

It is in the bill, however, that the greatest difference exists. Though rather shorter and stouter, the New South Wales specimens are all very slightly hooked at the tip, while the Northern form possesses a well-defined bend.

The female, the first described, and therefore the *type*, is much smaller than the male, as the measurements which follow will show; the coloration on the back is similar, but differs materially on under parts. The whitish-coloured throat and black breast patches are absent, the whole under-surface being a uniform rufous-brown or cinnamon-rufous. Following are the measurements in millimetres taken in the flesh:—

Male.—Total length, 183; wing, 67; bill, 20; tarsus, 19.

Female.—Total length, 160; wing, 55; bill, 17½; tarsus, 18.

For this distinct sub-species I suggest the name *Atrichornis rufescens jacksoni*.*

Mr. G. M. Mathews, F.R.S.E., on page 71, vol. iii., of the *Austral Avian Record*, mentions *Atrichornis r. tweedi* as occurring on the Tweed River, but his description is so extremely vague—viz., “darker below and lighter above than *Atrichornis rufescens*”—that I am quite unable to identify it; my Richmond River birds by no stretch of imagination may be made to conform with Mr. Mathews’s description of *Atrichornis r. tweedi*.

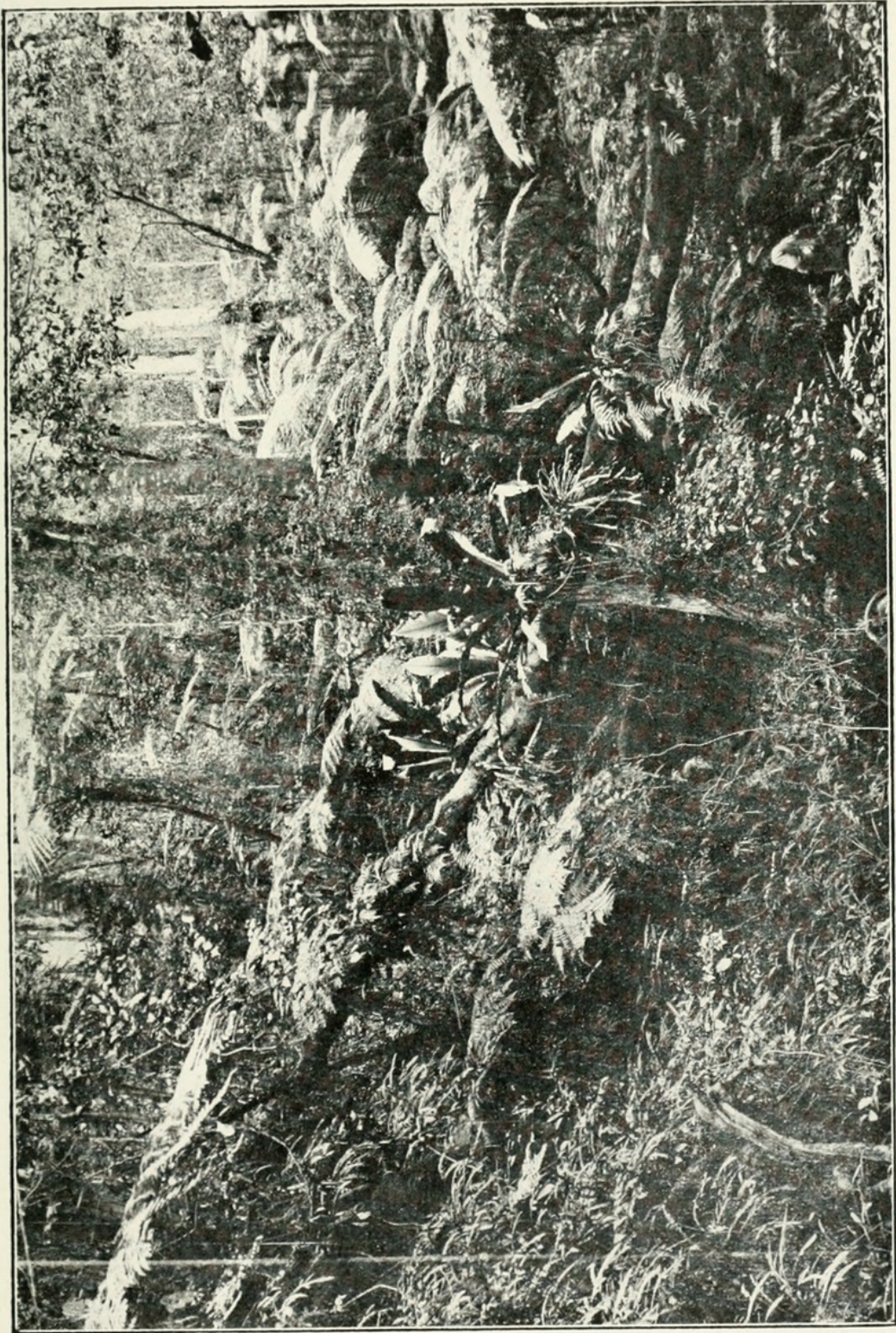
Haunts of the Rufous Scrub-Bird (*Atrichornis rufescens*, Ramsay).—Discovery of the Female on the Macpherson Range, S.-E. Queensland.

BY SIDNEY WILLIAM JACKSON, R.A.O.U.

DURING last September I arrived at the elevated scrubs of the Macpherson Range (forming part of the boundary of Queensland and New South Wales) in South-East Queensland, and there pitched camp at an elevation of over 3,000 feet, and in a direct line about 30 miles from the ocean.

This ornithological expedition was carried out by me on behalf of Mr. Henry L. White, of Belltrees, Scone, New South Wales, chiefly for the purpose of procuring the hitherto unknown female of the interesting and unique Rufous Scrub-Bird above mentioned. The Queensland Government kindly supplied me with a permit under which I was allowed to collect a pair of the birds in the interests of science.

* Unless under exceptional circumstances, I am strongly opposed to naming birds after persons; the practice, in many instances, being reduced to an absurdity. In the present case, however, I consider Mr. S. W. Jackson deserves all the honour that can be shown him. For very many years he studied the *Atrichornis*, and is our best authority upon this little-known bird; therefore, the name of Jackson should always be associated with *Atrichornis rufescens*.



Haunt of Rufous Scrub-Bird (*Atrichornis rufescens*) and Lyre-Bird (*Menura alberti*).
Note man at right-hand bottom corner.

PHOTO. BY S. W. JACKSON, R.A.O.U.

It was a long, stiff, and hot walk up the range. All provisions and camping gear were carried on pack horses under the guidance of my mate, Mr. H. L. O'Reilly. At the time of our visit the whole district, and far beyond it, was in the grip of a very severe drought, and even the tall, dense scrub or jungle on this range was suffering from the ill effects of the prolonged dry spell, many species of ferns climbing on the trunks of the moss-covered trees, at certain parts of the range, were withered or dead; certainly a most unusual thing to happen in such rich scrub as this under notice, but under the severe conditions it is nothing to be surprised at.*

The range cuts off into abrupt and precipitous cliffs of from 2,000 to 3,000 feet deep along the southern or New South Wales side, and commands a magnificent view of the Tweed River district below. The northern or Queensland side of the range falls off into long spurs, which run north for many miles, and are all more or less well covered with the same rich, dense scrub which comprises much valuable milling timber. To stand on the edge of one of these great perpendicular cliffs, and look down thousands of feet into the scrub immediately below you in New South Wales, is a sight never to be forgotten. What surprised me much was the way in which sound travelled "up" from the notes of the various birds, including those of the Rufous Scrub-Bird (*Atrichornis rufescens*), in the scrub thousands of feet below. You look down upon the backs of eagles and hawks, as they fly and gracefully soar over the scrub far below and almost under you. It is very rough country to move about in, and everything must be "humped" on one's back; yet, it is such inaccessible places that always interest and appeal to me, for it is in that class of locality that treasures of natural science are frequently hidden from the world, and only discovered by the persevering naturalist.

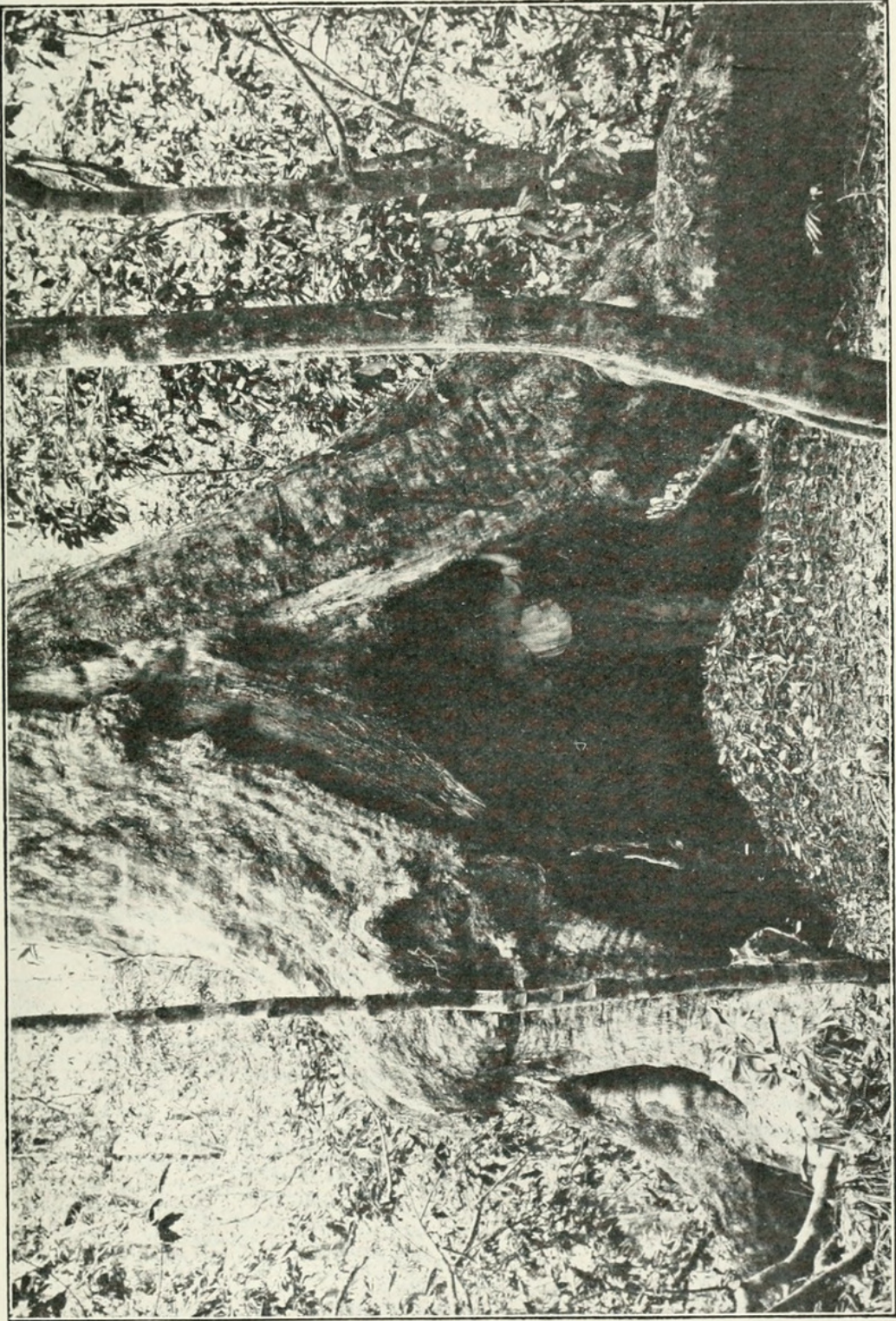
The ridge of the Macpherson Range forms the boundary line between Queensland and New South Wales, and our camp was on the Queensland side, several miles from the border, with a beautiful clear spring of water, cool and always running, close by. Alderman John McMaster, the Mayor of Brisbane, who is a venerable gentleman, lately informed me that Macpherson, whom the range is named after, came out to Queensland on the same ship (*William Isles*) as he did, in 1855, Macpherson at the time being only about 13 years of age. Later he wandered into this range and began bushranging, and the range was later on known as the "Macpherson." The mayor specially mentioned that although Macpherson became a bushranger he never committed murder. At this time (1855) Queensland and New South Wales were one and the same, there then being no Queensland, all coming under New South Wales jurisdiction.

During my visit, which extended over three months, the growth of the Tree Ferns, Tree Orchids in flower, Stag Horn, Elk Horn,

* Since the 1st January, 1920, over 21 inches of rain have fallen there.

and Bird-nest Ferns, also lichens and mosses, &c., were in great profusion, forming a most wonderful and beautiful sight, notwithstanding the drought. Here for the first time the magnificent Flame Tree (*Brachychiton acerifolia*), and Tree Waratah or Red Silky Oak (*Embothrium wickhami*, var. *pinnata*) came under my notice and in full mass of blossom. Both grow to a large size, especially the former, which we met with up to four feet in diameter, and over a hundred feet high. The Tree Waratah we found growing up to 18 inches in diameter and 70 feet or more high. It has a large but much flatter and different flower from that of the New South Wales shrub species, nevertheless it is very beautiful. The Flame Tree is semi-deciduous, and when coming into blossom usually loses all its leaves; the flower is flame or coral-red and bell-shaped, measuring nearly an inch long by over half an inch across. The contrast of the great masses of flame-coloured blossoms of these trees standing out against the various tinges of green in the scrub is wonderfully fine. The tree belongs to the Bottle-tree (*Sterculiaceæ*) family.

Birds of various species were plentiful, but the scarcity of Scrub-Turkeys (*Catheturus lathami*) was particularly noticeable, owing no doubt to the dry state of the ground in the tall scrub, as their food supply is chiefly obtained from under damp masses of leaves and bark on the ground. One of their large nests, which consist of a mound of leaves and debris, in which the large white eggs are deposited for incubation, was found on the east side at the base of a giant Scrub Box-Tree (*Tristania conferta*) near a small creek. The birds had built the nest on the ground inside the hollow portion of this tree, as my photograph (Plate XLIX.) will show—certainly a most unusual position. Many of their old nests were met with. The scrub was tall, and many trees towered up for a hundred feet or more; the vines and undergrowth beneath were so dense in many places that it was quite impossible to penetrate without chopping one's way with a brush-hook all the time. It was in such a dense place that I wished to go and carry out my special work, and nothing pleased me more than to meet with the Rufous Scrub-Bird or *Atrichornis* there, for I heard the male bird calling, hidden under the great masses of fallen trees and vines, all dead and huddled together in a great heap representing many tons, and under which this small non-flying bird lives like a "feathered mouse." When a large tree in the scrub falls it brings tons of other stuff with it, as well as masses of vines, &c.; when all this dies then the *Atrichornis* lives underneath it, and makes it his or her home, and often many hours or days of great patience have to be spent to get even a "glimpse" of the bird. I was excited, as there were great hopes of securing the elusive female, which was the chief object of the expedition, and which so far was not represented in any collection in the world, although she had been searched for by various persons since 1865, when the first male specimens were procured by Messrs. J. F. Wilcox and J. Macgillivray in the Richmond River scrubs of New South Wales.



Egg-mound of Scrub-Turkey (*Cathartus lathami*) at base of large Scrub Box Tree.

PHOTO. BY S. W. JACKSON, R.A.O.U.

During October, 1910, I captured the rare female in a hurriedly-made and unsuitable net in the Dorrigo scrubs of New South Wales, but she unfortunately escaped. For my full notes and photos. *re same*, *vide Emu*, 1911, vol. x., pp. 327-336.

During my Macpherson Range hunt I first met with a male *Atrichornis* on 18th September, 1919; he was calling loudly under a great mass of debris of fallen trees and branches in a dense part of the scrub near a damp gully. On visiting the spot, after patiently wriggling my way through a tantalizing tangle of vines, &c., towards the sound, I was rewarded by getting a glimpse, for a second, of the bird; but he disappeared in an instant under a big log, and did so with mouse-like actions. He then became silent, although I waited fully an hour. It was 12 o'clock (noon) when the male first called, and as usual no mate answered. At this juncture of my investigations I still held the opinion, as mentioned by me in my article published in the *Emu* quoted, that the female never calls. A good hunt was made, but no sign of any nest could be found, though many tufts of flat scrub-grass (*Gahnia*, sp.) were most carefully examined.

The three previous nests found by me in New South Wales scrubs (the only ones known) were all in long grassy tufts in the scrub close to large masses of debris of fallen trees, &c. The note uttered by the male *Atrichornis* on this day (18th September, 1919) was rather like "chit," short and shrill, varied from 5 to 12 "chits" uttered rapidly, getting louder towards the last calls. Often a "chit" would be uttered, then a slight pause, and the other 9 or 12 notes uttered in quick succession. But when only 5 (sometimes 4) notes were rendered, which is the ordinary call, there was no pause after the first, and the notes were louder and more drawn out, the last two notes being the loudest. When the male utters his shrill "Chit-chit-chit-chit" notes of the ordinary call described (4 to 5 calls), his tail shakes up and down most noticeably as each note is rendered. I noted in 1898 and 1910 that the ordinary call of this bird in the Dorrigo scrubs of New South Wales is a prolonged and shrill note, resembling "Chirp-chirp-chirp-chirp," usually repeated 4 times or more (generally 4) in succession, with about half a second duration between each call, but sometimes the interval is a little longer, and the sound lowers in pitch towards the last "chirps." Therefore the ordinary call of the Macpherson Range bird differs from that of the birds of the Dorrigo scrubs. When the 9 to 10 or 12 note "chit" call is rendered by the Macpherson Range bird, the notes are often given so rapidly that it is very difficult to count them, and it was some time before I could satisfy myself of the number.

At 3 p.m. the same day (18th September) the male started to call again under a mass of fallen timber debris. I got to the place, and was so close to him that his shrill notes fairly rang and vibrated in my ears; yet I could not see him—he was all the time moving about hidden under the heap of rubbish, and no doubt he could see me. As was my experience with this bird in the Dorrigo

scrubs of New South Wales in 1898, and 1910, and in the Richmond River scrubs of N.S.W. in 1899 and 1904, it is a great mimic; in fact, there is hardly a bird in the scrub that it cannot imitate the notes of. It also renders the peculiar "scolding note," as was noticed with these birds by me in New South Wales.

The male specimens in the Macpherson Range frequently mimicked to wonderful perfection the notes of the following scrub birds:—Spine-tailed Log-Runner (*Orthonyx temmincki*), Rufous Fantail (*Rhipidura rufifrons*), White-throated Thickhead (*Pachycephala pectoralis*), Yellow-rumped Robin (*Eopsaltria chrysorrhoa*), Lewin's Honey-eater (*Ptilotis lewinii*), White-throated Tree-creeper (*Climacteris leucophaea*), Satin Bower-Bird (*Ptilonorhynchus violaceus*), Yellow-throated Scrub-Wren (*Sericornis barbara*), Square-tailed Cuckoo (*Cacomantis variolosus*), King Parrot (*Aprosmictus cyanopygius*), White Goshawk (*Astur novæ-hollandiæ*), and Coachwhip-Bird (*Psophodes crepitans*).

I saw and located over a dozen of the male *Atrichornis* during my three months of observation work on the Range, and the area they occupied extended over the range for a distance of 10 miles. The birds are often miles apart, and much country may be traversed day after day without hearing one, and the bird can never be located until it calls, because it is small and always hidden in the scrub. Very often the bird calls only after sunset. However, during September last it called chiefly before dusk or just after sunset, and always at the same place. One bird, that I was daily watching very closely, called often through the day as well as after sunset, but he was an exception. During October they called more often through the day, more so about 4 p.m. There is no mistaking their call, so loud and penetrating for a small bird, and different from anything else in the scrub. I hunted the locality until I located every bird that called. During November and up to the end of the first week in December they became silent. This complete silence surprised us both very much, and had we not arrived in the scrubs before these wonderful birds became silent, and actually seen them, no person could have convinced me that they existed in those parts at all. They are certainly the most difficult and tiresome birds imaginable to get a glimpse of, much less procure, and no persons can form any conception or appreciate the complications of the task until they have actually had the practical experience themselves.

The birds are very local in their habits, and do not go beyond a certain area of the scrub. For instance the area occupied by one bird, or one pair of birds, would not be more than, say, 150 yards by 150 yards, yet for a person to examine that area properly in such a labyrinthal undergrowth is a big undertaking. The birds at each place located appeared to have their boundaries, and they do not go beyond them, and my frequent visits to their haunts have proved this over and over. They always travel over the same places, and along underneath the sides of the same logs, and underneath the same heaps of fallen trees and rubbish, when they

move about the scrubs. Having located a number of the birds before they became silent was a very fortunate bit of work, for we were thus enabled, by care and patience, to find some of them again here and there moving about the scrub debris, where we had originally located them. They were always silent during the period mentioned, and ran in and out of the heaps of rubbish just as mice would do. A person had to be very alert and keen to get a glimpse of one under these circumstances. When a male bird called, we never once heard a reply given by its mate, all the time we were camped and working there; a male did not even answer the call of another male. We found the male birds alike in their peculiar habits, as well as regards the remarkable powers of mimicry and other various notes rendered especially during September and October. Frequently when we "whistled" to one another in the scrub, the bird would mimic our note at once, and this happened many times. It is a most difficult bird to detect in the thick shaded scrub, owing to its protective colour so closely resembling the brown, dead leaves on the ground, and the piles of rubbish under which it loves to dwell. When feeding it often creeps under the dead leaves on the ground, lifting them up with its head as it proceeds. It does a lot of scratching for its food, as its strong legs and claws indicate. Its food consists chiefly of scrub snails' eggs, young tender-shelled scrub snails (*Helix* and *Panda*), worms, insects, and the larvæ and pupæ of various beetles living in the decaying masses of debris and under the fallen leaves. The gizzards preserved from the birds we obtained contain chiefly the broken remains of small beetles.

When following this small bird it is often very difficult to locate the sound on account of his ventriloquial powers. Sometimes he appears to render the sounds quite close, whereas the bird is perhaps many yards away; again, the notes very often appear to be overhead, though they are always issued on the ground.

As far as my years of observation with this species have proved, the bird never goes up into a bush; the ground is its home. Only a few times did I notice it a couple of feet up from the ground, and on each occasion it was not in a bush, but creeping through a dense and tangled mass of dead fallen vines and trees, huddled and crushed closely together. If it wants to travel from one heap of rubbish in the scrub to another, it does so by following along underneath the side of a log, usually keeping crouched close to the log and ground (mouselike) all the time. The bird will seldom expose itself to view unless it is suddenly chased and something very unusual happens. I have never seen one fly, in fact their very small wings would not permit them to do so. They are wonderfully alert and active birds, and their movements like magic.

The highest elevation that we met with them on the Macpherson Range was 3,900 feet, in very dense scrub, and there everything was laden with masses of moss, but not looking at its best owing to the drought. Mountain mists now and then from the east greatly assist in keeping the scrub moist on the higher peaks of

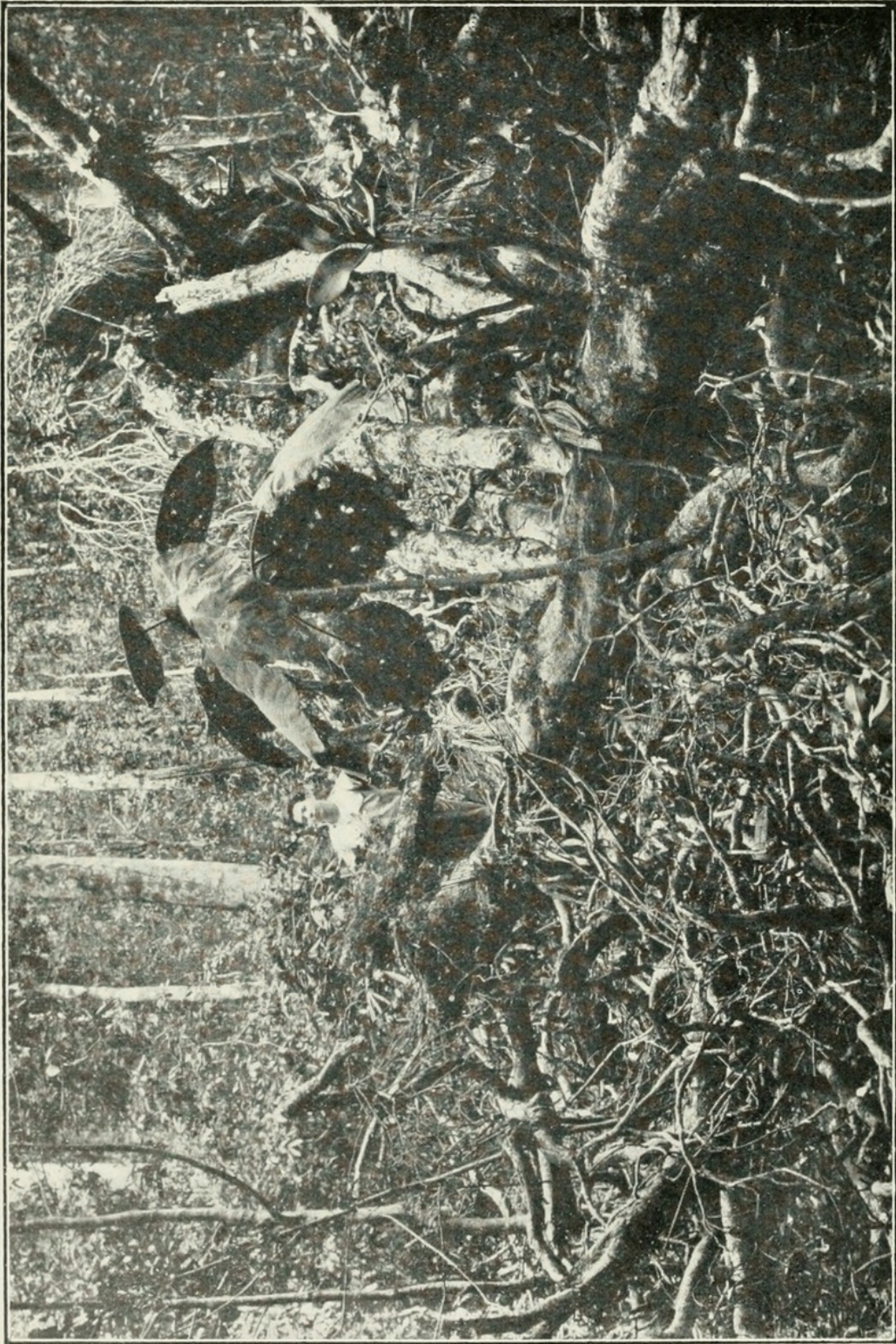
this range. However, it was not until after four weeks of constant and most diligent searching and watching that we discovered and secured the elusive and long-hunted-for female—date 17th October, 1919. I decided at the beginning that the only hope of discovering her was to stick to the place where one male was located and sometimes seen, and work that spot most thoroughly. This we did. It was a useless task to try and do the same with, say, half a dozen males scattered over an area of miles through the very tall, dense scrub.

DISCOVERY OF THE FEMALE.

This is how we found and secured the female. We visited our favourite locality early on the morning of the 17th, and could find no sign of the male bird—he was silent, and was possibly feeding with the female; but experience would lead to the assumption that when he *called* he was not with or near the female, and when he remained *silent* for hours or days then he was most of his time with her, thus giving no clue as to where she was. However, at 3.30 p.m. he started his shrill notes once again in a little gully, where we had often seen him. We sat on the ground and listened for a few moments; he was under the rubbish only 40 feet west of us. Suddenly he became silent, and in a short time started to call loudly again some 40 yards to the east. This appeared to me very curious and unusual, and I concluded he had met the female when he moved from where we first heard him calling. As he shifted so suddenly, while we sat silent and motionless, with nothing to disturb him, all tended to show that he went away on a special message of some sort. In hopes that the female was somewhere between the first and last place where he issued his notes, I decided that we should work gradually towards one another from both these points, and keep a sharp watch for another bird.

As we advanced we kept a keen look-out, when all at once we heard a faint sound and saw another *Atrichornis*. At this moment the male was calling loudly nearly 100 feet away (measured) at one of his favourite spots well known to us. After much care and patience we succeeded in driving the bird through an entanglement of vines and debris, where, after some 20 moments of careful watching and intense anxiety, I fired from a distance of about 15 feet, and the bird fell, beautifully shot, not a mark on her, and not a feather or drop of blood lost! The charge contained about 30 grains of dust shot from a small 410 specimen gun, a few only striking her. Four cartridges were specially prepared, and always carried by me, loaded with dust-shot for distances varying from 40 to 10 feet, especially for this bird if ever met with. The bird proved to be the much-searched-for female. After I fired the male bird (which was then calling nearly 100 feet away) made some great and unusual noises, as if he knew something had happened, and came towards us much agitated, but keeping well hidden.

I immediately copied down into my bush note-book particulars



Mass of Fallen Trees and Scrub debris, under which Rufous Scrub-Bird (*Atrichornis rufescens*) lives.

regarding the colour of the bird's eyes, legs, feet, and bill, &c., as well as taking all necessary measurements, before I skinned and prepared the specimen. The note produced when we first met her was a very faint one, repeated now and then, and may be described as resembling the sound produced by pressing your tongue hard up against the front roof of the mouth, and drawing it away suddenly. This is probably the only note she makes. We then tried to get the male, or mate belonging to this female, but he was too wild and excited and impossible to get near, keeping under immense heaps of fallen trees and debris (see accompanying Plate L.) But after days of careful hunting he was secured. The bird shot proved undoubtedly a female, and her body I have carefully preserved in a jar of formalin solution, showing the ovaries and other organs intact, in order to avoid the possibility of any doubt. The ovaries covered a space measuring 10 mm. by 8 mm. when the bird was at first examined, and totalled nearly 30 beads in all. Of course, they have shrunk somewhat in the formalin solution, but quite sufficient proof remains to confirm the sex. The body of the male was also preserved.

There is a very marked difference in the colouring of the male and female. The female is a little lighter on the back than the male, and has *no white mark* under the throat, and *no black on the chest*, but instead is rufous *all underneath*; pale on the throat and gradually getting darker towards the tail. She is also nearly an inch shorter than the male, and her wings, tail, bill, legs, and toes are all smaller. The following measurements, in millimetres, were carefully taken from the bird while in the flesh:—Total length, 160; wing from body, 73; wing from first joint (usual measurement), 55; tarsus, 18; bill to gape, $17\frac{1}{2}$; tail to flesh, 63; middle toe to end of claw, 19; bill, upper mandible dark horn colour, lower mandible pale horn or brownish on sides, but more so towards the top, and dull white underneath, chiefly towards the base; eyes coffee brown; legs, feet, and claws pale leaden grey; skin at base of bill whitish. This bird I filled out and stuffed to natural size and length—160 mm.

The male specimen secured on 28th November, 1919, gives the following measurements (millimetres) taken from the bird while in the flesh:—Total length, 183; wing (usual measurement from first joint), 67; tarsus, 19; bill to gape, 20; tail to flesh, 76; middle toe to end of claw, 24; bill, upper mandible dark horn colour, lower mandible dark horn colour on sides and tip and whitish all underneath; eyes coffee brown; legs darkish or brownish horn colour, darker outside than inside; tongue and eyes also preserved; feet and claws darkish or brownish horn colour; skin at base of bill yellowish or creamy white. Bird has comparatively large eyes and brain. This specimen I also filled out and stuffed to natural size and length.

Owing to the exceptionally dry conditions prevailing during our visit very few birds of any species were breeding, and I do not think the *Atrichornis* bred there at all that season. If they had,

then their fresh nests would have been found after the thorough and careful hunt that was made, together with my previous knowledge of their nidification. We found two of their domed-shaped nests, one was very old and frail and falling to pieces, and the other had the appearance of having been used in the previous season; they were identical in every detail with the three nests found by me in New South Wales. This now brings the total number of nests known to science up to five, and these I found. Both the old nests were placed up six inches from the ground (as before) in clumps or tufts of flat scrub grass (*Gahnia*, sp.) drooping slightly and facing down a gentle slope. The lining inside consisted of the same hard, cardboard-like material or dried wood-pulp as before, and devoid of any other material. On close examination of this hard and remarkable lining, one finds that it is dried pulp of soft decayed wood and *Gahnia* grass that the bird had probably worked up and put together while in a wet state, and used it as a plaster all over the inside of the nest, eventually forming a warm and waterproof lining for the domed-shaped structure. One nest, *in situ*, in the tuft of scrub grass (*Gahnia*, sp.), and just as we dug the lot up by the roots, was presented by me, on behalf of Mr. H. L. White, to the Queensland Museum, and Mr. H. A. Longman, R.A.O.U., the Director of that institution was very pleased indeed to get it, and it is the only public institution that has one, the others being in Mr. White's private collection at Belltrees.

This is the first record of the rare bird and its nest having been collected in Queensland; the Tweed River in New South Wales having always been previously recognized as its northern limit, and the scrubs of the Bellenger River (also in New South Wales) as its southern boundary. The bird does not live more than about 30 to 55 miles inland from the sea, so that the whole area which it inhabits is indeed very small.

OTHER BIRDS OBSERVED.

The Albert Lyre-Birds (*Menura alberti*) were fairly plentiful, but very shy, and they do not appear to be such good mimics as the two more southern forms—viz., *M. superba* and *M. victoriae*. They did a vast amount of scratching for food, owing to the dry state of the scrub, and often with their powerful feet they would scratch and scoop out an old rotten log for 10 or 20 feet when hunting for grubs, &c., the log when left resembling a trough. We found the remains, in the form of bundles of feathers, of some of these remarkable birds in the scrub. Eagles and Dingoes were no doubt the marauders—both are common there; fortunately the Fox has not found his way to that part yet. Wedge-tailed Eagles (*Uroaetus audax*) often settle on the ground in the scrub where there is an opening, and these are often formed through very large trees falling and clearing a space. Beech trees (*Fagus moorei*) grow to an immense size on some of the higher peaks on the range, only a few miles from where we were camped, and the Lyre-Birds

sometimes build on top of the old stumps or butts of these scrub giants, that have been blown down in a gale, or fallen with old age. They love to live in the same class of country as that frequented by the *Atrichornis*.

The beautiful Crimson Parrot (*Platycercus elegans*) was plentiful, and the clear and silvery bell-like notes were daily heard. One nest was found 9 feet down in a hollow stump. It contained 5 young birds which kept up a great noise when disturbed. Adult birds were secured and turned into specimens. These have since been compared with others received from different parts of Australia, and found to be a different shade of colour, the back being of a peculiar brick-red. Possibly the altitude (over 3,000 feet) at which they were collected on the range may account for it.

Of the three Thickheads that were met with at an elevation of nearly 4,000 feet, only one was secured. They appear rare, extremely shy, and most difficult to find; they keep moving ahead of you all the time as you slowly make your way through the entanglement of scrub. The bird utters a very plaintive note, drawn out slowly and in a most melancholy manner, and hard to describe properly. The specimen secured has been carefully compared with those of the Olive Thickhead (*Pachycephala olivacea*), collected in Tasmania and southern New South Wales, and differs from both in some respects. Mathews in his book records the Olive Thickhead only from Tasmania and Victoria, and does not mention New South Wales, although the R.A.O.U. "Check-list" does. It was first recorded for Queensland by Mr. Noel Agnew in *The Emu*, xv., p. 51. [For description of this bird by Mr. H. L. White, see this issue of *Emu*, p. 273.]

The Harmonious Thrush (*Colluricincla harmonica*) was frequently met with in the tall, dense scrub, and a specimen was secured for comparison. It is rather unusual to find this species in tall, dense scrub, and, as far as my observations go, they have chiefly been met with in the more stunted growths, and open forest country. Its sweet, clear notes were often heard.

A fine series of the handsome Regent Bower-Birds (*Sericulus chrysocephalus*) was secured, showing the intense golden-velvet yellow and black markings in different stages of density. The Regent-Bird was first discovered during the regency of George IV., and was so named as a compliment to him. One of the male specimens gives the following measurements, &c., in millimetres:—Total length, 242; wing, 128; tarsus, 30; tail to flesh, 82; bill to gape, 32; bill yellowish wax colour; eyes golden-yellow; legs brownish horn; feet and claws dark horn or blackish; soles of feet yellowish-white.

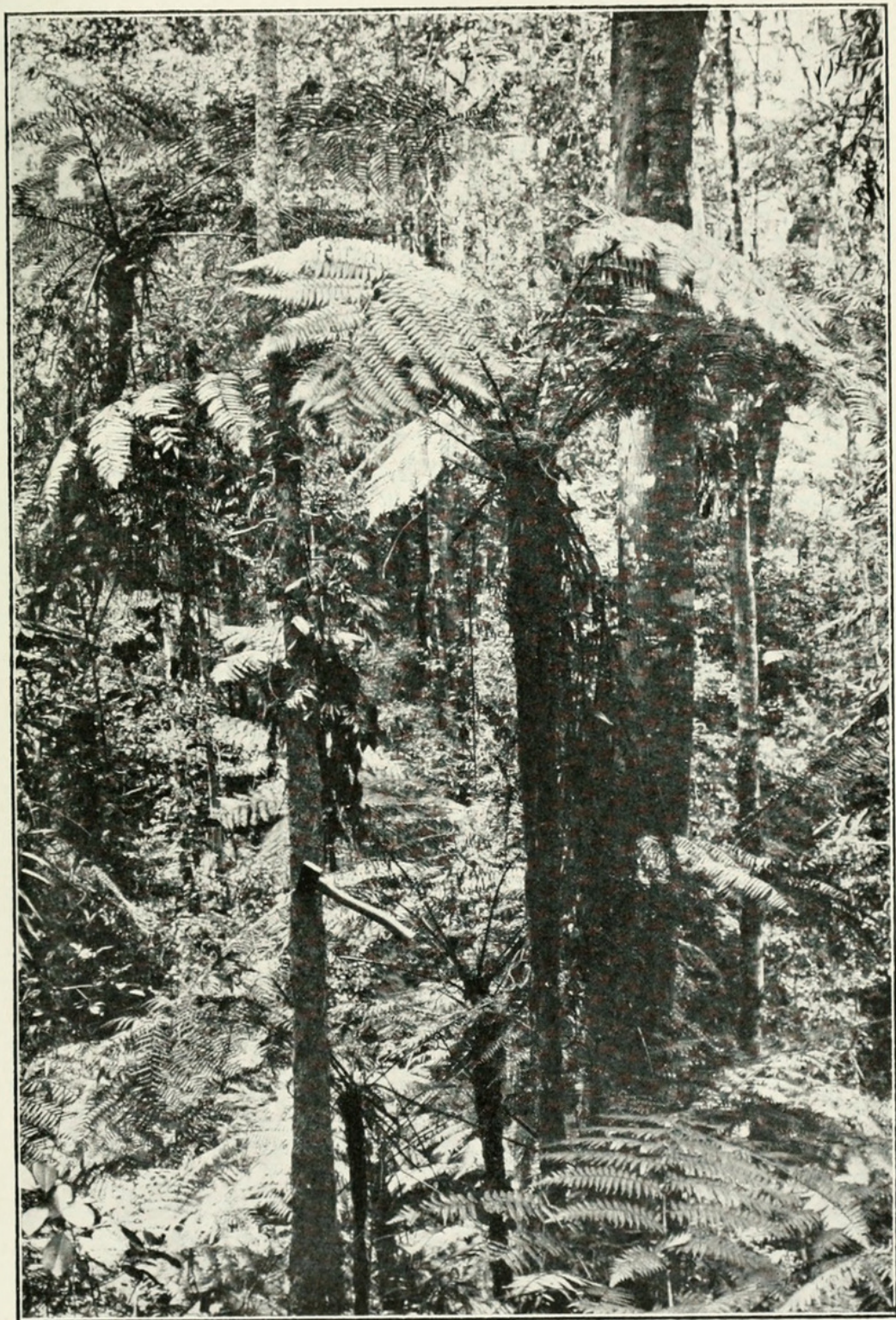
A female specimen gives the following measurements, &c.:—Total length, 286; wing, 141; tarsus, 28; bill to gape, 32; bill blackish brown; eyes golden-yellow mottled with brown; legs, feet, and claws blackish horn; skin at gape of mouth rich golden yellow.

We came across one bower or playground of this Bower-Bird; it was well hidden under a mass of green vines (*Vitis*, sp.) on the side of a large heap of fallen trees. The bower was only half the size of that built by the Satin Bower-Bird, and contained very few ornaments of decoration when compared with the bowers of the last-named birds. Their eyes are golden-yellow, and the articles in the decorations included mostly yellow objects, consisting of berries, seeds, a few yellow leaves, scrub snail shells, and fresh yellow 5-petal flowers from a scrub creeper belonging to the *Hibbertia* genus. The birds were observed playing at this bower several times.

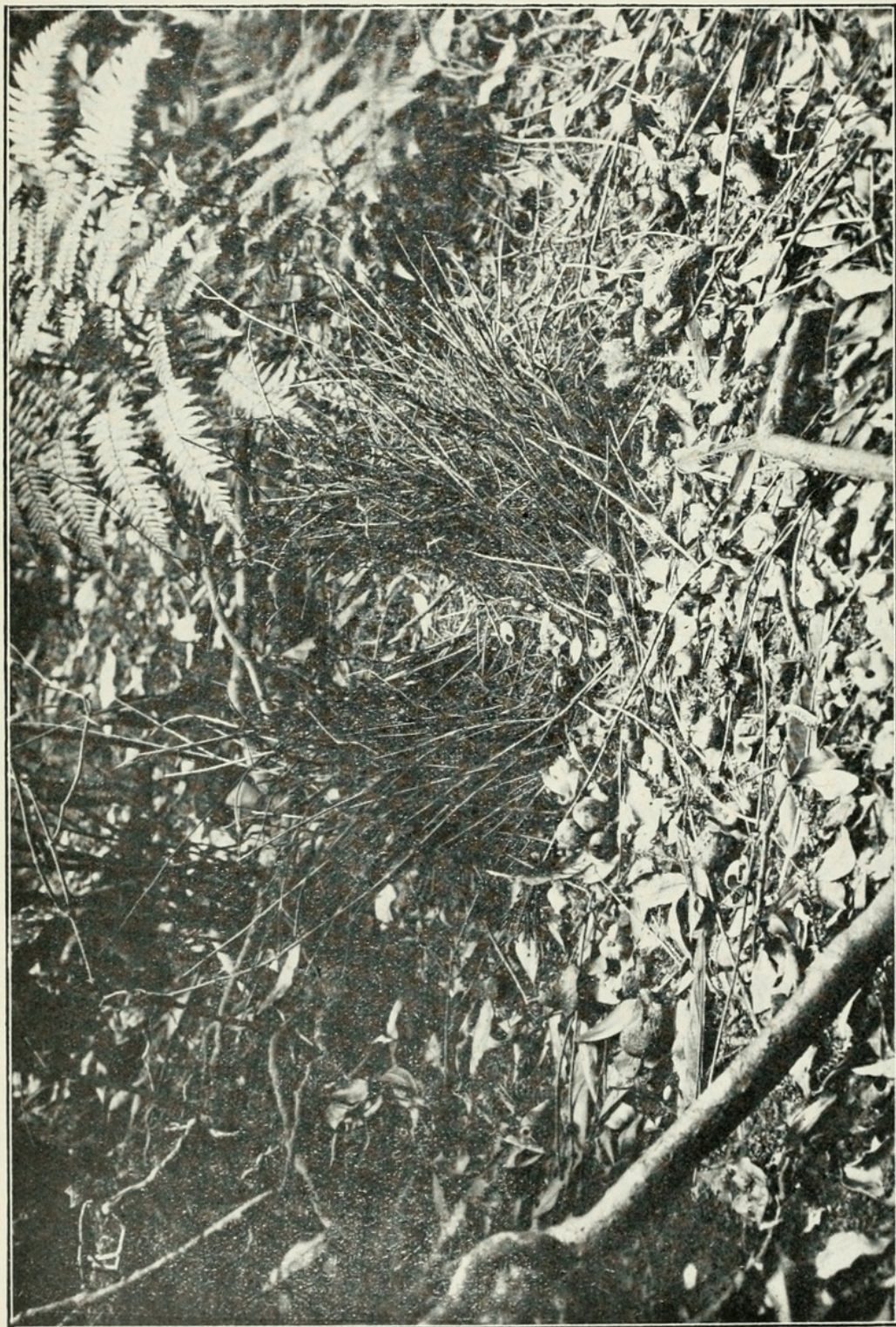
A series was also obtained of the Satin Bower-Bird (*Ptilonorhynchus violaceus*) showing the black feathers appearing on the young greyish-green male, and probably only a year or two old. The birds were plentiful, and two nests were found built in the tops of tree ferns (see accompanying Plate LI.) at the base of the stems of the long leaves. They were constructed of thin dry twigs and sticks, and lined with dead leaves. One nest contained two eggs, the other the birds abandoned for some unknown reason. Several of their bowers or play-grounds were met with. They were highly decorated with 5-petal blue flowers from a shrub,* known as Kangaroo Apple (*Solanum aviculare*), which was very common in damp gullies in the scrub, and these were renewed every morning; many dead scrub snail-shells of several species were frequently used among the decorations. In one bower near our camp the following scrub-snail shells, &c., were found:—*Helix confusa*, *Helix strangei*, *Helix richmondiana*, *Helix porteri*, *Helix pudibunda*, *Panda falconari* (young), &c., also pieces of cast snake-skin, blue flowers, empty locust or *Cicada* cases, fungi, seeds, empty cartridge cases (from my gun), parrots' blue feathers, &c. We cut up some pieces of blue cardboard, and threw them about in the scrub, and placed bits on logs some distance from one of the play-grounds; next day nearly all the pieces had been picked up by the birds and placed in one bower. Their eyes are of a rich blue or violet, and they have a great love for blue objects; often "blue-bags" from the wash-houses in the bush find their way to these play-grounds; instances of this came under my notice in the Dorrigo scrub of New South Wales.

Among the other birds secured, and made into specimens for the collection, were:—Grey Goshawk (*Astur clarus*), King Parrot (*Aprosmictus cyanopygius*), Black-faced Flycatcher (*Monarcha melanopsis*), Thickhead (*Pachycephala pectoralis*), Coachwhip-Bird (*Psophodes crepitans*), Pied Crow-Shrike (*Strepera graculina*), Noisy Pitta (*Pitta strepitans*), Variegated Wren (*Malurus lamberti*), Cat-Bird (*Ailurædus viridis*), Lewin's Honey-eater (*Ptilotis lewinii*), Yellow-rumped Shrike-Robin (*Eopsaltria chrysorrhoa*), &c. A Fan-tailed Cuckoo (*Cacomantis rubricatus*) procured is of much interest on account of the fact that Mr. O'Reilly and I found it

* Specimens collected for identification.



Scrub Scene, showing Nest of Satin Bower-Bird in head of a
Tree Fern.



Play-ground of the Satin Bower-Bird (*Ptilonorhynchus violaceus*).

PHOTO. BY S. W. JACKSON, R.A.O.U.

sitting on the root of a tree in the scrub about 5 inches from the ground, and it had its mouth wide open with an egg in it. Its feathers were all puffed out, and wings expanded, while two White-fronted Scrub-Wrens (*Sericornis frontalis*) were fighting and flying at it. We shot the cuckoo, and, on examining the ground where the bird fell, found the egg that had dropped from its mouth. The egg was then badly damaged, and, on examination, proved to belong to the Scrub-Wrens mentioned, and it contained a small chick. Probably the Cuckoo removed the egg from the Scrub-Wren's nest in order to foist its own in its place. The egg and chick are now safely preserved.

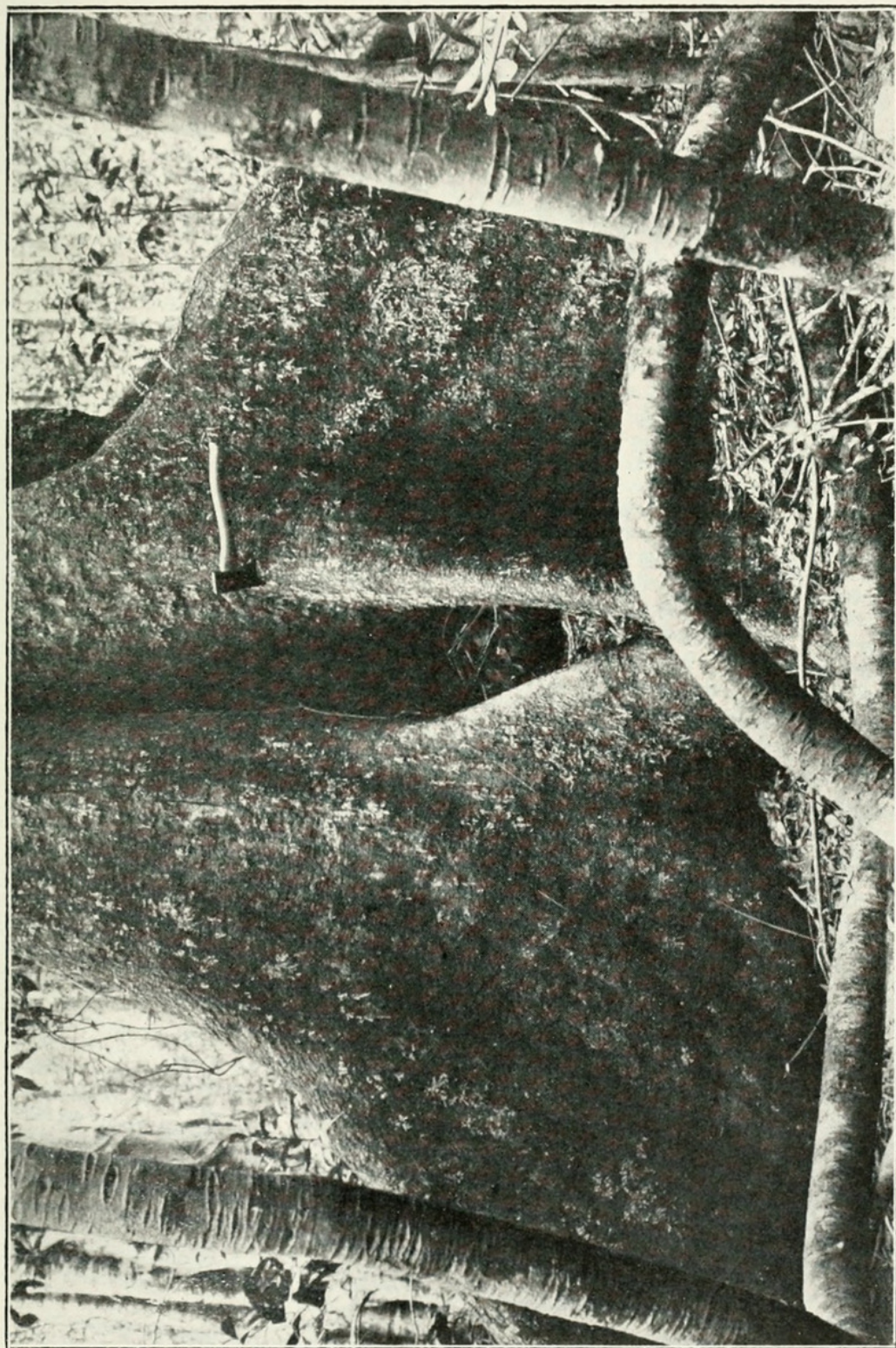
The Pigeons met with were—Topknot or Flock-Pigeon (*Lopholaimus antarcticus*), Magnificent Fruit-Pigeon (*Megaloprepia magnifica*), Long-tailed Brown Pigeon (*Macropygia phasianella*), Wonga-Wonga Pigeon (*Leucosarcia picata*), Little Green Pigeon (*Chalcophaps chrysochlora*), Red-crowned Fruit-Pigeon (*Ptilinopus regina*). The notes or call of the Long-tailed Brown Pigeon are remarkable, and of a very low pitch, and somewhat resemble "Wo-ork" "To-wo-ork," and also "Stick-to-wo-ork"; the notes are drawn out very slowly. The Magnificent Fruit-Pigeon usually renders a loud and most extraordinary note, resembling "To-bol-it—To-boo," and sounds very much like the noise produced by a powerful treacle-pump in a Queensland sugar mill when pumping treacle to a higher level. The Red-crowned Fruit-Pigeon usually calls "Coo," slowly first, then gradually getting faster and faster, the note being generally uttered about 12 to 16 times. Although the note is not loud, yet, strange to say, it can be heard for a good distance in the scrub, but when the bird calls it is generally well up in a tree.

Many Wedge-tailed Eagles (*Uroaetus audax*) passed low down over the scrub, and often 4 or 6 would be soaring about close together. All those noted were very black specimens, and they build in the giant forest trees outside the scrub; often these trees are on the edge of a great precipice.

The magnificent Rifle Birds-of-Paradise (*Ptiloris paradisea*) were daily met with, and their harsh, unmusical notes often heard. One nest was found, it was situated about 70 feet up in a mass of vines which were creeping over the top of an old dead and decayed scrub tree. We were unable to get to it owing to the unsafe place where it was situated. The bird eventually left it, but did not appear to build again. Several of the birds were found carrying twigs and leaves, and when carefully followed (which was a most difficult task through dense scrub) it was found that they simply let these things drop, and were only playing and not building in earnest. No doubt the dry state of the scrub at the time greatly interfered with their breeding habits. It was interesting to watch these birds climbing the trunks of the large Beech (*Fagus moorei*) and other trees, and levering off the big scales of bark with their long curved bills when hunting for beetles, &c., thereunder; they also examine all grub holes, and when "probing" these holes in

old dead scrub trees they often place their head flat up against the tree, no doubt "listening" to hear if any grub or beetle, &c., moved inside. We found that they usually did most of their hunting on the east side of the trunk of such trees, and on that side they would have all the rotten bark removed. One day we got a fine view of one doing a dance on a horizontal branch of a scrub tree about 45 feet from the ground. It danced and fed for over an hour, and we watched it closely in case it was a female and had a nest. With the field-glasses I could plainly see the colour of the plumage to be that of a female, yet the bird could very easily have been a yearling male, therefore in immature plumage, resembling the female. It would dance for a while, then render its unmusical screeching call a few times, and proceed "levering" off loose, dead bark from the trees, and collecting beetles, &c. It is wonderful how quickly its long curved bill can do this work. Pieces of bark measuring 10 inches long by four inches across fell beside us while the bird was at work overhead. Its dance is remarkable; the wings are opened wide and brought over well in front of the head, and here they are hit one against the other. The sound produced by the wings when this dance is in progress can be heard fully 200 feet away, if no wind is blowing in the direction at the time. When the wings were brought over in front of the head the bird kept rocking from one side to the other, with its head rather well thrown back. The rocking started slowly, and gradually got faster and faster. When feeding it would suddenly stop and go on dancing. After we had watched the bird carefully for an hour it flew away through the scrub.

While Mr. O'Reilly and I were standing on a great mass of fallen trees and debris in the scrub one day, listening to and watching an *Atrichornis*, our attention was attracted every few moments by a sound of water splashing beneath us to the left, and we found that a handsome male Rifle-Bird was bathing on the shady side of a big tree. On examination we found that the water was in an oval portion or natural pocket of the tree, between two spurs or big roots. The cavity measured about 10 inches long by about $4\frac{1}{2}$ inches wide, and was oval in shape. The water was $2\frac{1}{2}$ inches deep, and 2 inches down from the top of the cavity. It is remarkable how long water will remain in these solid cavities, or cups, in scrub trees. As we stood on the pile of fallen trees, we counted 9 "dips" that the lovely bird had in his little bath, and, although we were fully 30 feet away, we could plainly hear him splashing, and each time he had a "dip" he flew up on to a vine close by, about 4 feet from the ground. We got a splendid view of him each time, cleaning and combing his gorgeous feathers with his long curved bill. When he flew away a handsome male Satin Bower-Bird visited the bathing hollow for a drink, also several small birds. No doubt, during such a dry time as then existed, very few trees would contain water in the pockets or cavities near their roots, as the one under notice did.



Nest of Noisy Pitta (*P. strepitans*) at Base of Booyong Tree.

PHOTO. BY S. W. JACKSON, R.A.O.U.



Nest of Spine-tailed Log-Runner (*Orthonyx temminckii*) in wide-leaved rushes. Nest about one foot across.

I fancy moisture, running down the trunk of the tree from the mountain mists, must greatly assist in keeping such cavities replenished with water.

Rifle-Birds are very local in their habitat, as each pair resorts to only a comparatively small portion of the scrub, and, strange to say, more of the highly-coloured males are seen than the plainly-marked females. The male usually has a special horizontal branch of a tree upon which he often sits alone, and peacefully reposes for 15 to 20 minutes or more at a time; the limb is in many cases a thick one, thus frequently rendering it difficult to observe him. There he often renders his unmusical and loud call—resembling “Yass-yass” (rendered slowly)—every now and then while resting. The call of the female is very similar to that of the male, with the exception that she utters it with some hesitation, and with much less vigour. Another note which she often makes resembles “Kac-kac-kac-kac,” repeated several times in succession, but this call was only noted by me during November and December. The male and female are not often seen together, or in proximity to one another, and I have only observed the female bird at the nest, and she also appears to do all the nest-building.

The beautiful Dragoon Birds or Pittas (*Pitta strepitans*) became fairly common during November, and their notes or call, which resembles “I-lost-my-whip,” could plainly be heard both day and night. One of their dome-shaped nests was found near the ground, beautifully hidden in a “pocket” between the upright spurs of two roots of a Booyong Tree (*Tarrietia*, sp.) and contained three eggs. The nest is depicted in my photograph accompanying this article (Plate LIII.)

The delightful little Rose-breasted Robins (*Petroica rosea*) were often met with, and their feeble, yet sweet, notes heard through the scrub. The handsome pensile nests of the Brown Fly-eater (*Pseudogerygone fusca*) were often found, and mostly in a damaged state, the lining being all drawn out from the back portion—probably done by Cuckoos.

The Spine-tailed Log-Runners (*Orthonyx temmincki*) were common and their loud notes daily echoed through the scrub. Many of their beautiful dome-shaped nests were found built on the ground under drooping tufts of flat scrub grass (*Gahnia*, sp.) and ferns, and up against the roots of trees, &c. A few were found placed 3 to 4 feet up from the ground in bushes and dense growth (see Plate LIV.) As soon as a nest was finished and ready for eggs, some plundering creature (probably a Dingo, as they were plentiful) would pull the whole of the lining out, and no doubt did so when hunting for eggs.

The active Rufous and White-shafted Fantails (*Rhipidura rufifrons* and *R. albiscapa*) were common, and several of their beautifully-constructed nests were discovered. These birds were very fond of the March flies and would almost settle on a person's head when capturing these bloodthirsty, stinging pests, which tormented us very much; several species were met with.

The Yellow-rumped Shrike-Robins (*Eopsaltria chrysorrhoa*) were well distributed all through the scrub, and at daylight their loud "Chop-chop" and "Chop-chop-chop" (rendered slowly) notes were heard all round the camp, together with those of many Coachwhip-Birds (*Psophodes crepitans*), which were also plentiful.

The Yellow-tailed Black Cockatoos (*Calyptorhynchus funereus*) were observed now and then passing over the scrub in small flocks of from 3 to 8 in number, and we never appreciated their appearance, because as a rule boisterous weather followed soon after. In very windy weather the notes of the various birds in the scrub are lost to one's ears, owing to the great noise created by the wind rushing through and rustling the tall trees, vines, and dense foliage—thus impeding one's progress in studying the birds. The winds sometimes took the form of real gales, causing great havoc in the immense scrub, very large trees then falling and making cannon-like reports. A good idea can be obtained of the great and massive growth of these scrubs and jungles when it is mentioned that many vines, creeping up and winding round the gigantic trees, are often over 3 feet in circumference.

Pied Crow-Shrikes (*Strepera graculina*) were plentiful and noisy, and often took soap and other articles exposed at our camp.

VARIOUS.

Huge Carpet Snakes (*Python variegatus*) were met with. We saw one hanging from some vines and attempting to capture a Coachwhip-Bird that was feeding on the ground beneath it. The thick vines greatly protected the snake from detection, owing to the wonderful manner in which the snake was camouflaged and so closely resembled them. One day we came across one that had started to swallow a large Rufous Scrub Opossum (*Pseudochirus peregrinus*). We waited a while and watched the mode of procedure, which was very wonderful. The snake encircled its body four times round that of the possum and kept crushing it, and forcing it down its throat, bit by bit. The snake took no notice of our presence, which did not retard operations. The snake's head was all the time covered with many red-bodied blow flies, which were a great pest in the scrub and at our camp. The Macpherson Range is of *Triassic* sandstone formation, capped with basalt, much of which contains *olivines*, and these basalts are very variable in quality, some being "volcanic glass." The soil in the scrub is of volcanic origin, and of a deep chocolate red, with numerous outcrops of basalt, as above mentioned. Often heavy mists came up in the evenings from the east, after a hot day, and there were some very hot days, especially during December; but, as a rule, the nights were delightfully cool at the altitude in which we camped and worked, which was between 3,000 and 4,000 feet.



Jackson, Sidney William. 1920. "Haunts of the Rufous Scrub-Bird (*Atrichornis rufescens*, Ramsay). - Discovery of the Female on the Macpherson Range, S.E. Queensland." *The Emu : official organ of the Australasian Ornithologists' Union* 19(4), 258–272. <https://doi.org/10.1071/mu919258>.

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