island, Messrs. Roy and King Bell, who whole-heartedly put
themselves at our service, and it is due to their knowledge of
the avifauna of their native isle that so much fresh information
has been received. Had it not been for their help I should not
have been able to write so confidently as I have done regarding
the bird-life of the Kermadecs.

The Region of the Barrier Range.

AN OTOLOGIST'S HOLIDAY.

BY (DR.) W. MACGILLIVRAY, BROKEN HILL, N.S.W.

PART I.

During a nine years' residence at Broken Hill, which may be
regarded as the capital of south-western New South Wales, I
have made frequent excursions into the surrounding country, in
order to further my knowledge of its avifauna. I propose in
the following notes to give an account of an excursion made
during September and October, 1909, in company of Mr. W.
M'C Jennan and a party of more or less interested friends on
health or pleasure bent. Dr. Dobbyn (who has been my
companion on many previous trips), Mr. J. M'C Jennan, Mark
Welsh (in charge of horses and culinary arrangements), my own
son (aged 10 years), and his boy cousin, Barney Mackay.

I had planned to work several of the creeks which run out of
the Barrier Range and through the open country between
Broken Hill and a permanent camping place on Wyalla Lake,
about 100 miles to the north, in scrub country, and then to
return by a different route, so as to include other creeks, the
whole trip to occupy one month. Our means of locomotion
was a large express waggon, built for the back country
roads, and drawn by four horses. Winter rains had been fairly
good for a district in which desert conditions usually prevail,
and a fairly good growth of herbage along all the creeks
rendered it unnecessary for us to carry chaff or make a homestead
every day to procure feed for the horses. On two previous
occasions our range of movement had been greatly restricted on
this account.

Long before breakfast time on the 11th September we were
crossing Stephens Creek, about 9 miles from the city, at a
point just above the reservoir, from which the city water supply
is drawn. This creek—and the description applies to most
creeks in the district—is shallow and sandy, bordered with
eucalypts and some other trees and shrubs. Our way led us
through a patch of porcupine-grass, which was devoid of bird
life; further on Tricoloured and Orange-fronted Chats
(Epthianura tricolor and E. aurifrons) and a few White-
winged Wrens (*Malurus*) were disturbed from the blue-bush by the wayside. Our road was now skirting the Barrier Range, through blue- and salt-bush country, with occasional turpentine-bushes, whose buds had not yet opened. Mulga begins at the foot of the hills and spreads over them. Occasional pairs of Black-faced Wood-Swallows (*Artamus melanops*) were seen. This species, unlike the Masked (*A. personatus*) or White-browed (*A. superciliosus*), is neither migratory nor gregarious, and is very local in its habits, being seen always either in pairs, or, after the nesting season, in families. It thus tends to form local variations, a condition not possible with the other species mentioned, which migrate regularly from north to south to a greater or less extent, according to food supply, and never permanently inhabit any one locality. We soon arrived at Nulcowinna Station, situate on the creek of the same name, about 30 miles from Broken Hill, stopping only long enough to inquire our way for the next day's journey.

Proceeding up the creek about 3 miles, we camped and had lunch. Water-pools still remained along the sandy bed; the gums looked fresh and green, but the feed did not tempt us to keep our horses here too long. Yellow-throated Miners (*Mysanthe flavigula*), Spiny-cheeked Honey-eaters (*Acanthochera rufigularis*), and “Greenies” (*Ptilotis penicillata*) were busy among the gums, and enlivened the creekside with their varied notes. The Red-tipped Pardalote (*Pardalotus ornatus*) was heard on every side, and the coo-cooing of the Little Dove (*Geopelia cuneata*) came from further down the creek. This species and the Ground-Dove (*G. tranquilla*) are about equally distributed along all the creeks throughout western New South Wales. Both are ground feeders (on seeds of eucalypts, grasses, and herbage), and never feed away from the protecting shelter of the creek timber. Their seasonal movements are guided mainly by the water supply. Barney Mackay soon found a Yellow-throated Miner's (*Mysanthe flavigula*) nest, built in a small gum, about 15 feet from the ground; three eggs were in the nest. From an adjoining acacia a Crested Pigeon (*Ocyphaps lophotes*) flew, revealing her frail platform, on which two eggs could plainly be seen from beneath. Two Bare-eyed Cockatoos (*Cacatua gymnotis*) flew screeching from a gum-tree, a hollow in which, about 30 feet from the ground, with tell-tale down adhering to the entrance, contained one egg, resting at the bottom on decayed woody material. Only a few yards further on four Galah's (*Cacatua roseicapilla*) eggs, in a leaf-lined hollow, about 35 feet from the ground, were chipping. A Boobook Owl (*Ninox boobook*) hurriedly left another gum. The hollow being deep down in the tree, it was passed by. A pair of Galahs had a hollow neatly lined and ready for eggs. Two old nests of *Ocyphaps lophotes* were noted in an acacia and
a gum-tree respectively. The broods were reared earlier in the season. These birds sometimes nest in the late winter months. I have taken fledged young in July, and again autumn rain often results in eggs being laid in April and May. A Bronze-wing (*Phaps chalcoptera*) rose from the ground, where it had been feeding, and went clattering through the trees. The two next hollows examined contained well-feathered young of the Mallee Parrakeet (*Barnardius barnardi*). These Parrakeets are early spring breeders, and throughout our trip most of the nesting hollows examined contained young. In a hollow of another tree, at a height of 15 feet, were found three fresh eggs of the Galah, resting on a leafy bed. Next two half-grown Mallee Parrakeets and a rotten egg in a hollow, at a height of 30 feet. A female of the same species sitting on two incubating eggs had to be removed before they were revealed; this hollow was only 6 feet from the ground. A little further on a Galah was sitting on four hard-set eggs in a hollow at a height of 20 feet from the ground. M’Lennan climbed to a Short-billed Crow’s (*Corvus bennetti*) nest at a height of 40 feet up in one of the gums, and took five fresh eggs. This is an average clutch, although six and even seven eggs are sometimes laid. The birds lay early—namely, in August—so that nearly all of the nests examined by our party contained young birds or heavily incubated eggs. Not many Crows nest along the creek, as they mostly prefer the mulga on the hills, the leopard trees (*Flindersia maculosa*), or larger neelia (*Acacia rigens*) in the flat scrub. A tree from which a good outlook can be obtained is generally selected. They are wary birds, flying from the nest before one can closely approach it. The call is very distinct from that of the Raven (*Corvus australis*), being a harsher and shorter “Gahr.”

A few yards more tramping along the sandy bed brought us to the nest of a Little Eagle (*Nisaetus morphnoides*), situate in a gum-tree. The nest had been partly blown out of position by a storm, and built up again to a height of 2 feet. The leaf-lined cavity contained a pair of fresh eggs. From this point onwards for about 2 miles the effects of a terrific storm of wind and hail which had crossed the creek about three weeks previously were manifest. Many trees were torn to pieces, only trunk and main limbs remaining, and nearly all had lost a number of their branches; many large limbs were found fully 100 yards from where they had been broken off. The bark on the western sides of the trunks and limbs bore evidence of the size and velocity of the hailstones, being bruised, pitted, and scarred to a remarkable extent. We could not help noticing the scarcity of birds along this portion of the creek. No doubt these wind-storms do much good to the trees by pruning off the dead and decaying branches and cleaning the limbs of hanging
strips of bark, which shelter destructive insects. But they are responsible for the destruction of large numbers of nests, eggs, and young of many birds, especially of species like the Honey-eaters, which build more or less pensile nests.

Another Short-billed Crow's nest, high up, as usual, contained four hard-set eggs, which were not taken. Two hollows in separate trees each contained three Galah's eggs. A pair of Cockatoo-Parrakeets (Calyptorhynchus nova-hollandiae), passed us, coming from the north, the first evidence of that migratory movement from north to south which takes place every year in the spring to a greater or lesser extent. The birds drop off to breed wherever there is promise of a plentiful supply of seed for the rearing of their young. Occasionally, in the northern parts of this district, after good autumn or late summer rains, nesting takes place in April or May. In a tall tree in the next bend of the creek, well known to us from previous visits, was found the nest of a pair of Black-breasted Buzzards (Gypaetus melanostoma), occupied for the third year in succession. The nest, a large, flat structure of sticks lined with green gum-leaves, was placed on a horizontal fork near the top of the tree, and Mr. Lennan, who is a skilful and careful climber, had to brace the limb to a more horizontal one with the climbing rope, and secure himself to the end of it, before venturing out to the nest. There was only one egg, which was left until next day in hopes of an addition. The female, soaring above us, did not seem so fine a bird as the one in possession during our other visits to this nest. We concluded that the old female had been killed, probably poisoned, and that the male had found a new mate. A hollow in the same tree, occupied on both our previous visits by a pair of Bare-eyed Cockatoos (Cacatua gymnotis), this year was found to contain a clutch (four) of the eggs of this species. A steep and sheltered sandy bank opposite to the Buzzards' tree, usually a favourite nesting place of the Black-and-White Swallow (Ceramoeca leucosternum) and Red-backed Kingfisher (Halcyon pyrrhopogonis), was now untenanted by either species. A soft, sandy bank, such as this, is usually preferred for a nesting site by the Black-and-White Swallow. A bank may be occupied by several pairs, not because it is the habit of these Swallows to nest in company, but that the site is a favourable one; just as many nest singly in small washaways, or at long intervals along the same gully or washaway. I have seen the nests of these birds in small water ruts with a bank not more than a foot in height. Five pure white eggs form a clutch.

As the grass and herbage is not very good along this creek, we did not find the 'Bare-eyed Cockatoos, Galahs, and other species nesting so freely as usual, so that lack of interest, together with a feeling of weariness in limbs long unused
to such exercise, compelled us to return to camp by a rapid march across country, delayed only by a search for aboriginal stone relics on a sand-bank which has evidently been a favourite camping-place of old time. After tea we were soon abed and asleep. The morning broke fine and clear; breakfast was soon over, and a start made to investigate the creek back towards the station. A pair of Little Eagles (Nisaetus morpnoides) had a nest ready for occupation in a tree near our camp. A Mallee Parrakeet’s hollow contained two young birds in down. Young birds were seen in a Raven’s nest. A “Greenie’s” pendulous nest, just completed among the leaves of a gum, was seen, not far from a Yellow-throated Miner’s (Mysanthen flavigula) nest containing three eggs. Another Little Eagle was flushed, and flapped slowly away from a nest high up, as usual, to which she had evidently been putting the finishing touches. Two magnificent Black Falcons (Falco subniger) were disturbed from their roosting-place in a eucalypt, and glided away through the trees. On the wing these birds appear to be the largest of our Falcons. More ‘Miners’ nests, and a Grallina (Grallina picata) sitting on its mud nest, led us on to a Goshawk’s (Astur fasciatus) small platform-like structure, to which the bird returned when M’Lennan was half-way up to it. She soon quittd when she caught sight of the intruder. The nest was almost finished. A pair of Allied Kites (Milvus affinis) were soaring over the tree-tops, their dark bodies and swallow tails silhouetted against the clear sky, and their keen eyes watching every movement of the humans below. A Whistling Eagle (Haliastur sphenurus) was busy renewing an old home; these nests are, as a rule, securely built on a substantial limb at a good height from the ground, and are re-lined with green leaves year after year. In a tree near by a Little Eagle had nearly finished a nest. Unlike the Whistling Eagle, this species has little chance of re-occupying an old nest, as the site usually chosen—a slender limb at the top of a tree—does not tend to its survival from year to year in a region where winds are high and frequent. A Galah’s nesting hollow, containing three hard-set eggs, was our turning point. M’Lennan, cutting across a salt-bush flat, on the opposite side to the rest of party, found, in a blue-bush, a nest of the White-winged Wren (Malurus leucopus) built almost wholly of sheep’s wool and containing four eggs. In other bushes were two more nests, nearly completed. One was composed of sheep’s wool, the other of dry grass and wool, lined with woolly seeding plants and rabbit fur. All the nests were placed at the tops of bushes in fairly conspicuous positions. M’Lennan also found a Crested Pigeon’s (Ocyphaps lophotes) nest with two eggs in an outlying acacia.

After a flying visit to the Buzzard’s nest, and an early lunch,
we made a start on the road again. The trap having to make a
detour, crossing and recrossing the creek, in order to pick up
the Gardiner's Creek track, M'Lennan and I cut across to it by
a more direct route through the salt-bush, to look up the White-
winged Wrens. Nearly every crab-hole, with its surrounding
blue-bushes, was in possession of a family of these little birds.
The tiny grey females, as they fly and skip along the ground
from bush to bush, look almost like mice, and are in marked
contrast to the fussy little male, resplendent in coat of dark
blue and silver, as he shows himself occasionally on the top of a
bush with a great pretence of guarding the line of retreat.
Only the woolly outlines of several nests were found by us, and
we soon joined the main party. Our objective now was a well
on Gardiner's Creek, 20 miles in a W.N.W. direction. The
country was at first hilly, thinly timbered with mulga (Acacia
aneura) and turpentine-bush and patches of blue-bush. The
herbage was good, and wild flowers were plentiful. The
rumbling of our trap frequently disturbed Orange-fronted
Chats (Ephthianura aurifrons) and Tricoloured Chats (E.
tricolor) from the bushes. They flew along the road in front of
us from bush to bush, and then circled out and let us pass on to
put up others in the same way. A 'Spotted Harrier (Circus
assimilis) was beating the ground parallel with, but not too near,
our track, on the look-out for prey; its widely-stretched grey
wings, with their black tips, made it easily recognizable.
The strident note of the 'Brown Song-Lark (Cinclorhamphus
cruralis) was heard ever and anon, and the male bird was seen,
as he descended and perched on the top of a bush, with uplifted
tail, to utter a warning "Wez-weet" to his wary mate. There
are many flowering shrubs on these hills, which furnish a generous
diet to the smaller insectivorous birds, notably Eremophila
alternifolia and E. duttoni. When about 5 miles from our
destination the trap met with an accident, and the breakage
took some time to fix up. After proceeding carefully for a few
hundred yards on a rough road the trap gave way again, and we
had to leave it. Packing the horses with bedding and food, we
tramped in single file to the well, which we found just after
dark. A fire was soon lit and the billy on the boil. Daylight
revealed the fact that about two tons of dead rabbits had not
long before been cleaned out of the receiving tank from which
we drew our water. Before breakfast next morning the two
boys and myself took the billy down the creek to look for a
soak in the sand, and were lucky enough to find a small pool of
good water about half a mile from our camp. The feed on the
creek flats around the camp was very luxuriant, but, despite
this and the fact that they were hobbled, three of our horses had
strayed away. After breakfast one of our number saddled the
remaining horse and went in search of the others. The rest of
the party, excepting myself and the two boys, returned to the trap, where a forge was improvised in a washaway, and the turntable heated and straightened, tomahawks serving the purpose both of anvil and hammers. Going down the creek, Bare-eyed Cockatoos and Galahs flew from every tree. The Rufous Song-Lark (Cinclorhampius rufescens) was heard on every side. The wonderful growth on these flats of annual salt-bush, marshmallow, yellow everlasting, and milk-thistle, especially where sheltered by the tobacco-bush scrub, affords these Larks good cover for nesting and an abundant supply of insect food.

Many Babblers' (Pomatostomus superciliosus) nests were seen among the trees and in the tobacco-bush, and Barney soon found one containing eggs. Like most of its family, this Babbler lays five eggs for a clutch, and often breeds very early in the season, even in June, although August is the regular laying month. Yellow-throated Miners (Myzanthus flavigula), "Greenies" (Ptilotis penicillata), and Singing Honey-eaters (Ptilotis sonora) are here in numbers, the flowering tobacco-bush affording an unlimited supply of honey and insect food.

We found a nest of Barnardius barnardi in a hollow in a eucalypt. Whistling Eagles were seen preparing their nests, and several pairs of Little Eagles and Allied Kites were also noticed among the trees or flying overhead. The liquid notes of the Spiny-cheeked Honey-eater (Acanthocheera ruficollaris) came from all parts of the scrub. We attempted to penetrate the bushes, but soon gave up, as the scrub was too dense and unproductive. We skirted the creek for half a mile on the east side, finding two good waterholes, and then got through to the west side on a cattle pad. Barney had a good climb after a Black-backed Magpie's (Gymnorhina tibicen) nest, and was rewarded with a nicely marked clutch of four eggs. This is the usual clutch for G. tibicen in this district.

We skirted the scrub for some distance, and then made our way back to camp, where the rest of the party soon joined us. After lunch we started up the creek. A Whistling Eagle was lining her nest in a tree at the back of the camp, and we watched her taking the leaves from the tops of the trees and carrying them in her claws to the nest. A Boobook Owl (Ninox boobook) was flushed from an empty hollow, and then a Bare-eyed Cockatoo (Cacatua gymnopus) emerged from another, and flew screaming away. A Hawk flew from a nest at the top of a gum-tree, and was soon followed by another from a smaller nest in a lower fork. They proved to be a fine pair of Grey Falcons (Falco hypoleucus). McLennan was soon climbing to the higher nest, from which the female, somewhat larger than the male, had flown. The nest was placed in the upright fork of a thin limb, 60 feet from the ground; it was about 18 inches in diameter, loosely built of sticks and lined with wool, and con-
tained three eggs. The birds sailed uneasily round the tree, but made no attempt to molest the climber. After a further tramp over a dry stretch of creek, we came to a clear pool, and noted fox and Emu tracks on the damp sand. In an old, rugged tree near by a Kestrel (Cerchneis cenchroides) had her clutch of five eggs, a Cockatoo coming from a second hollow. Two more 'Bare-eyed Cockatoos' nests were found, each containing eggs. A Boobook Owl vacated a hollow, in which two eggs were seen. The "feed" along the creek had now almost reached the vanishing point, and there was a corresponding scarcity of bird life. It was useless to proceed further, so we turned back, cutting off a large bend in the creek. On the way we heard a horse-bell jingling, and, two of us going in search, the wanderers were brought back and short-hobbled on the green feed again. Next morning Barney was out before breakfast, among the small gums near the camp, and soon reported the finding of two nests of the 'Mallee Parrakeet, one with a complete clutch of five eggs on the point of hatching, and the other with two eggs only. One of those curious sand lizards (Gymnodactylus milusii) paid our breakfast table a visit, and was allowed to walk about in its peculiar, stilty way. Two of us went out with the horses to bring in the trap, while the others walked over the flats down the creek to where we commenced on the previous day. A Kestrel flew from a hollow in a large gum. Higher up in the same tree, a Whistling Eagle was re-lining an old nest, under which a Yellow-rumped Tit (Acanthiza chrysoostra) had her home. A 'possum was seen sleeping the day away in still another limb. In the next tree a Little Eagle was building and a Grallina was sitting on eggs; a Boobook Owl flew from one of the tree's hollow limbs, and in another hollow a Cockatoo had her clutch of three eggs. In a small eucalypt near at hand was a compactly-built nest of the White-browed Babbler, with an incomplete clutch of three eggs. A Little Nightjar (Aegotheles nivee-hollandiae) flitted away from her leaf-lined hollow, in which she had not yet laid. These interesting little birds are common throughout this country, and their "Churr-churring" note is frequently heard at night; they nest during September and October, laying four, or, very rarely, five eggs. Usually the eggs are pure white, but sometimes possess indistinct spots or markings, which in some form a zone at the larger end. A small colony of the Purple-backed Wren (Malurus assimilis) was disturbed searching for smaller insect forms among the undergrowth along the creek bank. In a hollow tree nearly opposite the camp a Bare-eyed Cockatoo's nest contained four eggs. The usual clutch is three. In another tree a Kestrel had just completed laying her clutch of five eggs, which I find to be the normal clutch, though six eggs are sometimes laid. Kestrels usually choose a large, open hollow, and
lay their eggs on the bare earthy material natural to such places.

We returned to camp, had an early lunch, and made a start, crossing the creek on the main Eurowie road; for about five miles this led us through hilly country, bearing evidences of the tin and copper prospector. All these hills, really the foot-hills of the Barrier Range, were just now gay with golden yellow "billy buttons" and everlastingings of several kinds, yellow and white, and every watercourse was lined with great bunches of blue-bells. We watered the horses at a rapidly-drying waterhole a quarter of a mile off the road; its position was sufficiently indicated by hovering and screeching flocks of Bare-eyed Cockatoos and Galahs. The birds were squabbling to find room at the water's edge. Grain-eating birds cannot go long in a dry land like this without water. A mile further on we crossed a creek and pulled up to examine a Whistling Eagle's nest, newly lined and ready for eggs. A "Red-tipped Pardalote (Pardalotus ornatus) had a nestful of young in a small hole in a tree, and near by five young Mallee Parrakeets were approaching the time when they would be able to leave the warm shelter of the hollow to find the use of their wings. A few miles further along the road we crossed the Caloola Creek. At the crossing a Raven's (Corone australis) nest was examined; it contained four newly-hatched young and one chipping egg. Five eggs is a normal clutch for this species, and, as incubation commences when the first egg is laid, the young are of different sizes. When hatched they are blind; skin yellowish, mostly bare, but with dirty-grey down on humeral, femoral, and dorsal feather-tracts; the eyes open on the fifth or sixth day, and are pale grey, which colour gets darker as the bird grows, but does not turn white until the birds are 13 months old. The skin of the nestling gradually darkens to a greenish-yellow, and there is then a gradual change to blackish-brown. This change takes place first on the feather-tracts. The gape is bright pink, and bill of a leaden hue at first, darkening with age. The young are fed on caterpillars, young grasshoppers, and other insects. During one drought season, when dead sheep were plentiful, the young Ravens apparently were fed upon dipterous larvae, and the stench which assailed our nostrils when the crops were opened did not tempt us to pursue our investigations further in that direction.

It was part of my plan to follow this creek up from this point. The road along the bank, however, was not one on which to trust our damaged trap, so we drove on to Eurowie township, picked up the White Cliffs coach road, which ran in our direction, and followed it to within 3 miles of Sturt's Meadows Station, where we camped for the night. Before tea McLennan and I followed the creek back until darkness forced us to return.
However, we found a Kestrel, Boobook Owl, and Galah nesting in hollows in the old gum. Five fresh eggs of the Mallee Parrakeet were found in another hollow—the only fresh full clutch of this species found during the trip. Two nests (each with two eggs) of the Bare-eyed Cockatoo were located in separate trees, and as it grew dark we disturbed a Kestrel and another Cockatoo from the same tree, but did not trouble to climb.

Next morning, 15th September, M‘Lennan and I started before the trap to follow the creek to the station. The flats all along it were in splendid condition. Annual salt-bush, milk-thistles, spinach, and wild oats were luxuriant, but out from the creek, where the grass should grow, there was little of anything permanent. A few hot northerlies will soon put an end to the succulent herbage. This is a result of winter rains; earlier autumn rains would have brought on a more permanent herbage. The birds seemed to know that it was to be a short season, and were all nesting in a hurry, the grain-eaters to hatch out when the seeds ripened, the insect-eaters when they could be sure of a plentiful supply of food for their nestlings. The proportion of full clutches and clutches of more than what may be regarded as the normal number was greater this year than when conditions were not so favourable. The loud and pleasing sound of the Rufous Song-Lark was heard all along the creek; they were only mating, and the male bird sang when making his short flight from the ground—with rapidly vibrating wings, either to curve downwards again on to the top of a bush or to perch high up on a gum and there continue his song. We often flushed these birds from thick undergrowth, where they were feeding mostly on insects. The other species (cruralis) is a bird of the open country, never being found along the creek flats or in scrub.

We found nests of two species of Cockatoo and of the Many-coloured Parrakeet (Psephotus multicolor), containing fully fledged young. These Parrakeets frequent the creeksides, and also the box flats in the scrub country throughout the district; they are usually seen in pairs, or families after the breeding season; they never flock like the Red-rumped Grass-Parrakeet (P. haematotus), which is not found nearer than Menindie, on the Darling, apparently its northern limit in this direction. Nearing the station we found that the trees had been cut out, and the growing saplings do not encourage bird-life. A‘Spotted Harrier flew from them, however, and a nest, lined and ready for eggs, was located in a small gum. Rejoining the trap, we drove up to the station, which was uninhabited, the overseer being away attending the shearing at another station belonging to the same owners. Some 20 years or more ago this station carried 40,000 sheep, now 10,000 hardly find a living on its bare
plains; the rabbits and drought on an overstocked run brought about this result, and this applies to every part of the district.

After replenishing our water-bag with rain water, we took the wrong track, going off at an angle to the right through hilly country, which became stony and gravelly and more open as we got away from the creek. The wild-flowers won our admiration. Many peas grew alongside the track; yellow, violet, and brownish-yellow flowers were gathered. Some areas were golden and sweet-scented with the yellow everlasting; other parts looked as though covered with a mantle of snow, so thickly did a brilliantly white everlasting bloom. Where a watercourse ran to the creek was a flat on which the old man salt-bush grew. We noted many Tricoloured and Orange-fronted Chats and Purple-backed Wrens (Malurus assimilis). On the ironstone gravel a pair of Dottrels (Peltotyphas australis) used all their wiles to lead us away from three chicks in hiding among the stones and scant herbage. Fourteen miles from the station we came to an old coach change, consisting of two fine dams and an old shed. The horses were watered and the billy was boiling when the coach came rattling along. After lunch McLennan and I went off to inspect a black oak (Casuarina) creek which runs parallel with the road and half a mile from it. A Babbler's (P. superciliosus) nest with one young bird was our first find. Then came a Bell-Bird's (Ornithiza cristata) nest with three chipping eggs, and many old nests of Babblers and of a Wood-Swallow (Artamus melanos) were noted. Tricoloured Chats and Singing and Spiny-cheeked Honey-eaters were numerous; for the vegetation was good, and there was an abundance of water in gravelly-bedded holes all along the creek. In a small gum a hollow contained a family of "Blue-Bonnets" (Psophotus xanthorrhous) clamouring for food. Several Spotted Harriers were searching the adjoining plain, and a pair of Grey Falcons had taken possession of an old Wedge-tailed Eagle's nest in a leopard tree (Flindersia macrocarpa), but had not yet laid. The day was windy, as are so many days here, and numbers of Masked and Black-faced Wood-Swallows and Tricoloured Chats were feeding on the insects sheltering on the lee side of every bush and shrub. In a stunted gum a Galah (Cacatua roseticapilla) had five eggs in an advanced stage of incubation. Four eggs I regard as a full clutch, though many nests only contain three. We tramped back to camp through the salt-bush, noting many old camp fire-places of the blacks by the way, with grinding stones and flint chippings scattered about. We flushed a Brown Song-Lark (Cinclorhamphus cruralis) from her nest in a depression scraped out beside a salt-bush. The nest was composed of rootlets of fine grasses, the egg cavity measuring 3 inches in diameter by 2 inches in depth. There were three eggs. In the old shed at the coach stage a Whiteface
(Xerophila leucopsis) was feeding a nestful of young. We started back to Sturt's Meadows, disturbing many Dottrels on the gravelly country, both adults and young in all stages. We called at the station and made use of the telephone to communicate with Broken Hill and Langawirra Station, then drove down to the creek to camp. A pair of Grey Falcons (Falco hypoleucus) had a nest in the first tree we came to below the house; in a hollow of the same tree were two eggs of the Bare-eyed Cockatoo. The Falcon's nest was on a thin limb at the very top of the tree. Four more Cockatoos' nests, containing eggs, were located in trees within a stone's throw of our camp, and a clutch (three) of Galah's was taken from an adjacent tree.

Early on the morning of 16th September McLennan climbed to the Falcon's nest; the birds sailed anxiously round, but made no attempt to defend their home. The nest was a large one, lined with wool, and contained four slightly incubated eggs. It was 80 feet from the ground. No sound was uttered by the birds. With McLennan I started down the creek afoot, the trap going on to camp at Stone Hut, a boundary rider's hut 16 miles further on. Two Cockatoos' nests and eggs were noted, and the burrow of the Black-and-White Swallow was dug out. A bird was found sheltering in it, the day being cold, windy, and cloudy. One very often finds three or four birds in a burrow on such a day. Nests of the Crow (Corvus bennetti) and Kestrel were also observed. A watercourse here runs into the creek, and had been dammed. Around this the herbage was very rank, trefoil growing 2 feet in height, with other plants of equal proportions. The wild poppies were the finest we had met with anywhere. On some of the bunches I counted more than 30 blooms, individual blooms being 2 inches in diameter; these and the yellow everlasting flowers, growing up through the other herbage, made the whole flat like a garden, which was brightened by numbers of Tricoloured Chats and enlivened by the song of Rufous Larks. Upon the left bank of the creek a little group of acacia was searched for nests of the White-browed Babbler; many old ones were found before a bird flew from one which contained eight eggs, three fresh eggs having been laid in a nest already occupied by a full clutch of five old, dried ones. I followed a branch creek, leaving McLennan to pursue the main channel, and located many nests of Cockatoos. McLennan climbed to a Raven's nest containing young, and found a White-browed Babbler's nest, with two young ones, in an "old man" salt-bush. On a rocky face forming one bank of the creek a colony of Fairy Martins (Petrochelidon ariel) were busily engaged in constructing their retort-shaped nests, most of which were unfinished. An old Black-and-White Swallow's nesting-hole, where the bank had broken away to the nesting cavity, was in possession of a pair of Whitefaces. In another burrow two
Black-and-White Swallows were sheltering from the wind. A Kingfisher had just finished its tunnel and nesting chamber. The tunnel is rarely more than a foot in length, and slopes slightly upwards; the nesting chamber is commodious, and the eggs, usually five, are placed on the soft earth of the floor. Eggs are usually laid from the middle of September until the end of October, rarely earlier, but later if spring rains ensure a sufficiency of food for the young. These birds feed on all kinds of insects, lizards, and small snakes; these are more plentiful during a good season, but never scarce. Many Ravens’ nests were passed by; most contained young.

We tramped wearily along the creek, where the timber had all been cut out, and came to a good waterhole, where we lunched. The timber now improved. A Cockatoo’s nest (three eggs) was found, then another 25 feet up (four eggs). Two feet from this hollow, in the same tree, three young Mallee Parakeets were snugly ensconced. A Boobook Owl flushed from an empty hollow of the same tree, on the top of which a Whistling Eagle was renewing an old nest. One Cockatoo’s egg was found in a spout, and a Tree-Swallow (Petrochelidon nigricans) in another spout had three eggs. Jim McLenan here met us, having ridden back from camp with two horses. We scorned the proffered assistance, and tramped on, to find a Cockatoo’s nest in the next tree and to flush a Goshawk (Asio fasciatus) from a nest which she was just completing. Soon after we met the other members of the party, who reported having found nests of the Grallina, Cockatoo, Miner, Magpie, and Kestrel. McLenan and I had some tea, rode on in the trap for about 2 miles, then took to the creek again, accompanied by Dr. Dobbin. Cockatoos were here in large flocks; Rufous Song-Larks and Chats were also plentiful. A Whistling Eagle’s nest contained two rather small eggs. We came to a part of the creek which had been visited by the hail and wind storm whose effects were so marked on Yalcowinna Creek. Here, though the bed of the creek and the bank on the lee side were strewn with branches and limbs, and many trees only stood as bare trunks, the marks of the hail were not so deep on the bark. A tragedy of the storm was revealed to us; a large limb had fallen across another, and firmly wedged between them were all the tail feathers of a Kestrel. Many Cockatoos’ nests were noted after we had passed the path of the storm, and we soon arrived at Stone Hut. The occupant was away at the shearing. We found the team unyoked. A nest of the Little Falcon (Falco luculatus) was shown us in a tall tree directly below the hut. It was on the topmost branch. After a short rest McLenan and I followed the creek until darkness turned us back to camp.

Next morning McLenan climbed to the Falcon’s nest, only to find that it was just ready for eggs. Breakfast over, we made
a quick march to where we left off the night before. Kingfishers were seen and heard, and the beginnings of many burrows found whenever the banks were favourable. A Whistling Eagle was resting on her nest (ready for eggs), and a foot away, in a hollow, a Cockatoo was incubating. Several other Cockatoos’ nests were located in stunted gums out from the creek; none was more than 10 or 12 feet from the ground, and in some the eggs were hatching. We came to an old masonry dam, beside which were the remains of a well and a horse-whim all overgrown with tobacco-bush (*Nicotiana glauca*) and an acacia. Down the well were numbers of old Fairy Martins’ nests. A Raven had her nest of nearly fully fledged young in a tall gum at the dam, and a Little Eagle was disturbed from a newly finished nest. A few yards further on three Cockatoos flew from separate hollows in the one tree, at the foot of which, in a small bush, a Black-and-White Fantail (*Rhipidura tricolor*) was sitting peacefully on three eggs. Along this part of the creek were many more Cockatoos’ nests, containing eggs in various stages of incubation; Mallee Parrakeets’ with young birds and unfinished Kingfishers’ burrows were also noted. Kestrels had just commenced laying.

I went out to a patch of dead saplings on the plain, amongst which were many Masked Wood-Swallows and Tricoloured Chats, with an occasional family of Purple-backed Wrens. These Wrens usually frequent scrub or undergrowth, and are never found in open salt-bush country such as the White-winged species favours. A large Wedge-tailed Eagle’s (*Aquila audax*) nest, 12 feet up in a stunted gum, showed signs of earlier occupation. A long tramp across a bare plain, on which were seen occasional evidences of old aboriginal camp-fires, and I struck the creek to search the sand for McLennan’s tracks. Not finding them, I turned back, and soon met him. We went very little further, as the creek was without water, and birds in this country do not wander far from water. We took a short cut back across flats covered with annual salt-bush and stunted wild oats. The crab-holes were still moist, and we admired a very fine purple pea growing around them in the moist soil. A similar pea, but with harder leafage, grows on the dry, stony hills. The little white everlasting was also here in large patches, and there were other daisy-like flowers about the crab-holes. After lunch and a short rest, we all went across the horse paddock to a broad gully in which marsh-mallow, trefoil, and spinach was growing very rankly. Tricoloured Chats, Rufous Song-Larks, and Purple-backed Wrens were abundant, the latter in the old man salt-bush, with which the gully was freely dotted. A solitary White-eyed Duck (*Nyroca australis*) on a dam flew off on our approach, and two Wedgebills (*Sphenostoma cristatum*) were dislodged from a bushy acacia. These birds usually frequent small bushy trees in the gullies or watercourses,
or clumps which grow off the main creeks, along which they are never found. In their habits, situations they frequent, and mode of flying they are readily distinguished from the Oreoca, the only other crested bird of about the same size in this district. In flying, the Wedgebill, like the Babbler, makes a few wing-strokes and then sails along on extended pinions, the flight not being sustained for any distance. They do not feed on the ground like the Oreoca, nor are they ever found in the mulga scrub. The song is loud, pleasing, and continued; it is often given forth while the bird is perched on the top of a low bush.

After an early breakfast, on 18th September, we struck camp, and, crossing the creek, cut across the flats in a north-easterly direction for Fowler's Gap. Several pairs of Black-breasted Plovers (Zonifer tricolor) were passed, and one pair of Dottrels (Peltophas australis), on ironstone gravel, as usual. One old man kangaroo (Macropus rufus) was seen. The season for this marsupial has wisely been closed for two years, for they were getting very scarce. It seems a pity that the dainty little yellow-footed rock wallaby, one of the most ornamental of our native animals, is not protected for all time, as it has been so wantonly shot by "sports" that one has to go far back into the hills to find it. When about to cross the creek, some 3 miles above Fowler's Gap Hotel, a male Little Falcon flew round, leading us to imagine a nest at hand. The horses were unharnessed and watered, and the Falcon's nest was at length found, on the topmost bough of the tallest tree on the creek. After a risky climb, three eggs were taken from the nest, which was exactly 90 feet from the ground. The two birds hovered round the tree, the male uttering his shrill cry and making occasional swoops towards the climber. The nest was loosely constructed of sticks and lined with fine, soft bark. After lunch we struck the main road, just ahead of a camel "train" going in our direction. Another "train," coming in with wool, was met soon afterwards. At Sandy Creek Bore we stopped to water the horses at the well, just in time to avoid delay, as two large mobs of Queensland horses were approaching on their way to a southern sale-yard. We now entered upon sandy country, more scrubby in character, but the scrub was very open; it consisted of turpentine-bush, blue- and salt-bush. White-winged Wrens and Tricoloured Chats were plentiful, and a few Orange-fronted Chats, the "Salt-bush Canary" of bushmen, were seen. The sand proved to be heavy pulling, and all but the boys walked through the scrubby country on either side of the road. Many White-winged Wrens and Red-capped Robins (Petroica goodenovii) were disturbed. Dr. Dobbyn found a nest (three eggs) of the Tricoloured Chat, built into the top of a blue-bush. The nest was built of fine rootlets and
twigs, and lined with soft, woolly grasses, the egg cavity measuring \(\frac{1}{4}\) inches in diameter by \(\frac{1}{2}\) inches in depth. Another nest contained three young. Kingfishers were seen several times. Crows (mostly the Short-billed species) had their nests in the Casuarina.

We made our camp near a large, open swamp, on which were a few Ducks. The country we had walked through has been a deep, loose sandy soil, drifted into hillocks and ridges in places, and supporting a perennial vegetation of salt-bush, blue-bush, and turpentine. The herbage was very good, and comprised a number of flowering annuals; the deep sandy soil seems to suit them. Scorpions and ground-dwelling spiders were numerous, and lizard tracks were everywhere on the soft sand. There were many Tricoloured and Orange-fronted Chats and Brown Song-Larks. The Orange-fronted Chat keeps more to the open salt-bush country than does the Tricoloured, which is often met with along the watercourses, where the herbage is taller and grows more closely, and amongst the rank growth and scrub on the creek flats. This year the Tricoloured Chat was everywhere more numerous than its congener. The White-fronted Chat usually winters here when the other two species have gone north, but goes south before the spring months.

In the evening M'Lennan and I walked across the end of the open swamp, through some prickly bushes, over a sand-ridge on the other side, to another swamp. This was surrounded by box, in which were many Miners, Grallinas, White-plumed Honey-eaters, Magpies, and other birds. Crossing a larger sand-ridge, evidently, from the stone remains, an old camping-place of the aborigines, we came to a deep, box-encircled swamp, on which Ducks were numerous. On the return journey we flushed a Brown Song-Lark from the spinach, to find a nest with three young. On reaching camp a nest and two eggs of the Orange-fronted Chat (\(E.\) aurifrons) were reported in a blue-bush near by.

We were about early next morning. M'Lennan, going through the sandy country back from the camp, found a White-winged Wren's nest built in a blue-bush, and composed of fine grasses and wool; it contained four eggs, at an advanced stage of incubation. A nest of the Tricoloured Chat with three eggs, and one of \(E.\) aurifrons with three young birds, were found. The feathers were just sprouting on the nestlings of \(E.\) aurifrons—colour brown; eyes not open; gape orange, with two black spots on either side of the tongue, like the young of \(E.\) tricolor.

We made an early start for Bancannia, where we received our mail at the hotel and posted some letters on the coach. Our way from here led us across the lake, dry at the present time, through some stunted box scrub, in which were many
“Budgerigars” (*Melopsittacus undulatus*) prospecting for hollows in which to nest. We skirted a sand-hill for a few miles, and came to Wyalla Lake, a large sheet of water surrounded by box trees, with many dead and living trees in the water and a fair growth of “lignum” where the watercourses ran into it. There were a few Ducks and Swans on the water, but no shore birds. Hundreds of Native-Hens (*Microtridonyx*) ran among the lignum. McLennan and I walked round the lake, to get an idea of the place for a permanent camp and collecting ground. We found many White-browed Babblers and Miners, and flushed a Pink Cockatoo or Wee-juggler (*Cacatua leadbeateri*) from an old dead box not 50 yards from the margin of the lake; three eggs were in the hollow. The box was in flower, and had attracted numbers of White-plumed Honey-eaters (*Ptilotis penicillata*) and Miners to the feast of insects and honey. Cockatoo-Parrakeets (*Calopsittacus naja-hollandiae*), in small flocks and pairs, and “Budgerigars” were chattering and squabbling among the trees. The Cockatoo-Parrakeets we had been meeting since leaving Gardiner’s Creek, flying south in small flocks and pairs. A few White-rumped Wood-Swallows (*Artamus leucogaster*) had mated, but were not nesting; and although some of the Ducks were in pairs there was no general nesting of these birds—they seemed to be waiting for a good rain and flooded condition of the country. This year the aquatic birds seemed to be fewer than usual throughout the district; it is probable that the heavy rains and flooded country along the Murray are responsible for this. Wading through an arm of the lake, we came to a fencers’ camp, over which several Kites and Whistling Eagles were hovering. In the afternoon we returned to this arm and waded among the lignum and dead timber growing in the water. No birds were breeding in the lignum, except an occasional Pigeon (*Ocyphaps*), although the loud song of the Reed-Warbler (*Acrocephalus australis*) and the plaintive pipings of the little Grass-Bird (*Megulus gramineus*) came from many of the bushes. In the dead timber standing in the water two nests of the Galah were found, and several of the Cockatoo-Parrakeet. None of the latter had complete clutches, nesting having only just commenced. Many of the nests were situated in small stumps and often at water-level. The Pied Honey-eater (*Certhonyx variegatus*) was noted here, feeding in the blossoming box and lignum, but occasionally flying out to the surrounding sand-ridges to visit the flowering turpentine and honeysuckle trees (*Eremophila longifolia*). This Honey-eater is very shy, and we had great difficulty in getting near enough to procure specimens. It is also very quick on the wing. It flies, singing, into the air from the top of a tree, and suddenly drops, always turning over backward in its descent. McLennan and I, after arranging with the others to camp near
our old spot on the open swamp, walked across country in that
direction.
At the end of the lake we disturbed several large flocks of
Cockatoos from the ground, where they were feeding on the
seeds of the annual salt-bush, just ripening at the time on the
plants. Our way took us at first over loose, sandy country,
in which there was little bird-life, save for a few Chats, Brown
Song-Larks, and Whitefaces, and an occasional Swift-flying
Turnix (*Turnix velox*). A box channel running to the lake was
followed for some distance, but yielded little of interest, as there
was no water. "Budgerigars" were, however, numerous in the
box, and seemed to be preparing nesting-hollows. Leaving the
creek, we crossed bare, open country, and came to a large lake,
on the shore of which were numbers of Black-tailed Native-Hens
(*Microtriorhynchus versicolor*), and a few Ducks on the water. On
reaching camp in time for lunch, Dr. Dobbyn reported having
found a nest of *Ephthianura tricolor*, with three eggs, and a family
of young White-winged Wrens near by. McLennan and I started
out again in the afternoon, making our way through the blue-bush
to the south. Wrens (*Malurus leucopterus*) were numerous;
one family of *M. assimilis* was observed. A nest of the former
species in a blue-bush was not quite finished; it was composed
of sheep's wool. I climbed to the nest of a Short-billed Crow
(*Corvus bennetti*) in a black oak; it was small, not much larger
than a Magpie's nest, built of sticks and lined with fine bark,
feathers, and a little sheep's wool. There were two eggs and a
newly-hatched nestling. The eyes were not open; skin yellow,
with a little down along the ulnar borders of the wing, the
femoral and dorsal pteryge; the gape was pink. McLennan
meanwhile examined another nest in an adjacent tree, finding
three young birds and two addled eggs. Fossicking among
the box bordering a swamp, McLennan found, in a hollow
stump, a nest of *Acanthiza uropygialis* containing four eggs—a
larger clutch and larger eggs than we had previously taken.
The nest was made of fine bark and lined with rabbit fur and
feathers. Two more Crows' nests were observed. We got back
to camp just ahead of the others, who brought a nest and three
eggs of *E. auripennis*, taken from a small prickly bush. After
dark, boughs were cut for bedding from a few box-trees near
by. A nest of the Singing Honey-eater (*Ptilotis sonora*) was
found as the boughs were being stripped. It was composed of
rootlets, silk from the cocoons of larvae of the butterfly
*Belenois flavia*, which were in all the trees, and horse-hair. The lining
material was camel-hair. Next morning four of us made an early
start across the lower end of the open swamp to a sand-ridge,
beyond which was a large swamp with prickly bushes growing
to the water's edge. On the way a female Brown Song-Lark
was flushed from a nest in spinach-covered ground (three fresh
eggs). On the big swamp thousands of *Microtridonyx* were running in all directions. They were not nesting, and many seemed to be moulting. A few Black-throated Grebes (*Podiceps novaehollandiae*) and Pink-eared Ducks (*Mallacorynchus membranaceus*) were on the swamp. All the surrounding sandhills were littered with traces of aboriginal camps—circles of stones and burned earth and charcoal, flints and grinders.

Several Whistling Eagles were sailing over and around the swamp, and also a pair of Harriers (*C. gouldi*), the first that I have noted up this way. I went off to the right over a sand-hill into country covered with scattered shrubby bushes. A nest of the Black-faced Wood-Swallow (*A. melanops*) was found about 4 feet from the ground, in a small, stunted tree; it contained three eggs. Later I met our camp-keeper out after the horses; he told me that he had found two 'Tricoloured Chats' nests, each containing three young birds, and a nest of the Brown Song-Lark with three eggs. M'Lennan turned up with a seven clutch of Short-billed Crow's eggs; he also brought the lining of the nest, which consisted of the silk of the trap-door spider, which I kept for Dr. Pulleine, of Adelaide, who is interested in such things.

We packed up and went on past Fowler's Gap to the old dam and well on Caloola Creek, where we camped. Searching the scrubby flat along the creek we found Black Honey-eaters (*Myzomela nigra*) and Pied Honey-eaters (*Certhionyx variagatus*) busy feeding on the blossoms of the honeysuckle-tree (*Eremophila longifolia*) and of the tobacco-bush (*Nicoliana gauca*), in company with "Greenies" and Miners. Tricoloured Chats were dodging about the herbage and fallen, dead acacias, and every now and then a Rufous Song-Lark would rise, singing, from the ground, to some more commanding perch, where the alarm note would be given to the brooding female to steal away.

**Description of a New Crow-Shrike.**

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

Plumage uniform dusky-brown or brownish-black, somewhat darker on the wings and tail. Four outer feathers on each side of tail broadly tipped with white, while on the two centre feathers the white is all but absent; under tail coverts white.

Wings.—Basal portion of inner web of primaries white, showing a large patch of white when the wing is extended; the outer web of primaries black, edged with greyish-white, the primaries and secondaries being slightly tipped with white.

Irides bright yellow. Legs, feet, and bill black.

Total length, 20 inches; tarsi, 3 inches; bill, 3 1/2 inches in length by 1 inch deep, forming a strong instrument for securing food, which consists chiefly of insects.