pick up their bearings, then noiselessly descended to the mouth of their burrow, sometimes having to clear away the sand which had blown into the mouth. Having fed the young one and caressed it, they depart, probably carrying away in their bills the excrement in the burrow, the time spent in the burrow being between 7 and 10 minutes.

Two enemies of the White-faced Storm-Petrel are found on the island—the Harrier, and, worse still, the common rat, introduced by the guano-getters. If these rodents are not exterminated, it is only a matter of time when they will destroy the occupants of the rookery, since several freshly killed remnants of these fragile birds were found about. On visiting the rookery again on the 23rd and 24th February, it was noticed that a large proportion of the Godwits, Stints, Lesser Golden Plover, and Curlew had departed, presumably on their northern pilgrimage to breed. A fair proportion of the Storm-Petrels that had reached the adult stage had also departed. Mr. Joseph Gabriel informs me that some years ago many of the White-faced Storm-Petrels, and also the Mutton-Birds, did not nest; they were found dying in thousands along the shore. This was attributed to the scarcity of "whales' food," which is the principal diet of these sea-roaming birds. It has been reported (see *Emu*, vol. ii., page 129) that when "whales' food" is abundant the Mutton-Bird has been seen in hundreds of thousands feeding upon it, the birds covering the surface of the water for miles and miles.

The following is a list of birds noticed about the island. Reference should also be made to a list published by Mr. S. P. Townsend in the *Victorian Naturalist*, vol. xix., p. 166 :—

Circus gouldii
Megalurus gramineus
Ephthianura albifrons
Zosterops cærulescens
Anthus australis
Hypotænidia philippinensis
Hirundo neoxena
Micropus pacificus
Notophoyx novæ-hollandiæ
,, *pacifica*
Pelicanus conspicillatus
Ægialitis ruficapilla
Lobivanellus lobatus
Charadrius dominicus
Hæmatopus longirostris
Limosa novæ-zealandiæ
Numenius cyanopus
Arenaria interpres
Limonites ruficollis
Heteropygia acuminata
Ancylochilus subarquatus
Tringa canutus
Thalassogeron cautus
Pelagodroma marina
Stercorarius crepidatus
Gabianus pacificus
Larus novæ-hollandiæ
Sterna bergii
,, *nereis*
Sula serrator
Chenopis atrata
Biziura lobata
Anas superciliosa
Nettion castaneum
Phalacrocorax carbo
,, *hypoleucus*
Podicipes poliocephalus
,, *cristatus*
Eudyptula minor

And the introduced Starling and Sparrow.

A. H. E. M.

Stray Feathers.

A TRIO OF BANK-BUILDERS.—Last December I found in holes in the bank of the Talbragar River, Cobborah, N.S.W., the nest of a Sacred Kingfisher, that of an Owlet Nightjar, and that of a Red-tipped Pardalote, all within a space of about 20 yards.—THOS. P. AUSTIN. Cobborah, 30/1/07.

* * *

NEW FOSTER-PARENT FOR FAN-TAILED CUCKOO.—I have to report the taking of an egg of *Cacomantis flabelliformis* in the nest of and accompanied by two eggs of *Meliornis australasiana* (Crescent Honey-eater) at Ringwood, Victoria, on 21st October, 1906. Incubation well advanced.—F. E. HOWE. Melbourne, 11/2/07.

* * *

MACKAY (QUEENSLAND) NOTES.—I have taken several sets of the Brown-breasted Fly-eater's (*Pseudogerygone brunneipectus*) eggs this season. On three occasions the nest contained an egg of the Bronze-Cuckoo (*Chalcococcyx plagosus*). Each pair of *P. brunneipectus* eggs varied a good deal, one egg in each set being of a much darker flesh-pink than the other.

Under date 8th January my notebook contains this note, which may be of interest :—"Noted a White-bellied Sea-Eagle in immature plumage (all brown) flying over the house. It was chased by two Crows and a smaller bird (species not dis-

cernible). The smaller bird repeatedly perched on the Eagle's back, and seemed to be pecking at it, the Eagle emitting complaining cries all the time."—E. M. CORNWALL. 31/1/07.

* * *

A BIRD TRAGEDY.—A friend from Mt. Dandenong told me recently of a little tragedy in bird life he witnessed last December, which illustrates the predaceous nature of the Jackass. A pair of Magpie-Larks had built their nest in a dead blackwood tree by the roadside. A pair of Jackasses cast evil eyes upon it, and one day, when the young ones were about a week old, they laid siege to the solitary mud home. For some hours the Magpie-Larks, by their wailing cries and their pretence of attack, managed to keep the Jackasses at bay, but at last the poor birds succumbed to the strategy of their wily opponents. While one Jack drew off the two tired Larks by feigning a retreat, the other dashed in and secured the nestlings one by one. —A. G. CAMPBELL. Melbourne, 30th January, 1907.

* * *

NOTES NEAR THE MURRAY.—23rd January.—Saw Bitterns at two tanks on the run—single birds in each case—very tame, just flying across the water and watching proceedings while my horse had a drink. In size that of a small Heron, and plumage variegated, giving the impression of green to the prevailing mottled brown. Have only once before seen these birds in the open.

31st January.—About mid-day a large flight of Spine-tailed Swifts passed over here, going north. As far as one could see, in all directions, these graceful visitors were wheeling in the air. Half an hour and this interesting exhibition was over, and not a bird to be seen.

1st February.—Ducks very plentiful, and large numbers killed by the numerous shooting parties. Only saw one flapper. Last year Pink-eyed species outnumbered all other Ducks—there were few Black Duck ; this season the latter are numerous, while the former is totally absent. Very few Shovellers. Saw White-eyed Duck also. Two Painted Snipe shot by one of our party, and a few Jack Snipe seen.—JOHN G. GRAY. Kentucky, near Corowa, N.S.W., 6th February, 1907.

* * *

PARRAKEETS MOULTING.—In the neighbourhood of the Adelaide Hills the Red-rumped Grass-Parrakeet (*Psephotus hæmatonotus*) was up till the years 1887–8 one of the commonest representatives of the family *Psittacidæ*. One of the early settlers in the Mt. Barker district, who settled there in 1839, says that they were most numerous in that neighbourhood until the years

named. I can endorse this as regards the years 1885 and 1886, when I first visited the colony. In the years 1887–8 a disease, if such it can be called, attacked this species. When the birds moulted they did not get their feathers again; a number of naked Parrakeets were running about the paddocks. I caught a number of them, and they appeared to be quite healthy, except being destitute of feathers. I conclude that the practical extermination of this species, as far as the Adelaide Hills were concerned, was due to their falling any easy prey to predaceous animals. So complete was the destruction that neither my friends nor myself observed this species in the Mt. Barker district for several years. Even now, 20 years afterwards, this species is still comparatively scarce, although there are a few scattered throughout the district, but no large mobs. It would be interesting to learn how wide was the area affected, what was the cause of the trouble, and to what extent it has been observed in other birds. Although not uncommon in cage birds, I have never noted it amongst wild birds except in the instance cited. Perhaps Sparrows and Starlings might be infected, and thus turn the epidemic to some practical use.—EDWIN ASHBY. Blackwood, S.A., 4th March, 1907.

* * *

BASS STRAIT NOTES.—The season dating from August until now has been an exceptionally rainy one, and as the islands are of a dry, sandy nature, the vegetation benefited much. The smaller birds, such as Honey-eaters, Robins, &c., are much more plentiful than during the dry seasons of former years. The Brush Bronze-wing Pigeon appears to be increasing very rapidly here, and I have found numbers of their lightly-constructed nests. These birds are practically undisturbed, which apparently accounts for their increase. In nesting they are not particular as to site, in many cases preferring the ground to the trees. Their nests are very rudimentary, consisting of a few sticks laid one on the other, and I have often seen a parent roll an egg out of her flat nest when disturbed suddenly. The Brown Hawk, which had almost deserted us a few years back, has returned again, and I have noted many of their nests with young. Their eggs are very handsome, being rich chocolate, with occasional patches of grey. They frequently usurp an old Raven's nest, in preference to building a new one. The Brown Quail is to be seen everywhere, and the little fledglings are now commencing to try their wings; however, only a week ago I found a nest with ten hard-set eggs. In a month or two, when they are all fledged, we will have them in thousands. They are fine, large birds here—larger, I think, than on the other islands.* I was on Three Hummock Island some time

* Probably *Synœcus diemenensis*.—EDS.

back, and it was fairly alive with Brown Quail, but noticeably smaller than on Clarke Island. I have not seen any specimens of the spotted variety (Painted) this season, but they lie much closer than the Brown Quail, and may so be missed.

The rarest bird here is the White-bellied Sea-Eagle. I saw one the other day—a magnificent specimen. I am told they are destructive to lambs, but we do not find them so to our flock ; the Wedge-tailed Eagle is, as we know to our cost. Cape Barren Geese have nested fairly well this season, but not to the extent of last year. Teal have laid here in numbers, and flappers are plentiful in the small lakes on the various islands. Their nests are hard to locate, as they often lay a considerable distance from water. I noticed a clutch of the Spur-winged Plover's eggs in November ; the eggs were, as usual, laid on the bare ground among short green grass, and very difficult to locate. Silver Gulls have a rookery on a precipitous rock near here, which is so steep as to be difficult to climb. It was quite surrounded at low water ; we had to jump from rock to rock to get to it. On examination I found that the young were mostly hatched, but for some reason they were nearly all dead. On looking over the rookery I soon found the apparent cause, in the shape of two large black snakes ; these savage reptiles were soon killed. It is difficult to say how they got there, as in the first instance they must have swum in the salt water, and, secondly, must have climbed up an almost bare face of rock.

Oyster-catchers do not seem as plentiful as last year, the Pied variety being the most numerous. The Pacific Gull is scarce here, although laying on the surrounding reefs. I only saw two Wood-Swallows (*Artamus*) last season. They do not remain long with us.

The Mutton-Birds seem to hold their own, in spite of the annual drain on them, and they are now to be seen flying about in flocks of many thousands. Black Swans have been remarkably late nesting this year ; I noticed last week a clutch of young ones only a few weeks old.—J. D. MACLAINE. Clarke Island, 6/2/07.

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AUSTRALIAN BIRDS IN LONDON.—The following Australian birds may now be seen alive in the London Zoological Gardens :—

Wedge-tailed Eagle	..	*Uroaëtus audax*
White-headed Sea-Eagle	..	*Haliastur girrenera*
Winking Owl	..	*Ninox connivens*
Crow	..	*Corvus coronoides*
Pied Crow-Shrike	..	*Strepera graculina*
Grey Jumper	..	*Struthidea cinerea*
Satin Bower-Bird	..	*Ptilonorhynchus violaceus*
Cat-Bird	..	*Aelurœdus viridis*
Regent-Bird	..	*Sericulus melinus*

White-backed Magpie	..	*Gymnorhina leuconota*
Warty-faced Honey-eater	..	*Meliphaga phrygia*
Banded Finch	..	*Stictopera bichenovii*
Yellow-rumped Finch	..	*Munia flaviprymna*
Red-faced Finch	..	*Bathilda ruficauda*
Long-tailed Grass-Finch	..	*Poephila acuticauda*
Gouldian Grass-Finch	..	,, *mirabilis* (red and black faced)
Brown Kingfisher	..	*Dacelo gigas*
Blue-bellied Lorikeet	..	*Trichoglossus novæ-hollandiæ*
Red-collared Lorikeet	..	,, *rubritoquis*
Red-crowned Lorikeet	..	*Ptilosclera versicolor*
Black Cockatoo	..	*Calyptorhynchus funereus*
Gang-Gang Cockatoo	..	*Callocephalon galeatum*
White Cockatoo	..	*Cacatua galerita*
Pink Cockatoo	..	,, *leadbeateri*
Bare-eyed Cockatoo	..	,, *gymnopis*
Rose-breasted Cockatoo	..	,, *roseicapilla*
Long-billed Cockatoo	..	*Licmetis nasica*
Dampier Cockatoo	..	,, *pastinator*
Cockatoo-Parrakeet	..	*Calopsittacus novæ-hollandiæ*
Alexandra Parrakeet	..	*Polytelis alexandræ*
Red-winged Lory	..	*Ptistes erythropterus*
King Lory	..	*Aprosmictus cyanopygius*
Crimson Parrakeet	..	*Platycercus elegans*
Adelaide Rosella	..	,, *adelaidæ*
Yellow Parrakeet	..	,, *flaveolus*
Pale-headed Parrakeet	..	,, *pallidiceps*
Smutty Parrakeet	..	,, *browni*
Yellow-cheeked Parrakeet	..	,, *icterotis*
Yellow-vented Parrakeet	..	*Psephotus xanthorrhous*
Golden-shouldered Parrakeet	..	,, *chrysopterygius*
Red-backed Parrakeet	..	,, *hæmatonotus*
Betcherrygah	..	*Melopsittacus undulatus*
Little Dove	..	*Geopelia cuneata*
Little Green Pigeon	..	*Chalcophaps chrysochlora*
Bronze-winged Pigeon	..	*Phaps chalcoptera*
Brush Bronze-winged Pigeon	..	,, *elegans*
Naked-eyed Partridge-Pigeon	..	*Geophaps smithi*
Brush Turkey	..	*Catheturus lathami*
Brown Quail	..	*Synœcus australis*
Native Companion	..	*Antigone australasiana*
Spur-winged Plover	..	*Lobivanellus lobatus*
Black-breasted Plover	..	*Zonifer tricolor*
Straw-necked Ibis	..	*Carphibis spinicollis*
Pelican	..	*Pelecanus conspicillatus*
Black Swan	..	*Chenopis atrata*
Pied Goose	..	*Anseranas semipalmata*
Cape Barren Goose	..	*Cereopsis novæ-hollandiæ*
Wood-Duck	..	*Chenonetta jubata*
Shieldrake	..	*Casarca tadornoides*
Black Duck	..	*Anas superciliosa*
Emu	..	*Dromæus novæ-hollandiæ*
Cassowary	..	*Casuarius australis.*

GREGORY M. MATHEWS. Watford, England, 27/11/06.

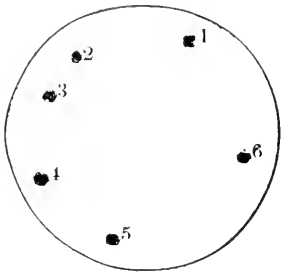
ANNOTATIONS.—*Mesocalius palliolatus* (Black-eared Cuckoo).—Mr. Gerald F. Hill has kindly sent me an egg of this species. It was taken with three eggs of *Malurus cyaneus* (Blue Wren)—a new foster-parent for this Cuckoo—together with an egg of *Chalcococcyx basalis* (Narrow-billed Bronze-Cuckoo). This extremely interesting set was discovered at Dunneworthy, near Ararat, by Mr. L. Mooney, on the 25th November 1906. The Black-eared Cuckoo's egg may be described as elongated in form (more tapered towards the smaller end than known examples), surface slightly glossy, and colour of a uniform rufous-brown. Length, .91 ; breadth, .55 inch.

Cacomantis flabelliformis (Fan-tailed Cuckoo).—While the Field-Wren (*Calamanthus albiloris*, North) has been recorded as one of the foster-parents for the Narrow-billed Bronze-Cuckoo, I was not aware that the Field-Wren was also a foster-parent of the Fan-tailed Cuckoo until I saw recently an interesting combination clutch in the collection of Mr. G. E. Shepherd, Somerville—season 1905.

Eurystomus australis (Dollar-Bird).—These birds have been frequently noticed in the north-eastern province of Victoria. But some have appeared more westward this season, notably on the Goulburn, at Mount Macedon, and at Eltham, near Melbourne. At the last-mentioned locality, in January, one bird was shot out of nine which were said to be attacking peaches.

Lipoa ocellata (Mallee-Fowl).—In a back number of *The Australasian* (15/12/06), Mr. Charles H. M'Lennan, writing under the *nom de plume* of "Mallee-Bird," contributed a most interesting and valuable article on the "Haunts and Habits of the Lowan" or Mallee-Fowl. While giving us so many interesting notes of his field observations of the bird, Mr. M'Lennan omitted to touch on the disposition of the eggs within the hatching-mounds, a matter which is somewhat perplexing to oologists. In reply to my queries Mr. M'Lennan has promptly and kindly sent the following remarks:—"I find, as a rule, the Mallee-Fowl lays its eggs in the mound in the following manner :—Three or four eggs are always laid at the bottom of the egg chamber, the large end of the egg being placed upwards, with from 6 to 12 inches of sand, &c., between each egg. The next egg is laid from 4 to 6 inches above these —in fact, the rest of the eggs are laid here and there around the egg chamber, with from 4 to 10 inches of material separating them—no two eggs being placed directly over each other. The eggs are always found near the side of the egg chamber. I have often noticed what you could term tiers or circles, of 4, 6, and 4 ; 4, 5, and 3 ; 3, 5, 4, and 3 eggs respectively in odd mounds ; but, as stated, the Mallee-Fowl lays its eggs without any respect to regular formation of tiers or circles. I am sending you a

rough diagram of a mound I opened on the 9th of this month (December), which contained six eggs, one freshly laid. The size of the egg chamber was 20 inches wide and 18 inches in



depth. The eggs marked from 1 to 4 are what you would term the top tier; from number 1 to 2 there were 7 inches of sand dividing them; from 2 to 3 there were 2½ inches between them; from 3 to 4 there were 5 inches of sand between them; from 4 to 5 there were 8 inches of sand; and number 5 egg was on a plane about 4 inches below that of number 4 egg. From 5 to 6, 7 inches of sand intervened, and number 6 egg was about 3 inches below number 5 egg. The eggs marked from 1 to 4 did not vary in depth from each other more than 2 to 3 inches. I took six eggs out of this mound a few weeks previously.* At the start of the season for laying, the Mallee-Fowl is most regular,† but from the middle of the season to the end the period between the laying of one egg and another varies considerably." Supplementing Mr. M'Lennan's valuable notes, I venture to add a recent personal one. On the 2nd December last I visited an egg-mound over the South Australian border. It was situated in Mallee scrub (*Eucalyptus incrassata* and *E. oleosa*), with a ground scrub of *Melaleuca uncinata*. The mound was composed of dark greyish sand, was about 45 feet in circumference, and open on the top like a miniature extinct volcano. The removal of about 2 feet of sand revealed the apices of three beautiful pinkish eggs within a kind of egg-chamber 14 inches across. The eggs were on the same plane, and formed a rough triangle, 1 and 2 being separated by 5¼ inches of sand, 2 and 3 by 5 inches, and 3 and 1 by 4½ inches. Immediately underneath these was the formation of a bottom tier containing one egg. For more complete information I regretted there were not more eggs in the mound, which probably had been visited by other persons earlier in the season. I should mention that it was shortly before noon when we visited the egg-mound, which, if it were heaped in its usual pyramidal form, would be

* This may account for the irregularity.—Eds.
† Usually one egg every third or fourth day.—A.J.C.

about 3 feet high. A local friend subsequently visited the mound, which was conical-shaped on that occasion. It contained a single egg, at a depth of about 18 inches, where the thermometer registered 93°, the temperature of the sand on the top of the mound being 121°.

Psephotus hæmatorrhous (Red-vented Parrakeet).—The true "Blue Bonnet" is one of the most interesting of elegant Parrakeets, and makes an endearing aviary pet. Mr. J. A. Hill (Victoria), who was spending a holiday near Wellington, about 170 miles inland or westward of Newcastle, N.S.W., kindly brought me a skin of the Red-vented species from that locality. It distinctly differs from the Victorian and South Australian bird—*P. xanthorrhous*—by having (1) the under tail-covert crimson-red instead of primrose-yellow; (2) point of the shoulder verditer-green instead of blue; and (3) the centre of the greater wing-coverts reddish-chestnut instead of saffron-yellow. For other details see Gould's "Handbook," vol. ii., pp. 62–65. Wellington is about 160 miles south of the Namoi, where Gould obtained his type of *P. hæmatorrhous*. It would be interesting to know how much further south it extends, or where it intergrades with *P. xanthorrhous*. As there has been some confusion about the two varieties, I do not think authentic eggs of the former have yet been described, although, doubtless, they are similar to those of the Yellow-vented Parrakeet.—A. J. CAMPBELL.

From Magazines, &c.

CLOSE SEASON IGNORED.—The close season for game throughout the Northern district seems to be little better than a farce. Game is almost openly shot, and wild-fowl is a common article of diet in several quarters. Land-owners in the vicinity state that shooting parties are numerous, though the most common game is that named in the Act.—*The Argus*, 13th December, 1906.

* * *

HAWK AND WILD DUCK.—A strange scene was witnessed at Mooroopna on Monday evening, when a wild Wood-Duck was chased about the township by a Hawk. The latter was gaining rapidly on it, when the Duck darted under the verandah of a store, and darted though a frosted window-pane. Inside it caused great consternation, narrowly missing a table covered with kerosene lamps. Eventually it was caught, and was found to be cut on the head and feet. The Hawk flew into a tree near the footpath, and waited for the Duck to reappear.—*The Argus*, 2nd February, 1907.

VARIETY OF GOURA PIGEON.—In the *Records of the Australian Museum*, vol. vi., No. 3, p. 230, Mr. A. J. North has described a variety of the Crowned-Pigeon of New Guinea as *Goura coronata*, var. *nigra*. The specimen which was brought under his notice was originally a donation received in 1897 from the Director of the Botanic Gardens, Sydney, where are some five aviaries. Instead of the normal bluish slaty-grey plumage of *Goura coronata*, the plumage may be described as sooty bluish-black, including the head and crest. Mr. North somewhat discounts the value of his variety by stating that the dark plumage may be due to climatic influences or confinement, if it were not typically a distinct variety.

An instance is known where a Crimson Parrakeet (*Platycercus elegans*), through improper feeding in confinement, changed nearly the whole of its red feathers into bluish. For the same reason the Crowned-Pigeon may have changed its bluish feathers into blackish.

* * *

NESTING SHIFTS.—Mr. H. W. Ford, of Marong, writes :—"We noticed that the Brown Hawks take turns at sitting on the eggs, in about three-hour spells. On the appearance of the returning bird, the one on the nest would scream and fly off, and the other took its place. Sometimes the male bird brought a frilled lizard in its claws. The female would then fly screaming to him, and after a few moments would take the food in her claws, fly to a tree, and eat the lizard. We were near the nest till young ones were hatched and nearly ready to leave, but never saw any other food brought but frilled lizard. When the young were first out the male bird used to bring the lizards, and the female would take them and tear them up, swallow them, and then go to the nest and feed the young. Once there seemed to be an extra supply of lizards, as the male took one and left it on an old nest 100 yards away for two hours, when he came back for it. The White-fronted Herons take turn about at sitting ; only one change, as far as I know, in nine hours, and that was usually about 3 p.m. The returning bird would give a cry and light on or near the nesting tree, when the other would get off and fly away. The pair under observation reared six young ones, which is more than I have seen before. I never saw more than four in a nest, and usually two. In nesting the Magpie-Larks change shifts every 20 minutes or half-hour. One goes away to feed and it comes back right to the side of the nest, when the other gets up and off, and the relieving bird takes its place."—"Nature Notes," *The Argus*, 8th February, 1907.

* * *

NATIVE BIRD PROTECTION ASSOCIATION.—It is pleasing to find that in Rockhampton, Queensland, a strong society has

been formed for the protection of native birds, and members of the Australasian Ornithologists' Union look forward to the time when numerous kindred societies will exist in all parts of the Commonwealth, through whose efforts native game and ornamental or useful birds will be properly protected by far-reaching, well-framed game laws. Mr. W. M'Ilwraith, A.O U., at the annual meeting of the above-mentioned association, held at Rockhampton on 2nd February, 1907, said :—"The action of the society in the past had had the effect of making those who were inclined to shoot on every occasion at everything that came in their way more guarded in their movements. The society was to be congratulated also on having had reserves proclaimed in various parts of the district. There were a number of birds in the district, of which the society had a list, which it would be well that the boys at their grammar schools and State schools, who were going in for nature study, should make themselves familiar with and endeavour to find out if there were any birds other than those which were recorded. It would be to the credit of the boys to have their names mentioned as having added new names to the list. The study of birds, when they came to acquire the taste for it, would be found more enjoyable than the mere shooting of them. The society was doing good work in observing these things in this district. There were those who were inclined to go out with rifles and guns and slaughter birds indiscriminately, and it was well that they had friends on the outskirts of the town who could advise them when anything was going on which should not be permitted."

* * *

Bulletin of the British Ornithologists' Club, No. cxxvii., contains an account of the hundred and twenty-sixth meeting of the Club, including the president's address. Dr. P. L. Sclater, F.R.S., in the course of his address, said he thought one of the leading features of the present epoch in connection with the science of ornithology was the number of expeditions despatched in quest of discovery to every part of the globe. Possibly he excepted the island-continent of Australia. Save for the little private enterprise recorded from time to time in *The Emu*, no well-organised or national expedition has taken place for years. How much money is spent in the Commonwealth over matters of far less importance than the science of zoology, botany, &c.! In his address Dr. Sclater is sympathetic towards oologists. Referring to recent ornithological events of the Palæarctic Region, he is of opinion that one of the most noteworthy is the commencement of several new works on its oology. Mr. Dresser has already issued the first two numbers of his "Eggs of the Birds of Europe." Mr. Jourdain's "Eggs of European Birds," so far as it has proceeded, also deserves commendation,

while Krause's "Oologia Universalis Palæarctica" is not, in Dr. Sclater's opinion, quite so successful, but may prove to be a useful work.

Anent the subject of egg-collecting: Some discussion has taken place recently in the columns of the American publication, *Bird-Lore*, for and against the practice. Australians are mindful that the principal authorities of the present day on Australian ornithology have all been egg-collectors in their early days.

* * *

THE METHODS AND TECHNIQUE OF MEASURING BIRDS.—In *The Journal of the South African Ornithologists' Union* for December, 1906, Prof. Anton Reichenow contributes useful instructions. After pointing out that it is highly desirable when describing a bird that the parts and colours be correctly named (a diagrammatic chart of a bird is printed on the same page), he states:—

"It is desirable to give measurements in millimetres, because in the case of small measurements with centimetres the employment of decimals may easily lead to mistakes and misprints.

"1. The *total length* (T.L.) is the measurement from the tip of bill to the tip of central tail feather, measured on the outstretched body of a bird; the body must not be forcibly lengthened.

"2. The *length of wing* (L. of W.) is the measurement taken from the carpal (wrist) joint to the end of the longest flight feather. The method is as follows:—Place a millimetre rule under the wing and press the wing gently on to it, reading the scale thereafter.

"3. The *length of tail* (L. of T.) is the measurement from the root of the tail feathers to the end of the longest feather. The measurement is taken by placing the rule underneath the tail with one end of the rule against the place where the under tail coverts start, and where also can be easily felt the roots of the tail feathers proper.

"4. The *length of tarsus* (T.) is the measurement from the notch in the posterior part of the joint between the leg and the lower thigh, to the notch between the upper ridge of the middle toe and the lower edge of the lowest scale of the front part of the leg; should be taken with a pair of compasses.

"5. The *length of the middle toe* (M.T.) is the measurement from the notch on the anterior ridge of the lowest scale between the leg and the root of the middle toe to the point of the claw on the middle toe—the toe being outstretched.

"5*a*. The *length of the middle claw* (M.C.) is the measurement taken from the upper anterior edge of the last scale on the toe to the point of the nail on the claw.

"6. The *length of the bill* (B.) is the measurement taken in a straight line from the point of the root of the upper ridge of the bill, where the forehead feathers begin, to the tip of the upper mandible. One point of the compass is placed where the horny substance of the bill and the forehead feathers meet, and it is sometimes necessary to move the feathers to one side. In birds which have a cere (bare membrane) at the root of the bill, the measurement is a straight line taken from the upper anterior part of the cere to the tip of the upper mandible."

* * *

WILD BIRD SANCTUARIES.—A new country is usually in such a hurry to make money that arts and study are neglected, but the fauna of a land like ours is really a substantial asset, and should be regarded from a utilitarian as well as a sentimental point of view. Other countries have found this fact out, and they have, in a great multitude of instances, instituted a strict watch upon their birds and beasts. The north-western States of America, for example, which, so far as settlement is concerned, much resemble our own States, have a highly effective and well-paid system of supervision. We have no large game, except a few kangaroos in the extreme north-east and north-west of the State, but we have still many birds and a few animals that are well worth preserving. We are fortunate in possessing a splendid collection of water-fowl, many of which are interesting and showy to a degree. Owing to the fact that anyone with a little loose silver may possess a gun and cartridges, and that game preservation is practically unknown here, our wild-fowl has, of late years, been having a most unpleasant time. Both in and out of season the pot-hunter haunts the lakes and dams, and prowls along the creeks on the look-out for Ducks, and he spreads havoc wherever he goes. So serious is the position becoming in the southern portion of the States that a movement has been initiated in Mortlake which has for its object the setting apart of some of the most suitable lakes in the Western District as permanent game reserves. With, say, eight or ten suitable lakes set apart for breeding purposes, there would always be a supply of birds to stock up the neighbouring lakes, dams, and creeks. For, as is well known, practically the whole of the wild-fowl on the lakes are almost continually moving from one sheet of water to the other. The only time when they remain at one place for any length of time is when they are nesting, and it is then, of course, that they need the most protection. As might be expected, the wild-fowl have their favourite lakes for breeding purposes. If, then, the land is cut up and parcelled out into farms, and no steps are taken to preserve the lakes, the result can very easily be predicted. The Ducks will go first, and very quickly. Then the Swans will

follow them, and the only occupants of the lake will be a rather full supply of huge yellow mud-eels. One has only to see these lakes now, with their broad, blue bosoms thickly dotted with Swans and clumps of Ducks, to realize the difference that the absence of bird life will make in them. In the same connection, great care should be exercised in connection with shelter plantations. At present there are huge belts of plantations, mostly sugar and other gums, but also acacia, tea-tree, and *Pinus insignis*, all over the plains. Some of these plantations are miles long, and their individual area sometimes runs into hundreds of acres. It is pretty well known that these are the only trees there are on the plains, which, before the plantations grew up, were a wide, wind-swept waste. The amount of bird life that they already contain is indeed surprising. The great bulk of this bird life is not native to the plains, but has been attracted thither by the plantations.—*The Argus*, 2nd February, 1907.

* * *

Two Early Australian Ornithologists.—In *Records of the Australian Museum*, vol. vi., No. 3, Mr. A. J. North, C.M.Z.S., has contributed a sympathetic article on two early ornithological workers.

(1) John William Lewin, who was the author of the first work published on Australian birds, arrived in New South Wales in 1798 by H.M.S. *Buffalo*. He is thus referred to by the Duke of Portland in a communication to Governor Hunter, under date 6th February, 1798:—"Mr. Lewin is a painter and drawer in natural history, and, being desirous of pursuing his studies in a country which cannot fail to improve that branch of knowledge, you will allow him the usual Government rations during his residence in the settlement." In 1801 Lewin accompanied Colonel Paterson, the Lieutenant-Governor of the colony, and party in an exploring expedition up the Hunter and Paterson Rivers. In 1808 Lewin's "Birds of New Holland" appeared, the plates being engraved and coloured by the author. It is not without interest to learn that, with the exception of Lewin's "Insects of New South Wales," published in 1805, his bird plates were the earliest engravings produced in Australia. Lewin originally called his ornithological work "Birds of New South Wales," but it is believed the publisher in England, where the letterpress was printed, styled the work "Birds of New Holland"—a somewhat unfortunate title. Lewin died 27th August, 1819, at the comparatively early age of 49, and was buried in the Devonshire-street Cemetery, his remains, with others buried there, being transferred a few years ago to the northern shore of Botany Bay, to make room for the new metropolitan railway station at Redfern.

(2) John Gilbert. As Mr. North remarks, the labours of the

ill-fated John Gilbert are well known, being closely connected with those of John Gould in the latter's great work on "The Birds of Australia." A plate is given of a mural tablet which was erected to Gilbert's memory by the colonists in the historic St. James's Church (of England), Sydney. It reads:—

"*Dulce et decorum est pro scientia mori.*

THIS MONUMENT IS ERECTED
BY THE COLONISTS OF NEW SOUTH WALES
IN MEMORY OF
JOHN GILBERT,
ORNITHOLOGIST,

Who was speared by the blacks on the 29th of June, 1845, during the first overland expedition to Port Essington by Dr. Ludwig Leichhardt and his intrepid companions."

It will be observed that a slight error occurs in the date. Poor Gilbert was speared on the 28th, not the 29th, of June.

No doubt when the annual session of the A.O.U. meets in Sydney this year members will visit Gilbert's tablet, also Lewin's tomb at Botany, thanks to Mr. North for drawing attention to them. If Mr. North has any further "old-time memories," of, say, Macgillivray, Swainson, and other early ornithologists who were known to visit Australia, all present-day bird-lovers would welcome them.

Reviews.

["The Useful Birds of Southern Australia, with Notes on Other Birds." By Robert Hall, F.L.S., C.M.Z.S., &c. T. C. Lothian, Melbourne and Sydney, 1907.]

THIS little work will be gladly welcomed as a "pocket edition" of much useful information pertaining to the utility of Australian birds.

The contents have been divided by the author into—(1) Insect-eating Birds; (2) Insect and Vermin-destroying Birds; (3) Insect and Seed-eating Birds; (4) Insect and Fruit-eating Birds; (5) Insect, Nectar, and Fruit-eating Birds; and (6) Insectivorous Birds and others introduced from the Northern Hemisphere. The work is fully illustrated, chiefly with reduced blocks in monotone from Gould's celebrated work on birds and by several excellent reproductions of nests, &c. (from the author's negatives and others), some of which have already been used in *The Emu*, as acknowledged by the author. The picture of the little favourite—the Blue Wren—on page 79 is an original and exceedingly happy snap by Mr. A. H. E. Mattingley.

Mr. Hall has apparently written this book for the masses, and clearly demonstrates the important part birds play in

relation to agriculture, fruit-growing, forestry, &c. He treats of nearly 300 species. To cover such a large field in so small a compass some of his remarks are necessarily scant, if not scrappy, while some of his notes are somewhat beside the question—such as, for instance, albino or "sport" varieties, traits of birds in semi-domestication, &c. What the reader wants is information about the habits of typical birds of the bush. But, nevertheless, Mr. Hall has managed to bring out important points which must prove instructive to his readers, and the more his readers are country dwellers the more practical will the instruction become. The book is within easy reach of all, and can be purchased for the modest sum of 3s. 6d. The work is neatly bound with an attractive cover—plate of Blue Wrens—and that it is printed by Messrs. Walker, May and Co. is a guarantee that the printing is first-class.

["The Bird: its Form and Function." By C. W. Beebe, Curator of Ornithology of New York Zoological Park.]

UNDER this attractive title a book has appeared of the American Nature Series, published by Henry Holt and Company, New York, September, 1906, which will give nature-lovers generally, and ornithologists especially, an insight into the structure and meaning of bird life which it was difficult to obtain before. In the preface the author aptly states his case in this manner:—"When a new bird is shot it is labelled, preserved in a collection, and often forgotten; or if studied with a field-glass, all effort is centred in finding some characteristic by which it can be named. Observing the habits, the courtship, the nest-building is a third phase of bird study, but few indeed have ever given a moment's thought to the bird *itself*." The book is an untechnical study of the bird in the abstract, and is illustrated profusely throughout with excellent photographs, mostly from life.

The frontispiece is a coloured drawing of a prehistoric bird form—*Hesperornis*—a wingless, toothed, diving creature, about 5 feet long, which lived in the great cretaceous seas some four millions of years ago. After treating of the ancestry of the bird the chapters deal in order with the feathers, framework, organs, food, breath, muscles, senses, beak, head, body, wings, feet, tail, and eggs of the bird in such a comprehensive yet simple manner that any reader cannot fail to be impressed with that beauty and adaptability in bird life for which the author endeavours to bespeak continuous admiration.

The book not only contains precise facts, but points out the why and wherefore of most structures, and the bird-lover is immediately enabled to see the full force of some observations that before may have been isolated and solitary. When the

governing principle is explained these isolated facts piece together into one continuous chain of meaning and of interest. In the light of what this extremely useful book has to say, no bird, however monstrous its structure or its habits may at first appear, will be anything but a beautiful expression of the influence of surroundings in the great scheme of things to which it belongs.

Correspondence.

To the Editors of "The Emu."

GALDENS.

SIRS,—Referring to Mr. E. Scott's letter in *The Emu*, vol. vi., part 3, page 151, respecting the probable identity of the birds called "Galdens" by Dampier, I think it is taking too much for granted in assuming that the Little Mangrove Bittern was meant. Mr. Scott refers to the colony of these birds (*Butorides stagnatilis*) mentioned by Gould as observed by Gilbert near Port Essington, and says:—"This may well have been the same colony as observed by Dampier." Now, according to Mr. Scott's letter in *Emu*, vol. vi., part 1, page 22, Dampier observed Galdens (not a colony) in Shark's Bay. It is a far cry from Shark's Bay to Port Essington—a distance of about 1,800 miles. As I have seen a good deal of Shark's Bay, I venture to assert that the following species of the Herodiones would be much more likely to come under notice there (especially in a passing visit, as Dampier's was) than *Butorides stagnatilis*, viz.: —*Demiegretta sacra* (Blue and White Reef-Heron), *Notophoyx novæ-hollandiæ* (White-fronted Heron), *N. pacifica* (White-necked Heron), or *Nycticorax caledonicus* (Night-Heron). My personal experience of *Butorides stagnatilis* is that it is a very shy and solitary bird, only seldom seen feeding outside its favourite shelter of dense mangroves. I have not observed this species myself south of the North-west Cape, and take it to be mostly found in the tropics, although it possibly does occur in the mangroves which grow along the north and east sides of Shark's Bay, and between the mouths of the Gascoyne River, which empties into the northern portion of Shark's Bay. It was near the mouth of the Gascoyne River that Gregory, in the early exploring days, observed two Jabirus (*Xenorhynchus asiaticus*) and shot one, parts of which were sent to Gould—probably the only record of this species for that locality. I have spent many days shooting for specimens in the vicinity of the Gascoyne River delta, but never came across *Butorides stagnatilis*, though, as I say, it is possible it may have been overlooked. Upon turning over my book of field notes, made during my residence of 16 years in the north-west of this

colony, I find an entry that an old sailor and whaler, and a close observer of nature, who was with me some years, once informed me that he had seen a large colony of White Herons (Egrets?) nesting in the mangroves south of the Gascoyne River. Perhaps this may have some bearing on the subject of "Galdens."—Yours truly,

Broome Hill, W.A., 19/2/07. TOM CARTER.

South Australian Ornithological Association.

THE bi-monthly meeting of the above association was held at the residence of Dr. A. M. Morgan, Adelaide, on Friday evening, 25th January, 1907. Mr. J. W. Mellor presided over a good attendance. In reference to the reported destruction of Pelicans and other protected birds on the Coorong by officials of the Fisheries Department, the sub-committee appointed at the previous meeting reported that full inquiries had been made. The committee was satisfied that no depredations had been committed. Inspector M'Intosh, when interviewed, had shown himself to be in favour of bird protection. Capt. S. A. White drew attention to the lateness of birds breeding this season, and to the large numbers of common Teal about in all swampy localities. It was thought that the remarkably mild weather and copious rains in the interior in the spring were responsible for these facts. Mr. J. W. Mellor reported having attended, in company with Capt. S. A. White, the Australasian Ornithologists' Union Congress in Tasmania in November of last year. Afterwards he had travelled extensively in the interests of natural history through the interior of that State, and had visited many elevated situations to observe the bird life. Mr. A. H. C. Zietz, F.L.S., graphically described a visit to the Big Scrub, New South Wales, in company with his son, Mr. F. R Zietz, last spring. They had done remarkably good work in taking field notes and securing specimens for the Adelaide Museum, some of which were much-needed species. Mr. Zietz showed the Sanguineous Honey-eater (*Myzomela sanguinolenta*), Rose-breasted Robin (*Petræca rosea*), Orange-backed Wren (*Malurus melanocephalus*) and the Variegated Wren (*M. lamberti*), Caterpillar-eater (*Edoliisoma tenuirostre*), Scaly-breasted Lorikeet (*Trichoglossus chlorolepidotus*), Noisy Pitta (*Pitta strepitans*), Russet tailed Ground-Thrush (*Geocichla heinii*), Drongo Shrike (*Chibia bracteata*), and bright-plumaged Fruit-Pigeons, viz., the Purple breasted (*Megaloprepia magnifica*, White-headed (*Columba leucomela*), and the Topknot-Pigeon (*Lopholæmus antarcticus*). Specimens collected by Dr. A Chenery in the locality of Oodnadatta were exhibited, and the peculiar rusty colouration of the feathers, corresponding with the aspect of the country, was noted. Dr. A. M. Morgan displayed a number of birds' eggs, including those of the Black-capped Tree-runner (*Sittella pileata*) and Orange-winged Tree-runner (*S. chrysoptera*). Mr. M. Symonds Clark tabled a conspicuous notice which is being issued by the Government to assist in the protection of our useful native birds, which the meeting thought was a step in the right direction.

Notes and Notices.

A COLLECTION OF CUCKOOS' EGGS.—Mr. Sept. Robinson, A.O.U., has now field notes on eggs of 68 species of foster-parents of the various Australian Cuckoos observed with an egg each, or sometimes two, of a Cuckoo.

REPORT ON THE BRITISH MUSEUM, 1906.—Donations from Australia.—Mr. Bernard Woodward presented 52 birds from south-west Australia (including 5 species new to the collection). Mr. W. E. Balston presented 374 birds from south-west Australia, collected by Mr. T. Shortridge. Mr. A. J. North presented 98 eggs.

USEFUL EAGLES.—At the November meeting of the South Australian Ornithological Association the value of the common Wedge-tailed Eagle (*Uroaëtus audax*) as a rabbit-destroyer was discussed. The members fully confirmed a report by the Inspector of Fisheries that great numbers of rabbits were killed by a single pair of these birds for food while rearing their brood of young. It was contended that, although these birds occasionally secured a young lamb, the amount of good they did fully compensated for this, and in the majority of cases it was thought that they killed only weakly lambs, or those that had lost their mothers and would eventually die. In many cases they picked up the dead carcasses of freshly dropped lambs. It was represented that infinitely more sheep and lambs died from the effects of shortage of food supplies, under the influence of rabbits, than were killed by the Eagles, whose energies in destroying the rodents increased the possibilities of grass fodder, and therefore it behoved the farmers to protect the Eagles as useful birds.

THE exhibiting of a crocodile's egg (*Crocodilus porosus*) at the last quarterly dinner of the Bird Observers' Club brought forth the following remarks from Mr. A. Mattingley:—"It will be observed that the contour of a crocodile's egg is similar to that of the mound-building birds, and it is interesting to observe here that the crocodile is a mound-builder and lays its eggs in a mound after the method adopted by the mound-building birds. The apices or ends of the egg of the crocodile and of the mound-building birds in Australia are similar in shape, both ends of the egg being of uniform size. Thus, if we accept the dictum that birds have descended from some reptilian ancestor, and are merely extremely modified and aberrant reptilian types —glorified reptiles, in other words—that birds' ancestors were four-footed creatures which gradually metamorphosed into feathered bipeds, the fore legs becoming specialised, forming wings, &c., then the foregoing remarks of the similarity of nesting and the contour of the eggs show something in common between the crocodiles and birds. Furthermore, the powder-down found on the bodies of Herons and other birds is no doubt the relic of this affinity. If one accepts the theory that the skin of reptilian ancestors of birds gradually evolved a down, and later on feathers, or elongated scales, then it seems probable that this powder-down is the connecting link."

Suggestions as Subjects for Papers.—1. Why should *Petroica phœnicea* do, as Mr. J. W. Mellor says—"all leave lowlands at approach of spring, and repair to the elevated regions and Tasmania to breed?" 2. Did Union members—as to *Acanthornis magna*—kill the "last of the tribe," or was it the first? 3. Why should Kingfishers be absent from such a well-wooded and watered country as Tasmania (see p. 167)? 4. Cannot anyone give a feasible explanation of the absence of the Lyre-Bird from Tasmania? 5. There are some portions of the full life-history of the Snipe (*Gallinago australis*) wanting. Why cannot they be supplied? Is it lack of observation again?—H. K.

Editorial.—The Council of the A.O.U. has accepted with regret the resignation of Mr. Henry Kendall, who, on account of urgent private business, retires from active work in connection with the Union. For the first four years of its existence Mr. Kendall was one of the co-editors of *The Emu*, and latterly an advisory editor. The Council has had engrossed upon its minutes its very great appreciation of Mr. Kendall's services in the cause of ornithology. A copy of the minute has been forwarded to Mr. Kendall.

Mr. C. F. Belcher, M.A., LL.B., one of the present editors, will be absent in Europe for the next 12 months. During his absence Mr. A. J. Campbell, Col. Mem. B.O.U., will act as *locum tenens* for Mr. Belcher.

Prospective Trips.—Mr. Thos. P. Austin, of Cobborah, N.S.W., writes:—"My present intentions are to take a trip to Cardwell, North Queensland, this year, as soon as my shearing is finished, for the purpose of bird-observing. The following year, if possible, I hope to visit the Abrolhos Group, off the coast of Western Australia. Should you know of anyone willing to join with me in either of these trips I should be very thankful if you would ask them to communicate with me."

Walker, May and Co., Printers, Mackillop-street, Melbourne.