

THE BIRDS OF AUSTRALIA.

THE
BIRDS
OF
AUSTRALIA

BY
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AND THE BRITISH ORNITHOLOGISTS' UNION
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PREFACE.

THE production of this work has given me the greatest pleasure for the past quarter of a century, during which time I also got together my unique collection of Australian birds, and books relating to ornithology. I should have liked the collection of birds to go to Australia, and much regretted that at the time I made the offer it was not possible to arrange for this. It now forms part of the Rothschild Collections at Tring, where it is available to all those interested in ornithology.

I wish to place on record here the debt of gratitude I owe to the many friends who have done so much to help me in my work, and without whose assistance I could not have undertaken and concluded so long a series of volumes. Their names, which are too numerous to mention here, will be found in the different volumes of my work, but I should like specially to thank the authorities of the Natural History Museum, whose help and courtesy made my work at South Kensington a real delight; Lord Rothschild, whose kindly help and counsel, especially in the early days of my work, meant very much to me, as did the assistance of Dr. Ernst Hartert, in the museum at Tring; my private secretary, Mr. Tom Iredale, for years of hard work; my publishers, Messrs. Witherby, for the excellent work throughout; and the artists whose beautiful plates add such a charm to the work.

In the history of Australian ornithology there is, of course, no pre-Linnean period, and the birds described by Linné himself are only those that are common both to Europe and Australia. With Linné is included Gmelin, except when the latter gave Latin names to birds described by Latham.

The Lathamian period is really the starting point of Australian bird-history. Latham described about eighty species; then come Vigors and Horsfield, leading up to the Gouldian period, with the help of occasional descriptions from different workers. Even at this time our ornithology was still in its infancy.

It was not until the Catalogues of the Birds in the British Museum were inaugurated that any representative effort was made to bring together all synonymy.

In the twentieth century, tri-nomial nomenclature was first consistently used, and in 1905, with the publication of the International Rules, Australian

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ornithology may be said to have come into its own—the Golden Age of Ornithology.

* The publication of that wonderful work by C. Davies Sherborn, *The Index Animalium*, in 1902, and its continuation in 1922, has made the use of homonyms an impossibility to the careful worker.

My aim has been to put on record such a list of the Birds of Australia as will contain ALL the information necessary to the future worker, as regards synonymy and dates of publication; while the life histories of the birds themselves have been contributed by competent field-naturalists.

While this much has been done, we must remember that science is never final, and there is still a wide field for future workers, to whom I wish every success.

To my numerous correspondents and to the subscribers to my work I bid a regretful farewell.

GREGORY M. MATHEWS.

FOULIS COURT.

February 8th, 1927.

GENUS—XANTHOTIS.

XANTHOTIS Reichenbach, Handb. spec. Ornith.,
Abth. II. (Handb. Meropinae I.), p. 139
(Icones Cont., No. IX., March 1st, 1852),
1852. Type (by monotypy)

X. flaviventris =
Philedon chrysotis Lesson =
Myzantha flaviventer Lesson.

LARGE Honey-eaters for the *Ptilotis* group with very long, very stout bills, long wings, long tails and short stout legs and stout feet.

The very long and stout bill, much longer than the head, strongly characterizes this genus from other Australian "*Ptilotis*," but there are in New Guinea genera with still longer and stouter bills.

The edges of the culmen are strongly serrate anteriorly, while owing to the lengthening of the bill the long nasal groove is only one-fourth the length of the bill.

The wing has the first primary short, but more than half the length of the second, which is shorter than the seventh; the third, fourth and fifth primaries are subequal and longest, the sixth a little shorter; the secondaries are long.

The tail is long and square.

The legs are short and stout, the scutes on the front of the tarsus with a tendency to fusion so as to suggest booting; the hind portion of the tarsus bilaminate; the hind-toe stout and longest; the anterior toes weaker, the inner and outer subequal, the middle toe without claw shorter than inner toe and claw; claws sharply curved.

This genus is a New Guinea one with a representative in Cape York peninsula.

NATIONAL MUSEUM OF BUREAU

XANTHOTIS FLAVIVENTER.

STREAK-NAPED HONEY-EATER.

(PLATE 542.)

[MYZANTHA FLAVIVENTER Lesson, Manuel d'Ornith., Vol. II., p. 67, June 1828: New Guinea. Extra-limital.]

Ptilotis filigera Gould, Suppl. Birds Austr., pt. 1 (pl. 42), March 15th, 1851: Cape York, Queensland.

Ptilotis filigera Gould, Suppl. Birds Austr., pt. 1 (pl. 42), March 15th, 1851; *id.*, Proc. Zool. Soc. (Lond.), 1850, p. 278, after Jan., 1852; *id.*, Handb. Birds Austr., Vol. I., p. 522, 1865; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 596, 1876; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 189, 1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 237, 1884; Ramsay, Tab. List Austr. Birds, p. 13, 1888; Hall, Key Birds Austr., p. 42, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 394, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. IV., pt. 5, p. 433, 1914.

Xanthotis filigera Mathews, Handl. Birds Austral., p. 97, 1908; H. L. White, Emu, Vol. X., p. 339, 1911; Barnard, *ib.*, Vol. XI., p. 28, 1911; Campbell, *ib.*, Vol. XIII., p. 69, 1913; Macgillivray, *ib.*, p. 180, 1914; *id.*, *ib.*, Vol. XVII., p. 206, 1918.

Ptilotis flaviventer filigera Mathews, Nov. Zool., Vol. XVIII., p. 413, 1912.

Xanthotis flaviventer filigera Mathews, List Birds Austr., p. 283, 1913.

Xanthotis flaviventer watsoni Mathews, Austral Avian Record, Vol. III., pt. 4, p. 71, July 21st, 1917: Watson River, North Queensland.

DISTRIBUTION. North Queensland, Cape York Peninsula only. Extra-limital.

Adult. Fore-head, lores and crown dull greenish-olive; nape and hind-neck greenish-olive with pear-shaped dull white markings; hinder margin of crown dull black; mantle and upper back ash-brown, each feather margined with greenish-olive; feathers of the rump brownish-olive, very dense and of a silky texture; upper tail-coverts ash-brown, faintly bordered with olive; tail ash-brown, margined on the outer webs with dull olive-green; primaries and secondaries ash-brown, margined on the outer web with yellowish-olive and on the inner web with fawn-colour; a line of white feathers above and below the eye, continued on to the ear-coverts which are deep grey; throat and sides of the neck whitish-grey; chest yellowish-olive; remainder of the under-surface tawny-rufous washed with olive and with spots of yellowish-white scattered over the chest and belly. Eyes and bill black, feet slate-blue. Total length 195 mm.; culmen 22, wing 92, tail 74, tarsus 26. Figured. Collected at Utingu, Cape York, North Queensland, on the 22nd of September, 1912.

The sexes are alike.



H Gronvold. del

Witmerby & C?

XANTHOTHIS FLAVIVENTER
 (STREAK-NAPED HONEY-EATER.)

PLATE 10

STREAK-NAPED HONEY-EATER.

“ *Young birds* resemble the adults, but have the tips or margins of the upper wing-coverts broadly margined with rich golden-olive, and the external webs and the quills edged with golden-yellow, the inner webs and tips of the tail-feathers margined with fulvous; feathers of the chin, throat and fore-neck dull greyish-white, and only a faint indication of the white line above and the bright yellow line below the ear-coverts; the centre of the breast and the abdomen is a richer sandy-buff.” (North.)

Eggs. Clutch two, long oval, shell fine and very glossy. Colour pinkish-white, freckled all over with small spots of bright brownish-red, these spots being thicker towards the larger end, where they are mixed with small splashes of pale purple. The eggs are different from those of any other Honey-eater. Dimensions 23-24 by 17 mm.

Nest. Suspended from the rim from a horizontal fork, composed of strips of bark and fibre, woven together and lined with fibre; placed in a mango tree.

Breeding-months. November. [February to April.]

GOULD has stated: “The *P. filigera* is one of the novelties which rewarded the researches of Mr. Wilcox, who obtained two examples among some mangroves at Cape York, where he observed it in company with another species of the same genus. Although a dull-coloured species, it is rendered interestingly different from all its congeners by the thread-like streak beneath the ear-coverts, and by the small striæ which decorate the back of the neck and the upper part of the mantle.”

Barnard then wrote from Cape York: “Fairly plentiful about inland scrubs. A nest taken from a cultivated mango tree contained two eggs which are the first described. The birds were also found breeding in the scrub. One nest found contained two young birds and was placed 12 feet from the ground. Another nest, in process of building, was situated 30 feet from the the ground, but was deserted by the birds before the eggs were laid. Specimens were often seen feeding in the flowering *Melaleuca* trees on the edge of the scrub.”

Macgillivray then recorded: “Very common at Cape York, in scrub, open forest, and mangroves. They are silent birds, mainly insectivorous in their diet, and may often be seen searching the dead leaves on trees for insects. The first nest was found in course of construction in the mangroves at Paira on the 7th January, 1911; two eggs were afterwards laid. This nest was 10 feet from the ground, suspended by the rim from a horizontal fork of a small bushy mangrove. It was composed outwardly of broad strips of *melaleuca* and swamp mahogany bark, lined with a few fine rootlets and fine strips of bark, and very compactly built, the sides being $\frac{1}{2}$ inch in thickness, the bottom $\frac{3}{4}$ inch. Another nest, containing eggs, was found on the 2nd February. This was 30 feet up in a bushy tree in the scrub. A third nest, found on the 12th February, was also about 30 feet up in a bushy scrub tree, and contained two half-fledged young. A fourth found on the 11th April, contained one

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hard-set egg; this nest was 50 feet up in a bush scrub tree. ♀, length in flesh, $7\frac{3}{4}$ inches; irides brown, bill black, legs leaden-blue. Stomach contents, insect remains." From the Claudie River, Macgillivray added: "Streak-naped Honey-eaters were always to be seen about the edge of the scrub, where the leafage comes down to the view; they also came out into the open forest trees, especially during the wet season, and were common in the trees over and about our camp. The roof of the scrub, where the trees and interlacing climbers flower and fruit in the sunlight, and where there must be a wealth of insect life, is the hunting ground of most of the scrub birds. This is usually at a height of from 70 to 100 feet, and well out of sight of anyone on the ground, and it is only at the edge where the trees and climbers come gradually down to the ground, or along the banks of the river where it runs through the scrub, and the trees and shrubs festooned by climbing plants with leafage of every form and colouring and adorned by flowers and fruits of every hue, that one gets an opportunity of watching many of the birds. The nests of this Honey-eater are not easily found, as they are usually placed high in some bushy scrub tree, where they are hidden from below. We several times found old nests when cutting down such trees in the scrub to enable us to use the rope ladder. One nest was, however, detected near our camp at the sandalwood landing, high in a slender gum tree. Here, also, the birds were plentiful in the flowering gums, and one frequently saw them with a company of other honey-loving birds revelling in the feast provided by the flowering tops of the umbrella-tree. The eggs were invariably two in number, and varied much in colouring, but all had a beautiful glossy surface. Mr. McLennan noted a few on the Archer."

The Cape York bird is much paler but of the same style of coloration as the New Guinea bird named *Myzantha flaviventer* by Lesson. This bird was also named *Philedon chrysotis* by Lesson, but when it was included in *Ptilotis* there was a bird with the name *chrysotis* of prior introduction. The recognition of the genus *Xanthotis* revived the early *chrysotis* of Lesson and it has been commonly used. It has been proved recently that the name *flaviventer* was published first.

GENUS—PHYLIDONYRIS.

PHYLIDONYRIS Lesson, *Traité d'Ornith.*, livr. 4,
 p. 298, Sept. 25th, 1830. Type (by sub-
 sequent designation) Gray, *Cat. Gen. Sub-
 gen. Birds*, p. 24, 1855 *Certhia australasiana* =
Certhia pyrrhoptera Latham.

Also spelt—

Philedonyris Agassiz, *Index Univ.*, 12mo ed., p. 832, 1848.

Melisympotes Reichenbach, *Handb. spec.
 Ornith. Abth.*, II. (*Handb. Meropinae*), Vol.
 I., p. 121, 1852. Type (by monotypy) .. *Certhia australasiana* Shaw.

Lichmera Gould, *Handb. Birds Austr.*, Vol. II.,
 p. 493, 1865

Not—

Lichmera Cabanis, 1851, which = *Stigmatops*.

SMALLER Honey-eaters with long, thin, curved bills, long wings, long tail and short thin legs and small feet.

The bill is long, thin and curved, longer than the head, and laterally much compressed and basal expansion scarcely noticeable, culmen semi-keeled, edges of mandibles minutely serrated anteriorly; nasal groove very long, nearly half the length of the culmen; linear nostrils strongly operculate; nasal and rictal bristles few and small; lower mandible with very small interramal space, less than one-fifth the length of the mandible; gonys very long with no appreciable angulation.

The wing is long with the fourth and fifth primaries subequal and longest, the third and sixth subequal and little shorter, the second shorter and equalled by the long secondaries, the first short and about equal to half the second only.

The tail is long and square.

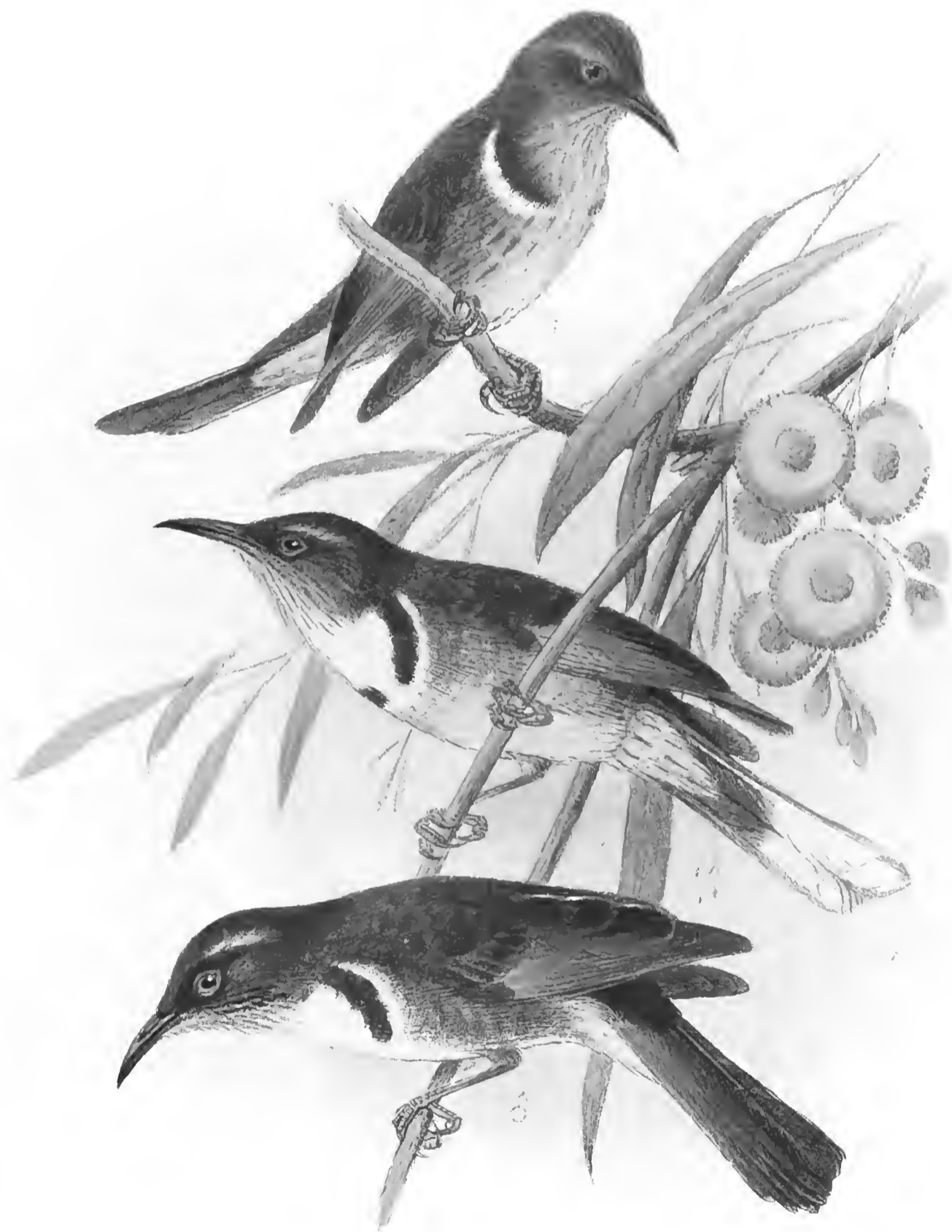
The legs are short and thin, the anterior scutellate, but scutes fused so as superficially to appear booted, posteriorly bilaminate; feet delicate, mid-toe longest, hind-toe a little stouter; inner and outer toes subequal, longer with claw than middle toe without claw; claws sharp.

PHYLIDONYRIS PYRRHOPTERA.

CRESCENT HONEY-EATER.

(PLATE 543.)

- CERTHIA PYRRHOPTERA* Latham, Index Ornith. Suppl., p. xxxviii., (after May 30th) 1801:
New South Wales, based on Watling drawing, No. 112.
- Certhia pyrrhoptera* Latham, Index Ornith. Suppl., p. xxxviii., 1801.
Yellow-winged Creeper Latham. Gen. Synops. Birds, Suppl. II., p. 168, 1801.
- Certhia australasiana* Shaw, Gen. Zool., Vol. VIII., pt. 1, p. 226, 1811: New South Wales.
- Melithreptus melanoleucus* Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XIV., p. 328,
Sept. 13th, 1817: New South Wales.
- Meliphaga australasiana* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV.,
p. 313, 1827; Gould, Birds Austr., pt. 1 (Vol. IV., pl. 27), Dec. 1st, 1840.
- Meliphaga inornata* Gould, Synops. Birds Austr., pt. iv., App., p. 5, April 1838: Tasmania.
- Meliornis australasiana* Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878;
Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 252, 1884; Ramsay, Tab. List Austr.
Birds, p. 12, 1888; Hall, Key Birds Austr., p. 43, 1899; Campbell, Nests and
Eggs Austr. Birds, Vol. I., p. 411, 1901; A. G. Campbell, Emu, Vol., II., p. 207,
1903 (King I.); Fletcher, *ib.*, Vol. IV., p. 15, 1904 (Tas.); A. G. Campbell,
ib., p. 117, 1905 (Tas.); McClymont, *ib.*, p. 176 (Tas.); North, Austr. Mus.
Spec. Cat., No. 1, Vol. II., p. 68, 1906; Hill, Emu, Vol. VII., p. 19, 1907 (Vic.);
Ingle, *ib.*, Vol. X., p. 124, 1910 (Vic.); Littler, Handb. Birds Tasm., p. 58,
1910; Fletcher, Emu, Vol. XI., p. 107, 1911 (Tas.); Dove, *ib.*, p. 126, 1911; *id.*,
Vol. XIX., p. 245, 1920 (Tas.).
- Lichmera australasiana* Gould, Handb. Birds Austr., Vol. I., p. 493, 1865; MacLaine,
Emu, Vol. III., p. 192, 1904 (Tas.); Dove, *ib.*, Vol. VI., p. 20, 1906 (Tas.);
S. A. White, *ib.*, Vol. XIV., p. 143, 1915 (Mallee); Purnell, *ib.*, Vol. XV., p. 44,
1915 (Vic.); Dove, *ib.*, p. 193, 1916 (Tas.).
- Meliornis (Lichmera) australasiana* subsp. *halmaturina* A. G. Campbell, Emu, Vol. V.,
pt. III., p. 140, Jan. 1st, 1906: Kangaroo Island.
- Lichmera halmaturina* A. G. Campbell, *ib.*, p. 143.
- Meliornis halmaturina* Mellor, Emu, Vol. XII., p. 39, 1912; S. A. White, *ib.*, p. 263, 1913.
- Meliornis pyrrhoptera* Sharpe, Hist. Coll. Nat. Brit. Mus., Vol. II., p. 129, 1906;
Mathews, Handl. Birds Austral., p. 97, 1908; Cleland, Emu, Vol. XI., p. 91, 1911
(Food); *id.*, *ib.*, Vol. XII., p. 17, 1912 (Food).



H. Gronvold, del.

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PHYLIDONYRIS PYRRHOPTERA
(CRESCENT HONEY-EATER.)

CRESCENT HONEY-EATER.

Meliornis pyrrhoptera pyrrhoptera Mathews, Nov. Zool., Vol. XVIII., p. 414, Jan. 31st, 1912.

Meliornis pyrrhoptera indistincta Mathews, *ib.*: (Mount Lofty) South Australia; *id.*, Austral Av. Rec., Vol. I., p. 62, 1912.

Meliornis pyrrhoptera halmaturina Mathews, *ib.*

Meliornis pyrrhoptera inornata Mathews, *ib.*

Phylidonyris pyrrhoptera pyrrhoptera Mathews, List Birds Austr., p. 283, 1913.

Phylidonyris pyrrhoptera indistincta Mathews, *ib.*; Belcher, Birds Geelong, p. 345, 1914.

Phylidonyris pyrrhoptera halmaturina Mathews, List Birds Austr., p. 283, 1913.

Phylidonyris pyrrhoptera inornata Mathews, *ib.*

Phylidonyris pyrrhoptera mixta Mathews, Austral Av. Rec., Vol. V., pts. 2-3. p. 38, Feb. 21st, 1923: Victoria.

DISTRIBUTION. South Queensland, New South Wales, Victoria, South Australia, Kangaroo Island and Tasmania.

Adult male. Lores and top of the head black; a line of white feathers over the eye and continued to the hinder margin of the ear; back of the neck, mantle, back, rump and wing-coverts dark smoke-grey slightly washed with dull olive on the rump; upper tail-coverts black; middle tail-feathers black, margined basally on the outer webs with golden-yellow; remainder of the tail black, with a large spot of white on the inner web at the tip and margined at the base of the outer web with golden-yellow; two outermost primaries uniform black; innermost primaries and outermost secondaries black with the outer web margined with golden-yellow; chin and throat white, widely streaked with black; fore-neck white, very widely bordered with black, interrupted in front; a band of white feathers across the chest and down the middle of the belly; sides and flanks smoke-brown; under wing-coverts and axillaries white, tinged with smoke-grey. Eyes crimson, feet slate, bill black. Total length 162 mm.; culmen 17, wing 76, tail 69, tarsus 17. Figured. Collected on King Island, Bass Straits, on the 30th of April, 1914, and is the type of *Phylidonyris pyrrhoptera rex*, subsp. nov. It is much darker on the back.

Adult male. Lores black; fore-head and top of the head smoke-grey, streaked with black; back of the neck lighter grey, streaked with blackish; a narrow white eye-brow; sides of the face, mantle, back, and rump dark smoke-grey, slightly washed with dull olive on the latter; upper tail-coverts black; wing-coverts dull black; two outermost primaries entirely black; innermost primaries and outermost secondaries dull black, margined on the outer web with golden-yellow and narrowly margined on the inner webs with white; innermost secondaries uniform dull black; middle tail-feathers black, widely margined on the outer webs with golden-yellow; outermost pairs of tail-feathers black with a large spot of white on the inner web at the tip and margined on the basal half of the outer web with golden-yellow; throat white, streaked with blackish-brown and with black hair-like prolonged shafts to the feathers; fore-neck white, widely bordered with black, interrupted in front; remainder of the under-surface whitish, very strongly washed with dull smoke-grey; axillaries and under wing-coverts white tinged with smoke-grey. Total length 157 mm.; culmen 16, wing 79, tail 68, tarsus 20. Figured. Collected at Olinda, Victoria. (Middle figure.)

The sexes are somewhat alike, but the female lacks the black marking on the side of the chest and the white tips to the tail-feathers. The back is brown, not black, and the yellow edges of the wing-feathers not so pronounced.

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Adult female. General colour of the upper-surface dark bronze-brown, including the top of the head, lores, nape, hind-neck, sides of neck, back, upper tail-coverts, scapulars, and upper wing-coverts; outer webs of flight-feathers bronze-yellow, inner ones dark brown with pale margins; tail-feathers also dark brown margined with bronze-yellow on the outer webs; a slightly indicated pale line over the eye and along the sides of crown; throat and fore-neck pale brown slightly streaked with whitish on the former, and inclining to rust-brown on the latter like the middle of the breast; sides of breast smoke-brown with pale tips to the feathers; sides of body, abdomen, thighs and under tail-coverts pale smoke-brown inclining to whitish on the middle of the abdomen; axillaries and under wing-coverts greyish-buff; under-surface of flight-quills dark brown with pale edges; lower aspect of tail dark brown. Eyes red, feet brownish-black, bill black. Collected on the 24th of March, 1912, at Myponga, South Australia.

Young female. Feathers of the lores blackish; top of the head, neck, back, rump and wing-coverts dull olive-brown, indistinctly streaked with blackish-brown; upper tail-coverts similar but washed with rufous; tail-feathers dull smoke-brown with the basal portion of the outer web olive-green, the outer pair being uniform smoke-brown; two outermost primaries dull uniform smoke-brown, remainder of the primaries with the outer web olive-green; chin and throat greyish-white, streaked with blackish-brown; a broad crescentic band of blackish-brown encircling the throat and interrupted in the middle; chest, breast, belly, sides and flanks soiled white, faintly streaked with dull olive-brown; under aspect of primary-quills ash-grey. Figured. Collected in Tasmania in May, 1886. (Top figure.)

Immature male. General colour of the upper-surface soot-black, including the top of the head, sides of face, sides of neck, hind-neck, entire back, upper tail-coverts, scapulars, and upper wing-coverts; flight-quills blackish-brown fringed with dull yellow on the outer webs and pale margins on the inner ones; tail-feathers also blackish fringed with bronze-yellow on the outer webs and tipped with white on the inner webs; chin and throat dusky-brown with whitish shaft-lines, becoming whiter on the fore-neck; middle of breast and middle of abdomen whitish; sides of upper breast dull black with whitish tips to some of the feathers; sides of body dark smoke-brown; thighs dusky-brown; under wing-coverts mouse-brown; under-surface of flight-quills dark brown with pale margins; lower aspect of tail similar to its upper-surface. Eyes brown, feet and bill black. Collected on Kangaroo Island on the 4th of December, 1911.

Immature male. General colour of the upper-surface including the top of the head, back, and wings, blackish slate-colour; hinder part of head somewhat browner than the back; outer webs of flight-quills yellow; tail-feathers blackish, fringed with yellow on the outer webs, and white at the tips of the inner webs; hinder face and sides of neck like the back; sides of breast black with white tips to the feathers; throat dark brown streaked with white; middle of breast almost uniform white; middle of abdomen yellowish-white, becoming lead-grey on the sides of the body; under tail-coverts dark brown fringed with whitish; axillaries and under wing-coverts pale yellow; under-surface of flight-quills dark brown with pale margins; lower aspect of tail similar to its upper-surface. Eyes reddish-brown, feet and bill black. Collected at Olinda, Victoria, on the 1st of February, 1909.

Eggs. Three eggs usually form the clutch. A clutch of three eggs taken at Glenorchy, Tasmania, on the 11th of October, 1896, is of a beautiful pale flesh-tint ground-colour, becoming darker at the larger end; spotted and speckled with reddish-chestnut and scattered here and there are markings of a dull purplish tinge, and become more numerous at the larger end. Swollen ovals in shape. Surface of shell fine, smooth and glossy. 18-19 by 14 mm.

CRESCENT HONEY-EATER.

Nest. A rather deep cup-shaped structure, composed chiefly of strips of bark and twigs, lined with grass, and a little soft material. Dimensions over all, 4 to 5 inches by 3 to 3½ inches in depth. Usually placed in a thick bush or other situations close to the ground.

Breeding-months. July to December or January.

No notes of the habits of this bird were given until Gould's were published: "This little Honey-eater is abundantly dispersed over every part of Tasmania, South Australia and New South Wales. It is one of the few species which enliven with their presence the almost impenetrable forests that cover a great portion of Tasmania, giving preference to such parts as are clothed with a thick brush of dwarf shrubby trees growing beneath the more lofty gums. It also resorts to the thick beds of the *Epacris impressa*, whose red and white heath-like flowers bespangle the sides of the more open hills; the blossoms of this beautiful plant afford it an abundant supply of food, which it seeks as intently as to admit of a sufficiently close approach to enable one to observe its actions without disturbing it; while thus occupied it may be seen clinging to the stems in every possible attitude, and inserting its slender brush-like tongue up the tube of every floret with amazing rapidity. Independently of honey it feeds on insects of various kinds, particularly those of the orders *Diptera* and *Hymenoptera*. When disturbed it flits off with a quick darting flight, settling again at the distance of a few yards among the thickest tufts of the *Epacris*, or shrouds itself from observation among the foliage of the sapling gums. It breeds in September and the four following months."

Captain S. A. White has sent me the following note: "This species keeps to the wettest parts of this State (South Australia) and is not seen in the dry country, for it inhabits the thick undergrowth of swampy or damp land. It is very plentiful on Kangaroo Island. On the mainland they breed in September, October and November. Their call is at first of one note followed by one of two notes; these are deep-toned but melodious and at times metallic in sound."

Mr. J. W. Mellor has written me: "The Crescent Honey-eater is a fairly common bird in South Australia, also in Victoria and Tasmania, and the islands adjacent, as well as in New South Wales. In South Australia I have had ample opportunity of studying their habits in the Mount Lofty Ranges, where they are to be seen in the thickly wooded gullies, as they delight to be in such secluded places, where their loud clear notes are especially pleasing in the early morning when the dewdrops shine like diamonds in the rays of the rising sun. On Eyre Peninsula I saw these birds in the Cleve Ranges in June, 1911, where they were in the thickly timbered parts, especially in the gullies. The nesting time of these birds is from August to November and

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December. I have also seen this species throughout Kangaroo Island, and there, also like the mainland subspecies, it likes the thickly wooded parts."

Mr. A. H. Mattingley has sent me the following interesting items: "Young are born naked and blind, the skin fleshy colour, two black spots in region of tongue and a large black blotch or patch on back of roof of mouth and throat. Colour of interior of mouth bright yellow. Adults feed young every two minutes and when older about every ten minutes with diptera, hymenoptera and lepidoptera, as well as scale insects and honey. Both parents feed young, female more often than male, and both are very tame while doing so. The young when a week old are only partly covered with down and leave the nest in eighteen or twenty days' time. The young, of which there are two or three, are fed one after the other with great rapidity, each young one getting its share every visit of the parent, when the food is placed down the throat. Both adults have a loud pleasing note and call 'Egypt,' 'Egypt,' with a glucking twang."

Mr. F. E. Howe also wrote me: "I first made the acquaintance of this form at Ringwood, Sept. 11th, 1904. We were working down a gully when I noticed a nest with the female sitting. She was very confiding and almost allowed me to touch her and as she flushed disclosed three young ones. Her cries soon brought her beautiful mate to the nest and allowed us minutely to examine him. They are early breeders and nests are found as early as August. A favourite site is in the top of sword grass and nests have also been seen in the mimosa and tea-tree. The clutch seems to vary from two to four, but two seems to be the usual sitting. The call 'Egypt,' with the accent on the last syllable, is the note usually heard, but on one occasion a bird low down in the scrub was heard to utter quite a variety of pleasant notes that were ventriloquial. We have noticed that the female alone undertakes the task of incubating the eggs and that the period is about sixteen days. The young are born blind and featherless; the gape is yellow and the colour of the mouth is of the same hue, but a round black spot appears on the bottom as well as the roof of the mouth. The parents appear to gather food with which to feed the young from the mistletoe (*Loranthus*)."

Mr. Frank Littler has written me from Tasmania: "This species frequents thick dense tracts of forest, preferably near water. The food consists of insects and the pollen of various flowering shrubs and plants. The breeding-months are from August to December."

Ingle states that it is common in South Gippsland, breeding early in August and September and disappearing before December, returning about March.

Miss J. A. Fletcher has recorded that "the young just born were blind and naked except for tufts of greyish down on top of head, tips of wings and

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on the abdomen, and that the female flew and fluttered to the ground apparently in great distress; that when she saw her efforts were in vain, snapped up a minute fly, returned to the nest, fed one of the young with it and then settled on the nest while it was being watched at close quarters."

Shaw described this bird from a figure published by Vieillot, which very probably was copied from the Lambert or Watling drawings, and Shaw's name was used until Sharpe examined the Watling drawings and definitely recognised that No. 112 was the type of Latham's *Certhia pyrrhoptera*, and consequently this name must be used. Gray and Gould had determined this from the Lambert drawings many years previously, but for some unknown reason Gould did not make use of it, but continued with the name *australasiana*. Before he went to Australia, Gould had described a bird from Tasmania as a distinct species under the name *Meliphaga inornata*, but later synonymised it without explanation, as it was based upon an immature specimen. When A. G. Campbell made his comparison of Victoria and Tasmanian forms he had no specimens of the island form, but gave measurements made by Littler which apparently showed the Tasmanian form to have a longer bill, shorter wing and longer tarsus, which are correct, while it is also darker.

A. G. Campbell easily distinguished the Kangaroo Island form, writing: "This was an unexpected bird upon the island, where it was common in the scrub along the river. It possesses a bill .15 larger than the Victorian specimens, and is of duller plumage. The striking wing-patch and also the colour on the tail is greenish-yellow, and not bright yellow. There is less white on the tail (.75 in. against .9 in.), no white centre to the chest, and the upper throat is but faintly streaked. The young bird has a short bill, but the sexes can be distinguished by the male, even in the browner youthful plumage having a prominent greenish-yellow wing-patch. The female is throughout darker than the mainland female. Measurements are as follows:

<i>L. australasiana</i>	male	Length 6.3 in.	Bill .6	Wing 3.05	Tail 2.75	Tarsus .7
	female	5.7	.58	2.62	2.35	.7
<i>L. halmaturina</i>	male	5.7	.75	2.8	2.5	.8
	female	5.3	.72	2.62	2.2	.8

In my "Reference List" in 1912 I allowed four subspecies thus:

Meliornis pyrrhoptera pyrrhoptera (Latham).

Queensland, New South Wales.

Meliornis pyrrhoptera indistincta Mathews.

"Differs from *M. p. pyrrhoptera* in its darker coloration above, especially on the head, forming a cap; much greener on the wing. (Mount Lofty), South Australia."

Victoria, South Australia.

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Meliornis pyrrhoptera halmaturina A. G. Campbell.
Kangaroo Island.

Differs as above pointed out by Campbell.

Meliornis pyrrhoptera inornata (Gould).
Tasmania.

Darker, with a longer bill, shorter wing and longer tarsus.

These were admitted in my 1913 "List," but were transferred to the genus *Phylidonyris* of Lesson which was proposed twenty odd years earlier than *Lichmera*, which was used by Gould for this genus in a sense different from the earliest typification of that name.

I have added

Phylidonyris pyrrhoptera mixta.

"Brighter generally than *Meliornis pyrrhoptera indistincta* Mathews, but not so bright as typical *P. p. pyrrhoptera* Latham."

Victoria.

And the King Island bird I have named above.

GENUS—MELIORNIS.

MELIORNIS Gray, List Genera Birds, 1st ed.,
p. 15, April, 1840. Type (by original
designation) *Certhia novæhollandiæ* Latham.

Meliphaga Vigors and Horsfield, Trans. Linn.
Soc. (Lond.), Vol. XV., p. 312, Feb. 17th,
1827

Not—

Meliphaga Lewin, 1808, see *Dorothina*.

SMALLER Honey-eaters with long, stout, compressed bills, long wings, long tail, thin legs and small feet.

This genus is superficially in structure like the preceding genus, but the bill is longer and stouter, though generally of same form.

The wing has the third, fourth, fifth and sixth primaries subequal and longest, the second shorter than the seventh primary, but much longer than the secondaries, the first primary short but more than half the length of the second primary.

The tail long and a little rounded in shape.

The legs and feet much as in the preceding genus.

The feathers of the throat have hair-like tips and the ear-coverts are developed, both of which features are quite missing in the previous genus.

Order *PASSERIFORMES*.

No. 687.

Family *MELITHREPTIDÆ*.

MELIORNIS NOVÆHOLLANDIÆ.

WHITE-BEARDED HONEY-EATER.

(PLATE 544.)

CERTHIA NOVÆHOLLANDIÆ Latham, Index Ornith., Vol. I., p. 296, Dec. 1790: New South Wales.

New Holland Creeper, White, Journ. Voy. New South Wales, pl. opp. p. 186, 1790.

Certhia novæhollandiæ Latham, Index Ornith., Vol. I., p. 296, 1790.

Sylvia canescens Latham, *ib.*, Vol. II., p. 553, Dec. 1790: Tasmania.

Meliphaga balgonera Stephens in Shaw's Gen. Zool., Vol. XIV., pt. 1, p. 261 (end), 1826: New South Wales.

Meliphaga novæhollandiæ Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 311, 1827; Gould, Birds Austr., pt. x. (Vol. IV., pl. 23), March 1st, 1843.

Meliphaga barbata Swainson, Classif. Birds, Vol. II., p. 326, July 1st, 1837: based on Oiseaux Dorés, pl. 57: New South Wales.

Meliornis novæhollandiæ Gray, List Genera Birds, 1st ed., p. 15, 1840: Gould, Handb. Birds Austr., Vol. I., p. 486, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 253, 1884; Ramsay, Tab. List Austr. Birds, p. 12, 1888; Hall, Key Birds Austr., p. 43, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 412, 1901; McClymont, Emu, Vol. II., p. 24, 1902 (Tas.); A. G. Campbell, *ib.*, p. 208, 1903 (King I.); *id.*, *ib.*, Vol. V., p. 144, 1906; McClymont, *ib.*, p. 161; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 59, 1906; Batey, Emu, Vol. VII., p. 9, 1907 (Vic.); Hill, *ib.*, p. 19 (Vic.); Mathews, Handl. Birds Austral., p. 98, 1908; S. A. White, Emu, Vol. VIII., p. 196, 1909; Hall, *ib.*, Vol. IX., p. 129, 1910 (S.A.); Cleland, *ib.*, p. 225 (Food); Ingle, *ib.*, Vol. X., p. 124, 1911 (Vic.); Cleland, *ib.*, Vol. XI., p. 92, 1911 (Food); Fletcher, *ib.*, p. 107 (Tas.); Dove, *ib.*, p. 126 (Tas.); Ashby, *ib.*, p. 254, 1912 (S.A.); S. A. White, *ib.*, Vol. XII., p. 1, 1912 (S.A.); Cleland, *ib.*, p. 17 (Food); Mellor, *ib.*, p. 40 (Kangaroo I.); Dove, *ib.*, p. 49 (Tas.); Mellor and White, *ib.*, p. 163, 1913 (Flinders I.); S. A. White, *ib.*, p. 268 (S.A.); Chandler, *ib.*, Vol. XIII., p. 44 (Vic.); Agnew, *ib.*, p. 96 (Q.); S. A. White, *ib.*, Vol. XIV., p. 143, 1915 (Mallacoota); Purnell, *ib.*, Vol. XV., p. 44 (Vic.); Dove, *ib.*, p. 238, 1916 (Tas.); *id.*, *ib.*, Vol. XVII., p. 225-6, 1918 (Tas.); Le Souëf and Macpherson, *ib.*, Vol. XX., p. 91, 1920 (N.S.W.); Agnew, *ib.*, Vol. XXI., p. 136, 1921 (Q.).



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PURNELLORNIS NIGER
 (WHITE-CHEEKED HONEY-EATER)
 MELIORNIS NOVAEHOLLANDIAE
 (WHITE-BEARDED HONEY-EATER)

WHITE-BEARDED HONEY-EATER.

- Meliphaga longirostris* Gould, Proc. Zool. Soc. (Lond.), 1846. p. 83, Nov. : West Australia (Swan River); *id.*, Birds Austr., pt. xxv. (Vol. IV., pl. 24), Dec. 1st, 1846.
- Meliornis longirostris* Gould, Handb. Birds Austr., Vol. II., p. 488, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 254, 1884; Ramsay, Tab. List Austr. Birds, p. 12, 1888; Hall, Key Birds Austr., p. 43, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 413, 1901; Milligan, Emu, Vol. II., p. 74, 1902 (W.A.); *id.*, *ib.*, Vol. III., pp. 11-18, 1903 (W.A.); Hill, *ib.*, p. 228, 1904 (W.A.); Nicholls, *ib.*, Vol. V., p. 79, 1905 (W.A.); North, Aust. Mus. Spec. Cat., No. 1, Vol. II., p. 63, 1906; Mathews, Handl. Birds Austral., p. 98, 1908; Gibson, Emu, Vol. IX., p. 75, 1909; Whitlock, *ib.*, Vol. X., p. 312, 1911; Orton and Sandland, *ib.*, Vol. XIII., p. 80, 1913; S. A. White, *ib.*, Vol. XX., p. 129, 1921 (W.A.); Alexander, *ib.*, p. 167.
- Meliornis novæhollandiæ* subsp. *halmaturina* A. G. Campbell, Emu, Vol. V., pt. III., p. 140, Jan. 1st, 1906 : Kangaroo Island.
Not *Meliornis (Lichmera) australasiana* subsp. *halmaturina* A. G. Campbell, which is *Lichmera halmaturina* A. G. Campbell, *ib.*, p. 143, Kangaroo Island.
- Meliornis diemenensis* Mathews, Bull. Brit. Orn. Club, Vol. XXV., p. 100, May 12th, 1910 : Tasmania.
- Meliornis novæhollandiæ novæhollandiæ* Mathews, Nov. Zool., Vol. XVII., p. 504, Dec. 1910; *id.*, *ib.*, Vol. XVIII., p. 414, 1912; *id.*, List Birds Austr., p. 284, 1913.
- Meliornis novæhollandiæ assimilis* Mathews, Nov. Zool., Vol. XVIII., p. 415, Jan. 31st, 1912: Olinda, Victoria; *id.*, List Birds Austr., p. 284, 1913; Belcher, Birds Geelong, p. 347, 1914.
- Meliornis novæhollandiæ diemenensis* Mathews, Nov. Zool., Vol. XVII., p. 504, 1910; *id.*, *ib.*, Vol. XVIII., p. 415, Jan. 31st, 1912.
- Meliornis novæhollandiæ subassimilis* Mathews, *ib.* : Mt. Lofty Ranges, South Australia; *id.*, List Birds Austr., p. 284, 1913.
- Meliornis novæhollandiæ longirostris* Mathews, Nov. Zool., Vol. XVIII., p. 415, 1912; *id.*, List Birds Austr., p. 284, 1913.
- Meliornis novæhollandiæ canescens* Mathews, Austral Avian Rec., Vol. I., pt. 4, p. 100, Sept. 18th, 1912; *id.*, List Birds Austr., p. 284, 1913.
- Meliornis subassimilis* S. A. White, Emu, Vol. XII., p. 263, 1913.
- Meliornis novæhollandiæ halmaturinus* Mathews, Austral Av. Rec., Vol. II., pts. 2-3, p. 69, Oct. 23rd, 1913.
- Meliornis novæhollandiæ queenslandicus* Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 38, Feb. 21st, 1923 : Queensland.
- Meliornis novæhollandiæ campbelli* Mathews, *ib.* : Kangaroo Island.
- Meliornis novæhollandiæ intermedius* Mathews, *ib.* : Stirling Ranges, South-west Australia.

DISTRIBUTION. Queensland, New South Wales, Victoria, Tasmania, South and South-west Australia.

Adult male. A tuft of white plumes at the base of the upper mandible and another over the eyes forming a superciliary stripe; head and cheeks intense black; hind-neck ash-brown, streaked with black; mantle black, each feather margined on the sides

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with white; lower back brownish-olive, streaked with black; upper tail-coverts dark olive-brown; two central pairs of tail-feathers dark olive-brown margined towards the base with greenish-yellow; outer pairs of the same colour but with a large spot of white on the inner web at the tip; innermost secondaries dark olive-brown, margined on the outer web with golden-yellow; median secondaries margined on the outer web with white; primaries and outer secondaries dull black, widely margined on the outer web towards the basal half with golden-yellow and narrowly bordered with white on the terminal half; chin black, bordered on the sides with a tuft of white feathers; feathers of the throat very elongated, white, and forming a beard; chest white with a broad mesial stripe of black; sides, flanks and under tail-coverts white, broadly streaked with black; abdomen white with only a few streaks of black. Eyes white, feet and bill black. Total length 160 mm.; culmen 18, wing 83, tail 85, tarsus 23. Figured. Collected at Myponga, South Australia, on the 21st of March, 1912, and is the type of *M. n. myponga*, subsp. nov.

Adult male. Feathers at the base of the fore-head white with black bases; top of the head black; lengthened feathers over the eyes white; lores and sides of the face and cheeks intense black; back of the head and neck dull black; feathers of the upper back and mantle black, margined on the sides with white; lower back and rump deep olive-brown with black shaft-streaks; upper tail-coverts brownish-black; middle pairs of tail-feathers brownish-black, narrowly margined on the outer web with golden-yellow; remainder of the tail brownish-black with a large spot of white on the inner web at the extremity; wing-coverts and innermost secondaries uniform black; primaries and outermost secondaries brownish-black, widely margined on the outer web with golden-yellow; upper throat black, with a large spot of white on either side; lower throat with the elongated feathers white, forming a beard; remainder of the under-surface white, with broad shaft-streaks of black, heaviest on the chest. Eyes white, feet sepia, bill black. Total length 180 mm.; culmen 19, wing 82, tail 80, tarsus 23. Figured. Collected at Olinda, Victoria, on the 17th of April, 1911, and is the type of *M. n. assimilis*.

The sexes are alike.

Nearly adult female. Top of head black; base of fore-head, lores, a line over the eye and along the sides of the crown yellowish-white; ear-coverts black; cheeks yellowish-white; chin and upper throat black with hair-like tips to the feathers; lower throat also black streaked with white; hind-neck, sides of neck, back, rump, and upper tail-coverts dark smoke-brown; upper wing-coverts, first outer primary, and innermost secondaries blackish-brown; remainder of flight-quills fringed with yellow on the outer webs and pale buff margins on the inner ones; tail-feathers blackish-brown tipped with white chiefly on the inner web of the lateral feathers; breast and sides of body greyish-white streaked with dark brown, becoming almost uniform on the abdomen and under tail-coverts; thighs dusky-brown; under wing-coverts and inner margins of quills below pale buff, remainder of quill-lining dark brown; lower aspect of tail similar to its upper-surface. Eyes grey, feet fleshy, bill light brown. Collected at Olinda, Victoria, on the 12th of October, 1912.

Immature male. Fore-part of head, including the lores, sides of face, and throat black, streaked with white on the lores and throat; cheeks black at the base and tipped with white; a broad line of white on each side of the crown; nape, hind-neck, sides of neck, back, and upper tail-coverts smoke-brown with blackish centres to some of the feathers on the interscapular region; wings blackish-brown fringed with yellow and white on the outer webs of the flight-quills and whitish margins to the inner ones; tail dark brown fringed with yellow on some of the feathers and tipped with white on the inner webs; breast black, broadly streaked with white, the dark pattern decreasing and the white increasing on the abdomen and under tail-coverts;

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sides of body dusky; axillaries and under wing-coverts whitish; thighs rust-brown; under-surface of flight-quills dark brown with pale margins; lower aspect of tail similar to its upper-surface. Eyes dark grey, feet and bill black. Collected at Point Lincoln, Eyre's Peninsula, South Australia, on the 23rd of August, 1911.

Nestling. Top of head, middle of back, rump, and upper tail-coverts, and tail dark smoke-brown; upper wing-coverts and flight-quills blackish fringed on the outer webs of the primaries with yellow and with white on the secondaries; throat dark lead-grey; fore-neck white with wide blackish shaft-streaks; sides of body similar; thighs dusky-brown; under-surface of flight-quills dark brown; under tail-coverts grey. Eyes greyish-black, feet pale brown. Collected at Coonalpyn, 90-miles Desert, South Australia, on the 17th of May, 1911.

Eggs. Two to three eggs form the clutch. A clutch of three eggs taken at Rose Bay, Sydney, on the 22nd of January, 1904, is of a pinkish-buff, becoming darker about the larger end. Spotted (chiefly at the larger end) with dark reddish-chestnut, and here and there scattered markings of slaty-grey. Swollen ovals in shape. Surface of shell fine and smooth, and very glossy. 20-21 by 15 mm.

Nest. Cup-shaped, bulky for so small a nest, placed in a bottle-brush or other tree. Composed of dried grass intermixed and lined with the silky parts of seeding plants. Outside measurements, 2 to 3 inches deep by about 4 wide. Inside, 1 to 1½ inches deep by about 2 wide. (Tasmania.)

An open cup-shaped structure, composed of strips of bark, grasses and twigs, and lined inside with soft vegetable matter, usually the brown velvety portions removed from the dry flowering cones of the Bush Honeysuckle or Bottle Brush (*Banksia*), a number of species of which grow on the coast. Dimensions over all: 3½ to 4½ inches across, by 2½ to 4 inches in depth. Egg cavity, 2 to 2½ inches across, by nearly 1½ inches deep.

Breeding-months. July to December or January.

THIS is one of the birds figured in White's "Journal," but no note was given of its habits. Latham gave a technical description apparently from White's MS., as the "Journal" was simultaneously published.

Vigors and Horsfield published Caley's note: "This bird is most frequently met with in trees growing in scrubs, where the different species of *Banksia* are found, the flowers of which I have reason to think afford it a sustenance during winter. In the summer I have shot it when sucking the flowers of *Leptospermum flavescens*. In the scrubs about Paramatta it is very common."

Gould's observations read: "Is one of the most abundant and familiar birds inhabiting the colonies of New South Wales, Tasmania, and South Australia; all the gardens of the settlers are visited by it, and among their shrubs and flowering plants it annually breeds. The belts of *Banksias* growing on sterile, sandy soils, also afford it so congenial an asylum, that I am certainly not wrong in saying that they are never deserted by it, or that the one is a certain accompaniment of the other. The range enjoyed by this species appears to be confined to the south-eastern portions of Australia; it is abundant in the sandy districts of South Australia wherever the *Banksias* abound. In Tasmania it is much more numerous on the northern than on

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the southern portion of the island. It evinces a more decided preference for shrubs and low trees than for those of a larger growth; consequently it is a species particularly subject to the notice of man; nor is it the least attractive of the Australian avifauna; the strikingly-contrasted markings of its plumage, and the beautiful appearance of its golden-edged wings, when passing with its quick jumping flight from shrub to shrub, rendering it a most conspicuous and pleasing object. It has a loud, shrill, liquid, though monotonous note. Its food, which consists of the pollen and juices of flowers, is procured while clinging and creeping among them in every variety of position; it also feeds on fruits and insects. It usually rears two or three broods during the course of the season, which lasts from August to January."

Captain S. A. White has written me: "This bird is well named as the New Holland Honey-eater for it is found over the greater part of the Australian coastal belt. I see little variation in the Queensland, New South Wales, Victorian, South Australian or Kangaroo Island specimens, and the long bill of the West Australian form is doubtful, for some of the South Australian birds have just as long bills. Specimens collected by me in Queensland seem to be consistently slightly smaller and the bill is smaller and finer (more slender) but coloration the same. This is one of our best known species of birds for it is found almost everywhere along our coastal belt and in places very numerous. They prefer localities with dense undergrowth but they are often found in open timbered country. Food chiefly consists of insect life, but they are fond of honey and when the gums are in blossom will be seen moving about amongst the flower-heads. They become very confiding and will take up their abode in the settlers' gardens and are to be seen searching the flowers within a few feet of one for honey and insects; if the blossom be a deep one, too much so for their bills to reach the bottom, they pierce it from the outside near the bottom and thus reach the food within. Their note is a sharp squeaking one and very shrill at times; the alarm note a great chattering sound. They are one of the earliest and the latest breeders, in fact, in some localities they are nesting all through the year. I have found their nests with young here on the Adelaide plains in July and the same in January. They are very fond of catching much of their food in mid air, it being a common sight to see these birds hawking for an hour or more upon the summer evenings. Their flight is swift and at times erratic. If the parent birds are flushed from the nest containing eggs they slip away quietly and almost unobserved, but if there be young in the nest they will attack anything, snapping their bills and making a great chattering. They are very pugnacious in the breeding-season and will attack all birds, large or small, that come near the nest. The nest is a cup-shaped structure built in the

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upright fork of a shrub or bush (once found a suspended nest but this is not usual), generally a thick bush and not more than eight feet from the ground. The nest is constructed of fine twigs, dry grass and rootlets, cobwebs as a binder, lined with thistledown, soft flower-heads, wool, animal fur, such as rabbit or opossum. I have seen many nests not lined containing eggs and young; the young are hatched naked and they leave the nest in from nineteen to twenty-five days."

Mr. J. W. Mellor has written me: "One of the commonest of Honey-eaters in the southern parts of Australia, where it inhabits all kinds of country, but prefers the bush country where honeysuckle and the bottle-brush grows, as its food is obtained from the various flowers that abound in these parts. I have seen these birds in South Australia, Victoria, New South Wales and Southern Queensland, also this or a closely allied variety in Tasmania and the Islands of Bass Straits. At the Reedbeds where I live they are fairly plentiful in the garden and you may see them at any time flitting about in the trees and shrubs; when they are sucking the honey from the blooms they are very pugilistic, and when other Honey-eaters come they dart at them, snapping their beaks and making a harsh grating note of disapproval which soon puts other small birds to flight. On Kangaroo Island they are also very common in all parts where the timber affords shelter and there are plenty of ideal gullies with thick bush in them. The nesting-season is generally from September to December, but I have sometimes seen them breeding during the autumn and winter months, viz., May, June, July, but this is probably due to the dry weather making them breed out of the usual time."

Mr. A. H. Mattingley has written me: "Young born blind and naked, skin of a fleshy colour. Interior of mouth and throat black, edging of rim of mouth pale yellow when three days old."

Mr. E. J. Christian writes: "They are exceedingly fond of the 'Coastal Honeysuckle-tree' which has large, yellow, bushy flowers which contain much nectar and thus attract many honey-loving birds. These birds are great bullies and I have seen them driving birds much larger than themselves out of these trees in order to keep it to themselves."

Hall recorded in connection with the birds of Eyre Peninsula: "Dr. George Horne noticed eighteen young in one tree, with their parents about and feeding them (Wanilla, 14/10/09). Such an occurrence, of the young bunching, I have noticed with the Rock-hopper Penguin in Kerguelen Island. This Honey-eater is the common bird of the Peninsula where our camp was pitched. In the low scrub which extends over a large area, and where birds are not strong in species, this one and *Glycyphila melanops* were numerically strong."

Dove recorded in 1911 from Devonport, Tasmania: "Large numbers of the handsome New Holland (White-bearded) Honey-eaters (*Meliornis*

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novæhollandiæ) have been in this district all the winter. They frequent chiefly the Cape wattles and tree lucernes, both introduced plants, which flower profusely during the cold months, and furnish sustenance to the *Meli-phagidæ*. I would recommend those who have fair-sized gardens to plant these trees round the fences, when they will be provided with entertainment by birds during the 'dead' season. The lively movements of the 'White-beards' as they dash from tree to tree, or hang back downwards under a spike of blossom while engaged in extracting nectar, and their sharp notes, sounding like 'Whiss! whiss!' are everyday sights and sounds here."

Chandler has recorded from the Kow Plains, Victoria: "The notes of the Mallee bird differ from those of the *Meliornis* around Melbourne."

Mr. Tom Carter's notes read: "In your 'Reference List,' 1912, the Long-billed Honey-eater is given as ranging through West Australia. Its chief habitat is the coastal scrubs of the south-west where they occur in great numbers, as about Albany and the Margaret River. The birds are also found about Broome Hill, but not commonly, except on isolated patches of rough scrubby land. With the exception of *mystacalis* (*M. nigra dulciei*) I think these birds are the most active and restless of any species of Honey-eater. They are also usually very wary, and although the scrub may be full of them, and their notes resound all round, they only afford a fleeting glimpse unless a pair have a nest, when they exhibit great concern at close quarters, but are always moving about. I have often noticed when 'chirping' a bird up to me with my lips, some of this species will dash close up but instantly retreat on catching sight of the intruder, whereas most birds, when called up, usually remain a short time. About Broome Hill, the main breeding months are July, August, September. The nests are usually built in some fairly thick bush (those of a thick or prickly nature being preferred) from three to six feet above the ground. The material is rather rougher than in other species, some small twigs, pieces of grass, bark or rushes. Two eggs are the usual clutch. July 15/06. Several nests with two eggs or small young. Aug. 9/10. Nest, two eggs in white gum suckers 5 feet off ground. July 23/11. Young in nest. Sept. 22/12. Nest, two fresh eggs."

Gould's notes read: "The *M. longirostris*, like the other species of the group, is very pugnacious, and when fighting utters a rapidly repeated chirrup, very much resembling that of the European Sparrow. It is a very early breeder, commencing in the first days of July and continuing as late as the last week in November."

From the Margaret River district, South-west Australia, Milligan has recorded: "This is one of the most common birds on the south-west coast—not only in the brook thickets but also in the stinkwoods, and in fact all along

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the coast they were in great numbers. Their vivacious, restless movements, combined with their pugnacity towards other birds, and their querulous voices impart much life to the landscape. I saw one nest which contained two chocolate-haired young ones. I saw very many full-fledged young ones when pushing through the thickets," and later recorded it as "Common in flowering thickets" in the Stirling Ranges.

Hill, writing from Guildford, West Australia, observed: "Common wherever the adenanthos grows; have seen it nowhere else; shy at all times. When nesting it may be observed without much difficulty, as it remains close by the nest, though it shows great agitation if this is approached; at other times it is hard to get even a glimpse of the bird."

Gibson, in his list of birds observed between Kalgoorlie and Eucla, wrote: "Fairly common, except in the salmon-barked gum country and on the plains; very common amongst the coastal sandhills."

Captain S. A. White, after his visit to Western Australia, wrote regarding the Margaret River district: "A plentiful bird, especially along the coast line. The writer is doubtful of this being a good species, for many birds in South Australia have just as long a bill."

Whitlock from the Stirling Ranges recorded: "In the ranges proper *M. longirostris* was rare and I only obtained one nest. As usual this was near water. In the swamps of the lower lands, I, however, found the species more plentiful."

From the Perth district Alexander has noted: "Resident. Common, especially amongst the bushes on the coastal hills."

Orton and Sandland in their birds of Moora include this species as: "Common round tea-tree swamps further west," and as Moore is 108 miles northwards from Perth this may be the northern limit.

Goold described the Western form as a distinct species, explaining: "Although the *Meliornis longirostris* and *M. novæhollandiæ* are very similar, they will on comparison prove to be specifically distinct; they are, in fact, beautiful representatives of each other on the opposite sides of the great Australian continent, the *M. longirostris* inhabiting the western, and the *M. novæhollandiæ* being spread over the eastern portion of the country, and it would be a matter of some interest to know at what degree of longitude the two species inosculate. Several points of difference are found to exist in the two species, the most material of which are in the shape and length of the bill, and in the size of the white mark on the fore-part of the cheeks; the *M. longirostris*, as its name implies, has the bill much more lengthened and comparatively stouter than that of its near ally, and it moreover has the white patch on the face much less defined and blended to a greater extent with the

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neighbouring black colouring; in the size of the body the two species are very much alike."

This has been accepted as a species by some, as a subspecies or variety by other, writers since that time.

Discussing the birds of Kangaroo Island, A. G. Campbell wrote: "Concerning the nomenclature for these intermediate or island forms it is difficult to prescribe. I would suggest that the specific name *halmaturina* . . . be applied to *Meliornis (Lichmera) australasiana*; and, should subsequent research and more material warrant it, that the same name be also sub-specifically applied to *Meliornis novæhollandiæ*." As both are here grouped in the same genus the last named one must be invalid and I have renamed it. Peculiarly enough on p. 143 Campbell proposed "*Lichmera halmaturina* new subspecies," and gave no name to *Meliornis novæhollandiæ*, writing simply (? variety) with the explanation: "This showy bird was plentiful in all the scrubby country and could often be seen perched on the flower stalk of some grass tree extracting nectar from the upright column. Comparing it with specimens from Victoria showed it to be little different in plumage, excepting that the chest striations were jet black, like the head. But from its longer and stronger bill it brings the Western Australian *M. longirostris* very close to its eastern congener. The bill of the former measures .78 to .8 in., of the latter .7 to .72 in., and of Kangaroo Island specimens .75 to .78 in."

A little later I separated the Tasmanian bird with the name

Meliornis diemenensis

and then in the preparation of my "Reference List" in 1912 I subordinated this and Gould's *M. longirostris* to subspecific rank, omitting the Kangaroo Island form of which I had no specimens and adding two new subspecies thus:

Meliornis novæhollandiæ novæhollandiæ (Latham).

New South Wales.

Meliornis novæhollandiæ assimilis Mathews.

"Differs from *M. n. novæhollandiæ* in its darker coloration on the head and with fewer stripes on the belly. (Olinda, Victoria)."

Victoria.

Meliornis novæhollandiæ diemenensis Mathews.

Tasmania.

Meliornis novæhollandiæ subassimilis Mathews.

"Differs from *M. n. assimilis* in its larger size and darker coloration. Mt. Lofty Ranges, South Australia."

South Australia.

Meliornis novæhollandiæ longirostris (Gould).

West Australia.

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The species had been described by Latham under the name *Certhia novæhollandiæ*, and was figured in *White's Journal of a Voyage to New South Wales*. The figure was at once recognised, but it then turned out that Latham's *Sylvia canescens*, which had not been identified, was also given to this bird. Latham took his description "from the papers of Mr. Anderson" from Van Diemen's Land, and these papers are still preserved in the British Museum (Natural History), where I referred to them and published the result in the *Austral Avian Record*, Vol. I., p. 100, 1912, Latham's name replacing my own *diemenensis* for the Tasmanian subspecies.

I also advanced A. G. Campbell's tentative subspecies to recognition but overlooked his duplication of his subspecific name.

Thus six subspecies were admitted in my "1913 List," but I must now admit at least nine, thus :

Meliornis novæhollandiæ novæhollandiæ (Latham).
New South Wales.

Meliornis novæhollandiæ queenslandicus Mathews.
Smaller and with a small bill as pointed out by Captain S. A. White.
Queensland.

Meliornis novæhollandiæ assimilis Mathews.
Victoria.

Meliornis novæhollandiæ canescens (Latham).
Tasmania.

Meliornis novæhollandiæ subassimilis Mathews.
South Australia.

Meliornis novæhollandiæ campbelli Mathews.
Differs in its longer bill than the South Australian bird.
Kangaroo Island.

This is A. G. Campbell's *Meliornis novæhollandiæ* subsp. *halmaturina* which is preoccupied by *Meliornis (Lichmera) australasiana* subsp. *halmaturina*.
Meliornis novæhollandiæ intermedius.

Differs from *M. n. longirostris* (from the Swan River district) in its longer bill, paler coloration, etc.

Stirling Ranges, South-west Australia.
Meliornis novæhollandiæ longirostris (Gould).
West Australia (Swan River district).

It is possible that the Mallee (Victorian) bird is separable, while the Eyre Peninsula bird should also be examined; and I have described and figured the Myponga bird as a new subspecies.

GENUS—PURNELLORNIS.

PURNELLORNIS Mathews, Austral Avian Record,
Vol. II., pt. 5, p. 112, Sept. 24th, 1914. Type
(by original designation) *Certhia nigra* Bechstein.

I DIAGNOSED this genus thus: "Differs from *Meliornis* Gray in having much smaller, weaker feet and a thick tuft of feathers below the eye, acting as ear-coverts, but which can be raised in a fan-like manner."

This development of the ear-coverts is accompanied by loss of the "beard" noted in the previous genus to which this one is very closely allied. It is of interest that:

Bonaparte in "Notes Ornith. Collect. Delattre, p. 55, 1854," says: "*Meliornis mystacalis* Gould, pourrait former un genre nouveau." Sixty years later I named it.

PURNELLORNIS NIGER.

WHITE-CHEEKED HONEY-EATER.

(PLATE 544.)

CERTHIA NIGRA Bechstein, Kurze Uebersicht Vögel, p. 196, (pref. dated April 12th, 1810)
1811: New South Wales.

Certhia nigra Bechstein, Kurze Uebersicht Vögel, p. 196, 1811.

New Holland Creeper (female) White, Journal Voy. New South Wales. pl. opp. p. 297,
1790.

Melithreptus ater Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XIV., p. 327, Sept. 13th,
1817: New South Wales, based on L'Héorotaire noir Vieillot Ois. Dorés, Vol. II.,
pl. 71, as is also *Certhia nigra* Bechstein above.

Meliphaga sericea Gould, Synops. Birds Austr., pt. I., pl. (16), Jan. 1st, 1837: New South
Wales; *id.*, Proc. Zool. Soc. (Lond.), 1836, p. 144, April 1837; *id.*, Birds Austr.,
pt. x. (Vol. IV., pl. 25), March 1st, 1843.

Meliphaga sericeola Gould, Synops. Birds Austr., pt. iv., App., p. 5, April 1st, 1838: New
South Wales (♂).

Meliornis sericea Cabanis, Mus. Heine., Vol. I., p. 117, 1851; Gould, Handb. Birds Austral.,
Vol. I., p. 490, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Gadow,
Cat. Birds Brit. Mus., Vol. IX., p. 254, 1884; Ramsay, Tab. List Austr. Birds,
p. 12, 1888; Hall, Key Birds Austr., p. 44, 1899; Campbell, Nests and Eggs Austr.
Birds, Vol. I., p. 414, 1901; Milligan, Emu, Vol. III., p. 18, 1903 (W.A.); North,
Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 65, 1906; Mathews, Handl. Birds Austral.,
p. 98, 1908; Cleland, Emu, Vol. XI., p. 92, 1911 (Food); S. A. White, *ib.*, Vol.
XIX., p. 226, 1920 (Q.).

Meliphaga mystacalis Gould, Proc. Zool. Soc. (Lond.), 1840, p. 161, July 1841: West
Australia (Perth); *id.*, Birds Austr., pt. xxx. (Vol. IV., pl. 26), March 1st, 1848.

Not *Meliphaga mystacalis* Temminck et Laugier, Planch. Color. d'Ois. 56 livr. (Vol. 3, pl. 335), March,
1825.

Meliornis mystacalis Cabanis, Mus. Heine., Vol. I., p. 117, 1851; Gould, Handb. Birds
Austr., Vol. I., p. 491, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188,
1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 255, 1884; Ramsay, Tab. List
Austr. Birds, p. 12, 1888; Hall, Key Birds Austr., p. 44, 1899; Campbell, Nests and
Eggs Austr. Birds, Vol. I., p. 415, 1901; Milligan, Emu, Vol. II., p. 74, 1902 (W.A.);
id., *ib.*, Vol. III., p. 18, 1903; Hill, *ib.*, p. 107; North, Austr. Mus. Spec. Cat., No. 1,
Vol. II., p. 67, 1906; Mathews, Handl. Birds Austral., p. 98, 1908; Whitlock,

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- Emu, Vol. X., p. 312, 1911; Ashby, *ib.*, Vol. XX., p. 136, 1920 (W.A.); Alexander, *ib.*, p. 167.
- Meliphaga gouldii* Schlegel, De Dierentuin, p. 125, 1872: new name for *M. mystacalis* Gould, not Temminek.
- Meliornis nigra dulciei* Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 96, May 26th, 1911: Albany, South-west Australia; *id.*, Nov. Zool., Vol. XVIII., p. 416, Jan. 31st, 1912.
- Meliornis nigra nigra* Mathews, *ib.*, p. 415.
- Meliornis nigra herbertoni* Mathews, *ib.*: Herberton Range, Queensland; *id.*, South Austr. Orn., Vol. 2, p. 60, 1915.
- Meliornis nigra inexpectata* Mathews, Nov. Zool., Vol. XVIII., p. 416, Jan. 31st, 1912: Stirling Ranges, West Australia.
- Meliornis niger niger* Mathews, List Birds Austr., p. 284, 1913.
- Meliornis niger herbertoni* Mathews, *ib.*, p. 285.
- Meliornis niger dulciei* Mathews, *ib.*
- Meliornis niger inexpectatus* Mathews, *ib.*
- Purnellornis niger niger* Mathews, Austral Av. Rec., Vol. II., pt. 5, p. 112, 1914.
- Purnellornis niger herbertoni* Mathews, *ib.*
- Purnellornis niger dulciei* Mathews, *ib.*
- Purnellornis niger inexpectatus* Mathews, *ib.*
- Purnellornis niger gouldii* Mathews, *ib.*, Vol. III., pt. 5, p. 127, Dec. 28th, 1917.
- Meliornis niger gouldii* Mathews, *ib.*
- Meliornis herbertoni* Campbell and Barnard, Emu, Vol. XVII., p. 34, 1917 (N.Q.).

DISTRIBUTION. Eastern Australia from the Herberton Range, North Queensland, through Victoria and South Australia to South-west Australia as far north as the Perth district.

Adult male. Feathers of the top of the head black, bordered on the sides by a broad band of white forming a supercilium; sides of the head black, back of the neck and mantle black, each feather widely margined with white; lower back, rump and upper tail-coverts olive-brown, with a mesial streak of blackish-brown; tail blackish-brown widely margined on the basal two-thirds of the outer web with bright greenish-yellow; innermost secondaries uniform ash-brown; primaries and outermost secondaries ash-brown, widely margined on the outer web with bright greenish-yellow; chin, throat and fore-neck intense black; cheeks ornamented with long white plumes, forming whiskers; chest, remainder of the under-parts white, heavily streaked with black; middle of the belly white; under-surface of wing ash-brown, with the inner webs isabelline. Eyes dark brown, feet and bill black. Total length 180 mm.; culmen 25, wing 75, tail 74, tarsus 23. Figured. Collected at Mt. Donnelly, Stirling Ranges, South-west Australia, on the 14th of October, 1910, and is the type of *M. n. inexpectata*.

The sexes are alike.

Adult male. Lores, top of the head and feathers round the eye intense black; feathers at the base of the fore-head and over the eye white with black bases and middles; feathers at the base of the neck and on the mantle dull black, each feather margined on the sides with white, producing a streaked appearance; rump and upper tail-coverts brownish-olive with blackish centres; tail-feathers blackish-brown,

WHITE-CHEEKED HONEY-EATER.

margined on the outer web with yellowish-olive; wing-coverts and outermost secondaries uniform brownish-black; primaries blackish-brown, widely margined on the outer web with golden yellow; feathers at the base of the culmen and the entire throat deep black; an elongated tuft of pure white feathers on the sides of the face; chest, breast, sides and flanks white with heavy black shaft-streaks; axillaries and under wing-coverts and inner margins of flight-feathers isabelline-buff. Total length 170 mm.; culmen 19, wing 79, tail 71, tarsus 22. Figured. Collected at Botany, New South Wales, in June, 1890.

Nearly adult male. Top of head, sides of face, chin, throat, and fore-neck black; a supra-loral streak of white which extends to above the eye and along the sides of the crown; hinder cheeks white; hind-neck, sides of neck, back, rump, upper tail-coverts, scapulars, and upper wing-coverts dark smoke-brown with black feathers and pale streaks on the intercapillary region; bastard-wing, greater coverts, and flight-quills blackish fringed with yellow on the outer webs of the last and buffy-white on the inner ones; tail also blackish fringed with yellow on the outer webs and pale tips to the feathers; breast white streaked with black; abdomen, sides of body, under tail-coverts, axillaries, and under wing-coverts whitish with dusky bases to the feathers on the sides of the body; thighs rust-brown; under-surface of flight-quills dark brown fringed with buffy-white; lower aspect of tail blackish tipped with white. Eyes dark brown, feet dark grey, bill black. Collected at Stradbroke Island, Moreton Bay, Queensland, on the 27th of September, 1919.

Eggs. Two eggs generally form the clutch. A clutch of two eggs taken at Copmanhurst, Upper Clarence River, New South Wales, on the 9th of September, 1897, is of a very pale buff ground-colour, well marked at the larger end (forming a zone) with spots of reddish-brown and a few of purplish-grey. Swollen ovals in shape. Surface of shell fine and smooth and slightly glossy. 18 by 14 mm.

Nest. A cup-shaped structure composed chiefly of strips of bark and dried grasses, lined with a soft bed of vegetable substance, often the brown velvety portions removed from the cones of the *Banksia*. Measurements over all: 3 to 3½ inches across, by 3 to 3¼ inches in depth.

Breeding-months. July to end of November.

THIS species was figured by White as the female of the preceding and was again figured by Vieillot.

Vigors and Horsfield, wrote: "M. Vieillot's *Heorotaire noir* (pl. 71), which seems accurately to agree with the female of this species figured in *White's Journal*, is considered by that gentleman as a distinct species. This is a point which can only be decided on the spot; and Mr. White's observations must have great weight until they are proved to be incorrect. We mention the circumstances in order that those voyagers, who may have opportunities of making observations on the subject, may pay attention to it. We suspect that the investigation may lead to the discovery of many distinct species in the group, in which a great similarity of colouring seems to prevail."

Before he went to Australia Gould named the male and female as two distinct species, and after his return wrote: "The White-checked Honey-eater is an inhabitant of New South Wales, and certainly proceeds as far to the eastward as Moreton Bay; but the birds inhabiting the country to the

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northward of this being comparatively unknown, it is impossible to say how far its range may extend in that direction. It has not been discovered in Tasmania or South Australia. It differs materially in its habits and disposition from the *M. novæhollandiæ*, being less exclusively confined to the brushes, and affecting localities of a more open character. I observed it to be tolerably abundant in the Illawarra district, particularly among the shrubs surrounding the open glades of the forest; it is also common at Botany Bay and on most parts of the sea-coast between that place and the River Clarence; but I never met with it during any of my excursions into the interior of the country. Unlike its near ally, it is a remarkably shy species; so much so that I had much difficulty in getting within gunshot of it. When perched on the trees it is a most showy bird, its white cheek-feathers and contrasted tints of colouring rendering it very conspicuous."

Under the name *Meliphaga mystacalis* Gould described this Western form as a distinct species, observing, "is a native of Western Australia, in which country it beautifully represents the *M. sericea* of New South Wales. It is abundant in the vicinity of Perth and Fremantle, and is sparingly dispersed over many other districts of the Swan River colony; according to Gilbert it is remarkably shy, and only found in the most secluded places in the bush, or on the summits of the limestone hills running parallel with the beach; it generally feeds on the topmost branches of the *Banksiæ*, and is very pugnacious, defending its young from intruders with the most determined courage. Its flight is very varied, and is occasionally characterized by a great degree of rapidity; during the season of incubation it frequently rises above its nest in a perpendicular direction, and, having attained a considerable height, suddenly closes its wings and descends abruptly until it reaches the top of the scrub, when the wings are again expanded, and it flies horizontally for a few yards, perches, and then utters its peculiar sharp, chirping note; it also occasionally hovers over small trees, and captures insects after the manner of the Fly-catchers. It is a very early breeder, young birds ready to leave the nest having been found on the 8th of August; it has also been met with breeding as late as November; it doubtless, therefore, produces more than one brood in the course of the season."

Milligan wrote from the Margaret River district: "These were numerous, but principally in the thorny dryandras on the limestone hills. Their peculiar weird notes always betrayed their whereabouts," and from the Stirling Ranges "Not common."

Alexander has recorded "that at the present time in the Perth district it is resident but not nearly so plentiful as the preceding (*M. novæhollandiæ*), but found in various localities about Perth and Fremantle."

WHITE-CHEEKED HONEY-EATER.

Mr. Tom Carter has written me: "The Moustached Honey-eater is given in your 'Reference List' 1912, as ranging through West Australia. I believe that like *M. n. longirostris* it is a south-western form only. My experience is that it is nowhere abundant, very local in its distribution and *always* excessively wild and wary. For many years I have known of two very limited patches of country near Albany where a few pairs could almost always be seen. Both were near the coast, and one of them an almost precipitous rocky limestone bluff overhanging the sea. A few clumps of very dense stiff bush afforded the birds cover there. They have a peculiar harsh note, totally unlike that of any other Honey-eater, and when once known it cannot be mistaken. On July 6th, 1908, I shot a female on a scrubby sand-plain a few miles east of Broome Hill. It had building (nesting) material in its beak. This was the only specimen ever seen in that locality (probably it was *M. n. inexpectatus*). A few birds were also seen not far from Perth, West Australia."

Hill wrote from Brookton, West Australia: "A shy bird. Found only in the densest scrubs on the gravel ridges, where it is very abundant, and its cry is continually to be heard. Now and then one can be seen as it mounts to the top of a bush for a moment, but it instantly vanishes on perceiving the intruder, no matter how still he remains. The skin of a Moustached Honey-eater which I shot was loose, and could be taken up in the fingers like that of a pug-dog."

Whitlock's notes from the Stirling Ranges read: "Was by no means uncommon around Donnelly Peak. It was one of the first birds to attract my attention on arrival in the ranges. A favourite haunt was a very steep hillside thickly clothed with dwarf *Banksia* and other shrubs. Here I found nests with young, and also young on the wing, early in September. This hill was in a sheltered situation and faced the north. On the sand-plain below I obtained several nests with eggs a little later. All the nests were low down. They were rather loosely constructed of dried grass stems and lined with vegetable down. The eggs varied even in the same nest. I did not find the Moustached Honey-eater a close sitter."

So little has been written about the habits of this species that it is disappointing to read Campbell and Barnard's account from Rockingham Bay as follows: "This showy species, with golden splashed wings, was one of the surprises of the tableland. It was fairly common amongst the red-flowering bottle-brush trees (*Callistemon*) that embowered Kirrama Creek. A nest was observed building down in the centre of a tuft of reeds surrounded by water, but the bird had not laid when we left the district. The Herberton variety differs from the southern White-checked Honey-eater by its smaller size and brighter colouring. It is strange Broadbent neglected to record the

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bird for this district, because there are several skins of his collecting in the Queensland Museum."

After Gould had described the Eastern form of this species under two names he allotted a preoccupied name to the Western form and later explained that any alteration would rather tend to produce confusion than otherwise. Many years later I made the unavoidable alteration, but recently found that the amendment had been made many years ago but overlooked or ignored, so that Gould's action in *not* making the alteration at the first opportunity produced the confusion he tried to avoid. Further, before he named the species twice it had received two names, so that in this particular species Gould gave three names, none of which can be used. When I was preparing my "Reference List" I noted that the species name must be altered and also that the name of the Western form must be changed. I also regarded the latter as of subspecific rank only and wrongly selected Albany as the type locality, whereas it should have been Perth, as shown by Gould himself in his later writings.

I then admitted four subspecies, thus:

Meliornis nigra nigra (Bechstein).

New South Wales, Victoria.

Meliornis nigra herbertoni Mathews.

"Differs from *M. n. nigra* in its slightly smaller size, and in having the ear-patch of white feathers elongate oval with a square cut end. The shape of this ear-patch in the typical form is subovate; in *M. n. dulciei* it is lanceolate. Herberton Range, Queensland."

North Queensland.

Meliornis nigra dulciei Mathews.

West Australia (Albany).

Meliornis nigra inexpectata Mathews.

"Differs from *M. n. dulciei* in its extremely long bill. Stirling Ranges, West Australia."

West Australia (Stirling Ranges).

These were unchanged in my 1913 "List," but since then I have adopted the genus name *Purnellornis*, and here found Schlegel's name *M. gouldii* for Gould's *M. mystacalis*, and noted that Perth is the correct type locality of this form.

These changes will make the names read:

<i>Purnellornis niger niger</i> (Bechstein)	N.S.W.
<i>Purnellornis niger herbertoni</i> (Mathews)	Herberton.
<i>Purnellornis niger gouldii</i> (Schlegel)	Perth.
<i>Purnellornis niger inexpectatus</i> (Mathews)	Stirling Ranges.
<i>Purnellornis niger dulciei</i> (Mathews)	Albany.

GENUS—MANORINA.

MANORINA Vieillot, Nouv. Diet. d'Hist. Nat.,
Vol. XIX., p. 236, May 30th, 1818. Type
(by original designation) *Manorina viridis* =
Turdus melanophrys Latham.

Also spelt—

Manorhina Wagler, Syst. Avium gen. Manorhina, 1827.

Manorrhina Reichenb., Handb. spec. Ornith., Abth. II., p. 111, 1852.

MEDIUM Honey-eaters with short, stout, straight bills, long wings, long tail and short stout legs and feet.

The bill is short and stout, less than the length of the head, strongly laterally compressed with little basal expansion, culmen well arched, tip sharp and slightly downcurved, posteriorly notched, lateral edges straight; the under mandible is stout, the interramal space long and narrow and fully feathered, about half the length of the bill, the gonys slightly angulate; depth of the bill at the base more than the breadth at the base; the nostrils appear as pervious linear slits rather slanting in long indistinct nasal groove which extends about half the length of the bill, but the frontal feathering approaches nearly half-way on to the groove; there are no nasal bristles and the rictal bristles are few and small.

The wing is long with the fourth and fifth primaries subequal and longest; the sixth short and the seventh shorter but longer than the third, while the second is scarcely longer than the secondaries; the first primary is short but is more than half the length of the second, but less than one-third the length of the fourth primary.

The tail is long and rounded, the feathers broad.

The legs are short and stout, the front of the tarsus scutellate, but the five scutes fusing so as sometimes to appear booted; the hind aspect bilaminar; the feet are strong, the hind-toe very stout and longest, the middle toe alone not longer than the inner toe and claw which equals the outer toe and claw; the claws short and curved.

General coloration green, with a small bare eye-space.

Order PASSERIFORMES.

Family MELITHREPTIDÆ.

No. 689.

MANORINA MELANOPHRYS.

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(PLATE 545.)

Turdus melanophrys Latham, Index Ornith. Suppl., p. XLII., (after May 30th) 1801:
New South Wales, based on Lambert drawing (Watling No. 149).

Turdus melanophrys Latham, Index Ornith. Suppl., p. XLII., 1801.

Black-browed Thr(ush) Latham, Gen. Synop. Birds, Suppl. II., p. 185, 1801.

Manorina viridis Vieillot, Nouv. Dict. d'Hist. Nat. (nouv. ed.). Vol. XIX., p. 236, May 30th,
1818: New South Wales.

Merops (?) eupogon Lichtenstein, Verzeichn. ausgest. Säugethieren und Vögeln Zool. Mus.
Berlin, p. 10 (pref. June 1818): new name for *Turdus melanophrys* Latham.

Cossyphus olivaceus Dumont, Dict. Sci. Nat. (Levrault), Vol. XXIX., p. 268, Dec. 27th,
1823: New South Wales.

Myzantha flavirostris Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 319,
Feb. 17th, 1827: New South Wales.

Manorhina viridis Wagler, Syst. Av. Manorhina, sp. 2, (Oct.) 1827.

Philedon eupogon "Ill." Wagler, *ib.* (in synonymy of *viridis* above).

Manorhina melanophrys Gray, Annals & Mag. Nat. Hist., Vol. XI., p. 192, 1843; Gould,
Handb. Birds Austr., Vol. I., p. 579, 1865; Ramsay, Proc. Linn. Soc. N.S.W.,
Vol. II., p. 191, 1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 259, 1884;
Ramsay, Tab. List Austr. Birds, p. 14, 1888; Hall, Key Birds Austr., p. 44, 1899;
Campbell, Nest and Eggs Austr. Birds, Vol. I., p. 416, 1901; North, Austr. Mus.
Spec. Cat., No. 1, Vol. II., p. 197, 1907; Batey, Emu, Vol. VII., p. 9, 1907 (Vic.);
Mathews, Handl. Birds Austral., p. 98, 1908; Wilson, Emu, Vol. IX., p. 234, 1910
(Vic.); Batey, *ib.*, p. 242 (Vic.); Ingle, *ib.*, Vol. X., p. 124, 1910 (Vic.); Jackson,
ib., Vol. XIII., p. 213, 1914 (N.S.W.); S. A. White, *ib.*, Vol. XIV., p. 143, 1915
(Mallacoota); H. L. White, *ib.*, Vol. XV., p. 259, 1916 (N.S.W.); Wolstenholme
and Sutton, *ib.*, Vol. XXIII., p. 67, 1923.

Myzantha melanophrys Gould, Birds Austr., pt. xxii. (Vol. IV., pl. 80), March 1st, 1846.

Manorina melanophrys melanophrys Mathews, Nov. Zool., Vol. XVIII., p. 416, 1912; *id.*,
List Birds Austr., p. 285, 1913.



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MANORINA MELANOPHYYS
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Manorina melanophrys yarra Mathews, Nov. Zool., Vol. XVIII., p. 416, Jan. 31st, 1912 :
(Beaconsfield) Victoria; *id.*, Austr. Av. Rec., Vol. I., p. 62, 1912 (Eggs); *id.*,
List Birds Austr., p. 285, 1913.

DISTRIBUTION. New South Wales, Victoria.

Adult female. Top of the head olive-green shaded with blackish; lores black tipped with greenish-yellow, a large spot of golden-yellow in front of and below the eye; remainder of the upper-parts dark olive-green, lighter on the rump and upper tail-coverts; wing-coverts dull grey; primaries and secondaries ash-brown, with the outer web dark olive-green; chin and throat dull greenish-yellow with a narrow streak of brownish-black forming a well-marked malar streak; remainder of the under-surface of the body dull yellowish-green, brightest on the middle of the belly. Eyes dusky, bill, feet and legs yellow. Total length 175 mm.; culmen 12, wing 92, tail 80, tarsus 24. Figured. Collected on the Tweed River, Northern New South Wales, on the 16th of August, 1912, and is the type of *M. m tweedi* subsp. nov.

The sexes are alike.

Adult. Lores black tipped with greenish-yellow; a large spot of golden-yellow in front of and below the eye; top of the head olive-green, slightly shaded with dusky; back of the neck and mantle dark olive-green, lighter on the rump and upper tail-coverts; tail dull bronze-green; wing-coverts blackish-grey; primaries and secondaries ash-brown, with the outer web dark olive-green; outer primaries margined on the outer web with dark grey; chin and throat dull greenish-yellow, bordered on each side by a malar streak of brownish-black; remainder of the under-surface dull yellowish-green, brightest on the middle of the belly; under wing-coverts dark grey, under aspect of primary-quills ash-grey. Total length 190 mm.; culmen 12, wing 92, tail 83, tarsus 23. Figured. Collected at Beaconsfield, Victoria, on the 26th of May, 1907, and is the type of *M. m. yarra*.

Immature male. Top of head, sides of face, and nape blackish; back, wings and tail bronze-green; bastard-wing, primary-coverts, and inner webs of flight-quills blackish; throat dark lead-grey; breast, abdomen, sides of body, and under tail-coverts citron-yellow; under-surface of flight-quills dark brown; lower aspect of tail similar to its upper-surface but paler. Eyes brown, feet and bill yellow. Collected at Beaconsfield, Victoria, on the 1st of May, 1909.

Nestling. General colour of the upper-surface including the top of the head, sides of face, back, wings and tail, dusky soot-black; outer webs of flight-quills and tail dark bronze-green; throat blackish; under-surface for the most part dusky bronze-green, becoming paler and inclining to yellow on the lower abdomen and under tail-coverts. Bill pale yellow, bare skin above eye greenish, behind eye flesh-colour. Eyes greenish-brown, feet pale yellow. Collected at Beaconsfield, Victoria, on the 12th of June, 1909.

Eggs. Two to three eggs form the clutch, though two usually. A clutch of two eggs taken near Tyringham, 60 miles south-west of Grafton, New South Wales, on the 1st of October, 1900, is of a beautiful rich flesh-colour, spotted, chiefly at the larger end, with reddish-brown, purplish-brown, and purplish-grey. Lengthened ovals in shape. Surface of shell fine and rather glossy. 23-24 by 16 mm.

Nest. A cup-shaped structure, composed of grass, thin strips of bark and twigs, etc., well matted together with cobwebs, etc., and suspended by the rim from the forked limb of a small tree or bush; frequently the nest is built amongst ferns, and placed near the ground. Lined with thin roots and grass, and the bed of the

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nest is often padded with very soft vegetable matter. Dimensions over all: $3\frac{1}{2}$ to $4\frac{1}{4}$ inches across, by 2 to $2\frac{1}{2}$ inches in depth. Sometimes the nest is placed within about one foot of the ground, though more often it is built in a small bush about 5 or 6 feet from the ground.

Breeding-months. May or June to November, and in some years later.

THIS fine species was named by Latham from "a drawing of Mr. Lambert," but no notes were given regarding its habits; but when Sharpe reported upon the Watling drawings he gave Watling's note: "The tongue is short and very brushy. Native name *Dill-ring*."

Vigors and Horsfield did not recognise Latham's description, and when they met with a specimen amongst the Australian birds in the collection of the Linnean Society they described it as a new species, quoting Caley's observations: "*Dell-bird* or *Bell-bird*. So called by the colonists. It is an inhabitant of brushes, where its disagreeable noise (disagreeable at least to me) may be continually heard: but nowhere more so than on going up the harbour to Paramatta, when a little above the falls."

Gould's account is most complete as follows: "The present bird evinces a decided preference for, and appears to be strictly confined to dense and thick brushes, particularly such as are of a humid and swampy nature, and with the foliage of which the peculiar tint of its plumage closely assimilates. I frequently met with it in companies of from ten to forty, and occasionally still greater numbers were seen disporting among the leafy branches in search of insects and displaying many varied actions, at one time clinging to and hanging down from the branches by one leg, and at another prying beneath the leaves, or flying with outspread wings and tail from tree to tree, and giving utterance to a peculiar garrulous note totally different in sound from the faint monotonous tinkle usually uttered, which has been justly compared to the sound of distant sheep-bells, and which, when poured forth by a hundred throats from various parts of the forest, has a most singular effect. The same appellation of Bell-bird having been given by the colonists of Swan River to a species inhabiting that part of Australia, I must here warn my readers against considering them identical, by informing them that the two birds are not only specifically but generically distinct. This bird has not as yet been observed out of New South Wales, where its peculiar province is the brushes, and if it departs from those which stretch along the coast from Port Philip to Moreton Bay, I believe it will only be found in those which clothe the sides of the higher hills, such as the Liverpool Range and others of a similar character. Like the *Myzanthæ* it is of a prying and inquisitive disposition, and the whole troop may be easily brought within the range of observation by uttering any kind of harsh squeaking note, when they will descend to ascertain the

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cause and evince the utmost curiosity. Its flight is of the same skimming motionless character as that of the Garrulous Honey-eater; and upon some given signal the whole flock, or the greater portion of it, fly off simultaneously and collect on some neighbouring branch in a cluster. The sexes are precisely alike in plumage, and the young soon attain the colouring of the adult."

Captain S. A. White has written: "This bird is restricted to certain heavily timbered localities in New South Wales and Victoria, where they mostly keep to the tops of the trees, whence their beautiful, musical, ringing notes echo over the forest land. They seem to like company and move about in fairly large colonies. Stomach contents revealed insects, a few seeds and nectar from eucalypts."

Mr. J. W. Mellor's notes read: "The Bell-bird, as it is called, is tolerably numerous in certain parts of Victoria and New South Wales. Its note is a pleasant little 'ting, ting, ting,' which reminds one very much of the tinkling of a little silver bell, and when beneath the tree where the bird is calling it is often hard to detect as the colour of the bird so harmonizes with the foliage, and the call is somewhat ventriloquial, that the observer is puzzled to know just where the bird is located: however, they keep up the notes with only a minute or so between so that it is eventually discovered, often quite close to the observer. They live mostly about the rivers and swampy flats near by, and when a number of these birds are all 'ting-tinging' in a small patch of trees, the effect is very peculiar indeed."

Dr. Cleland has written me: "I was lucky enough to be directed to a grove on the Kurrajong Heights, New South Wales, where this bird was common. They were flying amongst the leaves and branches of some tall gums, tinkling their monosyllabic chimes, which are indeed most pretty to hear when many birds are gathered together. It is like being in a fairy wood, where, instead of the forests clapping their hands, green-hued fays amongst the leaves ring the chimes of the elfin world. Each note is simple, but there are occasional notes of a higher or deeper pitch that prevent the ordinary tone from becoming monotonous. Moreover, may occasionally be heard, a sound not unlike that uttered by the *Platycerci* just before taking flight. I had been watching these birds for a few minutes when it struck me how closely they resembled in their flight and actions the soldier bird, *Myzantha garrula*. They have the same jerky movement on flying; the restlessness and the habit of several of them getting in a row on the branches and of soaring down from a higher to a lower branch. On obtaining a specimen the resemblance appeared still closer, for both have yellow legs and beak and a patch of bare skin round the eye; in the case of *M. garrula* yellow; this bird red."

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Mr. F. E. Howe wrote: "Have only met with this species once, and that was at Lower Beaconsfield, South Gippsland. We were working the Cardinia Creek when the beautiful bell-like note first caught our ear. Upon making the spot we noticed many of the birds and found one nest just building in August, 1906."

Mr. A. G. Campbell's note reads: "This species, unfamiliar in the country near Melbourne, was identified on the flanks of the Dandenong Ranges, November, 1902. The clear bell-like notes of the male are frequently answered by a chuckling call from the female."

F. E. Wilson has published a good account from which I quote: "The following notes were collected during the present year (1909) at Beaconsfield, which lies 29 miles east of Melbourne, amongst the hills which form a southerly spur of the Dandenong Ranges. The district is bounded by the Cardinia Creek on the west and the Tumuc Creek on the east. On the Cardinia Creek there are two fairly large colonies of these birds, and about five miles east on the Tumuc Creek is a third colony. Altogether there are, I think, at present about 50 pairs of birds. Bell Miners are extremely local, inhabiting as they do a small stretch of fairly low timber and scrub bordering the banks of some creek, usually not more than 250 yards long by about 150 yards wide. They never venture outside the boundaries and resent intrusion by other birds. Bell Miners are seldom seen on the ground except when drinking, and seem to spend most of their time on the low trees and saplings. Some of the birds especially appear to be of a very inquisitive nature. When flying the Honey-eaters usually have their tail-feathers widely spread, and rarely proceed more than 50 yards at a stretch. The gum trees in the district under notice are infested with a scale-like insect (*Spondylapsis eucalypti*). This, although by no means the only food of the Bell Miner, forms a large part of its diet. The birds also search very carefully all loose bark and *débris* hanging to the trees in the vicinity, from which they get a supply of beetles, etc. From the crop of one I took a small yellow beetle resembling the common ladybird. The Bell Miner's principal note is a beautiful bell-like tinkle, which, when uttered in rapid succession, has a most pleasing effect. This note has a marked resemblance to the distant jingling of cow bells. A fairly good representation may be obtained by striking together two bars of wrought iron, one of which is suspended. Another note frequently used is almost an exact copy of the alarm call of the Noisy Miner (*Myzantha garrula*). Still another note resembles the squeaking of a door with rusty hinges. Sometimes, although in the midst of birds, you will not hear a single tinkle, every bird using the note which resembles that of the Noisy Miner. The breeding-season seems to extend almost through the whole year, as I have

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seen young birds just out of the nest in May, and others about four weeks old in October, also nests containing eggs and others being built through October and November. November, however, is perhaps the principal breeding month."

S. W. Jackson has given a delightful account of the song of this bird in the Gosford scrubs which must be here noted, but the description is too long to be copied in this place.

S. A. White has recorded from Mallecoota: "Not plentiful; restricted to a very small area, where they kept up their clear, bell-like note incessantly. Very pugnacious, chasing all birds, both large and small, that come in their way, drooping their wings and fluffing out their feathers as a sign of combat. They are very like the *Myzantha* in habits."

H. L. White has also confirmed the curious fact of the extreme localisation, a small colony occupying an area of not more than 30 acres and apparently never moving, there being no other colony on the estate though there is plenty of similar country.

I noted the Beaconsfield bird was darker, and therefore in my "Reference List" in 1912 arranged:

Manorina melanophrys melanophrys (Latham).

New South Wales.

Manorina melanophrys yarra Mathews.

"Differs from *M. m. melanophrys* in its darker coloration above and below. (Beaconsfield), Victoria."

Victoria,

and this was accepted unchanged in my 1913 "List" and no comment has been passed upon it; and *Manorina melanophrys tweedi* Mathews from the Tweed River, Northern New South Wales.

GENUS—MYZANTHA.

- MYZANTHA Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 318, February 17th, 1827. Type (by subsequent designation), Lesson, Manuel d'Orn., p. 67, 1828 *Merops garrulus* Latham = *Gracula melanocephala* Latham.
- Philanthus* Lesson, Traité d'Ornith., livr. 6, p. 402, (March 1st) 1831. Type (by subsequent designation), Mathews, Austral Av. Rec., Vol. IV., p. 137, 1921 *Merops albifrons* Shaw, i.e., Lath. = *Gracula melanocephala* Latham.

Not—

Philanthus Fabricius, N. Mag. Liebh. Ent. (Schneider), Vol. I., p. 26, 1791.

STRUCTURALLY agreeing with the preceding genus, but larger birds with a different coloration.

The culmen is semikeeled but structurally identical. There is a larger bare space behind the eye.

The wing has the third, fourth, fifth and sixth primaries subequal and longest, the fourth and fifth generally slightly the longest; the seventh longer than the second, which is much longer than the secondaries, while the short first primary is less than half the length of the second, but more than one-third the length of the fourth.

The tail is longer and a little more wedge-shaped.

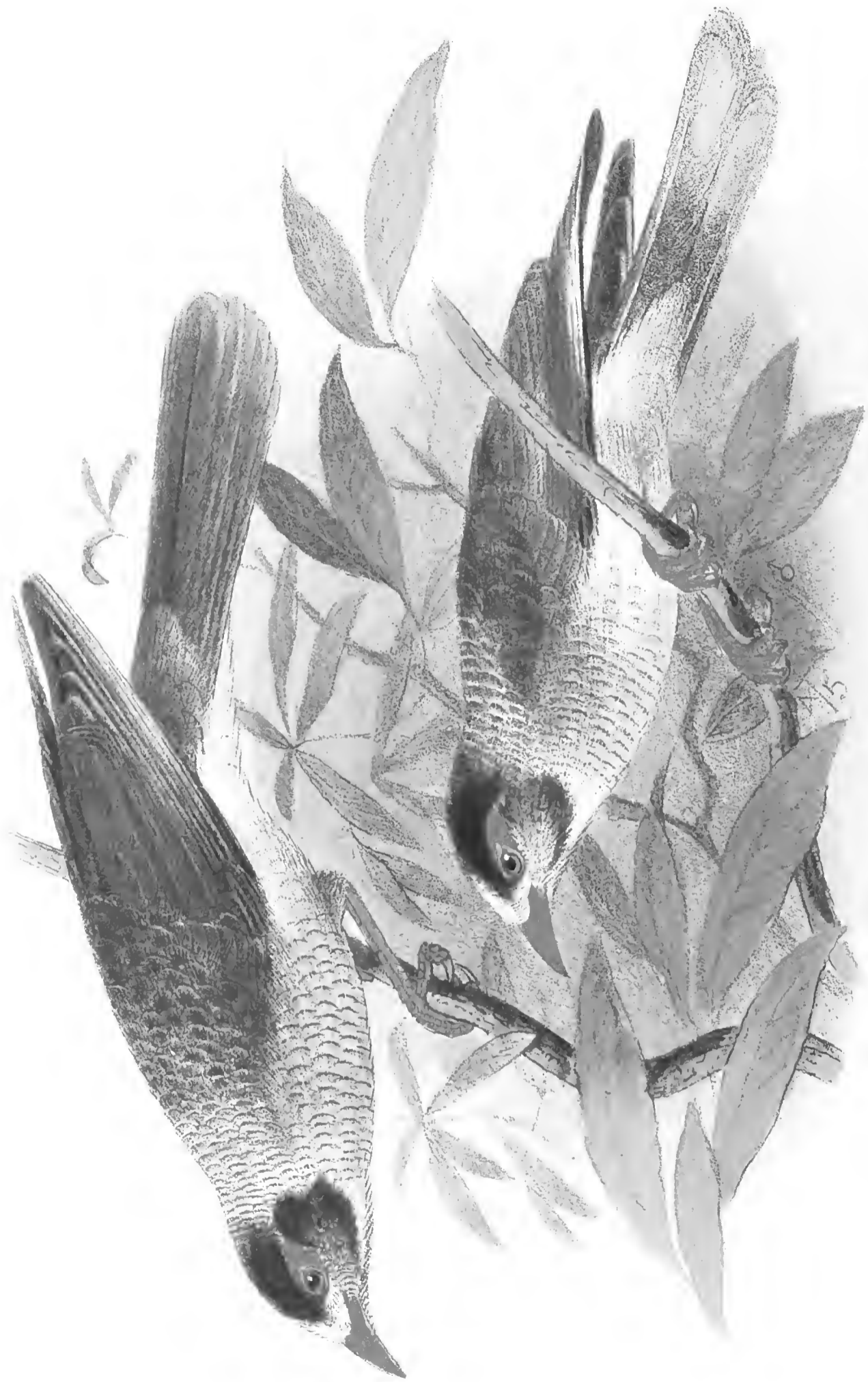
The legs and feet are similarly formed but much stronger in every detail.

Though this genus has been ranked as a subgenus of the preceding and sometimes even not allowed that rank, the difference in coloration and size necessitate full generic rank, though the structural features have scarcely varied at all. Moreover, their habits and notes appear to agree.

Key to the Species.

- Crown of head black *melanocephala*
 Crown of head uniform with back
 Rump white *flavigula*
 Rump uniform with back *obscura*

NATIONAL MUSEUM WASHINGTON



H. Gronvold. del.

MYZANTIA MELANOCEPHALIA
 (BLACK-HEADED MINAH)

Witherby & Co.

MYZANTHA MELANOCEPHALA.

BLACK-HEADED MINAH.

(PLATE 546.)

GRACULA MELANOCEPHALA Latham, Index Ornith. Suppl., p. xxviii., (after May 30th) 1801: New South Wales, based on General Davies' drawing.

Gracula melanocephala Latham, Index Ornith. Suppl., p. xxviii., (after May 30th) 1801.

Merops cucullatus Latham, *ib.*, p. xxxiii., also based on General Davies' drawing: New South Wales.

Merops garrulus Latham, *ib.*, p. xxxiv., based on Lambert drawing (Watling No. 96): New South Wales.

Merops albifrons Latham, *ib.*, p. xxxv., based on General Davies' account: New South Wales.

Black-headed Gr(akle) Latham, Gen. Synops. Birds, Suppl. II., p. 129, 1801.

Hooded Bee-eater Latham, *ib.*, p. 152.

Chattering Bee-eater Latham, *ib.*, p. 154.

White-fronted Bee-eater Latham, *ib.*, p. 156.

Turdus varius Vieillot, Nouv. Dict. d'Hist. Nat., 1st ed., Vol. XIV., p. 378, 1803: Nouvelle Hollande=New South Wales; *id.* (Lath.), *ib.*, nouv. ed., Vol. XX., p. 264, 1818.

Philemon nævius Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXVII., p. 428, Dec. 26th, 1818: New South Wales.

Myzantha garrula Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 319, 1827; Gould Birds Austr., pt. xv. (Vol. IV., pl. 76), June 1st, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 574, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878; *id.*, Tab. List Austr. Birds, p. 14, 1888; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 420, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 199, 1907; Batey, Emu, Vol. VII., p. 9, 1907 (Vic.); Mathews, Handl. Birds Austral, p. 98, 1908; Jackson, Emu, Vol. VIII., p. 285, 1909 (Q.); Cleland, *ib.*, Vol. IX., p. 226, 1910 (Food); Gubanyi, *ib.*, Vol. X., p. 120, 1910 (N.S.W.); Broadbent, *ib.*, p. 239 (N.Q.); Littler, Handb. Birds Tasm., p. 61, 1910 (Tas.); Fletcher, Emu, Vol. XI., p. 108, 1911 (Tas.); Ashby, *ib.*, Vol. XII., p. 46, 1912; S. A. White, *ib.*, Vol. XIII., p. 128, 1914 (S.A.); Choney, *ib.*, Vol. XIV., p. 212, 1915 (Vic.); Purnell, *ib.*, Vol. XV., p. 44 (Vic.); Hall, *ib.*, p. 185, 1916; Campbell and Barnard, *ib.*, Vol. XVII., p. 34, 1917 (N.Q.); Hanscombo, *ib.*, p. 58 (N.S.W.); Cleland, *ib.*, Vol. XVIII., p. 283, 1919 (N.S.W.).

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- Manorhina garrula* Gray, Annals Mag. Nat. Hist., Vol. XI., p. 190, 1843; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 260, 1884; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 240, 1887; Hall, Key Birds Austr., p. 44, 1899; Littler, Emu, Vol. III., p. 215, 1904 (Tas.); A. G. Campbell, *ib.*, Vol. IV., pp. 113-123, 1905 (Tas.); Hill, *ib.*, Vol. VII., p. 19, 1907 (Vic.); Austin, *ib.*, p. 30 (N.S.W.); Ingle, *ib.*, Vol. X., p. 125, 1910.
- Myzantha melanocephala melanocephala* Mathews, Nov. Zool., Vol. XVIII., p. 416, 1912; *id.*, List Birds Austr., p. 286, 1913.
- Myzantha melanocephala whitei* Mathews, Nov. Zool., Vol. XVIII., p. 417, Jan. 31st, 1912: South Australia; *id.*, Austr. Av. Rec., Vol. I., p. 62 (Eggs); *id.*, List Birds Austr., p. 286, 1913; Belcher, Birds Geelong, p. 349, 1914.
- Myzantha melanocephala leachi* Mathews, Nov. Zool., Vol. XVIII., p. 417, Jan. 31st, 1912: Tasmania; *id.*, Austral Av. Rec., Vol. I., p. 62, 1912 (Eggs); *id.*, List Birds Austr., p. 286, 1913.
- Myzantha melanocephala crassirostris* Mathews, Nov. Zool., Vol. XVIII., p. 417, Jan. 31st, 1912: Cairns, Queensland; *id.*, List Birds Austr., p. 286, 1913.

DISTRIBUTION. Eastern Australia from Cairns, North Queensland, to South Australia; Tasmania.

Adult. Lores and feathers at base of bill hoary-grey; crown dull black, back of the head and neck ash-grey margined with whitish-grey; upper mantle brownish-grey with an indistinct spot of dull black; lower mantle similar, but washed with yellowish-olive; lower back, rump and upper tail-coverts grey tinged with light buff; middle pair of tail-feathers leaden-grey, lighter at the tip but with the shaft and middle portion next the shaft black; outer tail-feathers dull brownish-black, with the terminal portion greyish-white; wing-coverts and innermost secondaries leaden-grey with the inner web blackish; outermost primaries blackish-brown, margined on the outer web at the tip and on the inner web with white; inner primaries and outermost secondaries brownish-ash with the outer web dull olive-green; cheeks and sides of the throat black; base of the lower mandible light yellowish-olive; throat, chest and breast greyish-white tipped with white and with a penultimate bar of black across each feather; abdomen and under tail-coverts white, axillaries and under wing-coverts smoke-grey. Bill and legs yellow. Eyes brown. Total length 258 mm.; culmen 19, wing 130, tail 111, tarsus 34. Figured. Collected in Tasmania and is the type of *M. m. leachi*.

The sexes are alike.

Adult male. Feathers of fore-head and lores white; top and sides of the head black; hind-neck dark grey, each feather margined with white, producing a barred appearance; mantle and back dark grey, faintly washed with green, middle of each feather darker; rump and upper tail-coverts uniform ash-grey; central tail-feathers grey, whitish at the tip and with dark blackish-brown shafts; outer tail-feathers dull brownish-black, very widely tipped at the extremity with greyish-white; outer primaries blackish-brown, widely margined on the inner web and narrowly on the outer web, at the tip, with white; inner primaries and outermost secondaries margined on the outer web with greenish-olive; innermost secondaries like the back; cheeks whitish, margined behind with black; chin pale yellow; lower throat white; chest and upper-breast isabelline-grey, tipped with whitish-grey and submarginally barred with brown; lower-breast faintly marked with

BLACK-HEADED MINAH.

brown; remainder of the under-surface white. Eyes brown; bill, feet and legs canary-yellow. Total length 268 mm.; culmen 18, wing 142, tail 124, tarsus 33. Figured. Collected at Narrawa, New South Wales, on the 3rd of June, 1909.

The sexes are alike.

Immature male. Base of fore-head, lores, fore-part of cheeks, chin, and throat white, fore-part of the crown, feathers above and behind the eye and ear-coverts dark brown; nape, hind-neck, and sides of neck grey with pale tips to the feathers; back somewhat darker; rump and upper tail-coverts pale earth-brown; scapulars and upper wing-coverts similar to the back; bastard-wing, primary-coverts and flight-quills blackish-brown, the primaries margined on both webs and tipped with white; outer webs of secondaries fringed with yellowish-green on the outer webs, white on the inner ones, and grey at the tips; tail dark brown at the base and buffy-white at the tip; fore-neck grey, barred with pale brown; breast, abdomen, sides of body, vent, and under tail-coverts white; marginal under wing-coverts whitish; under-surface of flight-quills dark brown margined with white; lower aspect of tail similar to its upper-surface. Eyes dark brown, feet yellowish, becoming horny-brown; bill, throat and behind eye bright yellow. Collected near Mannum, South Australia, on the 27th of November, 1913.

Immature female. Top of head and sides of face blackish with pale tips to the feathers; hind-neck, back, rump, upper tail-coverts and scapulars slate-grey, more or less tinged with fawn-colour; lesser upper wing-coverts, bastard-wing, primary-coverts, and flight-quills blackish-brown, the outer primaries fringed and tipped with white, the inner ones and the outer secondaries fringed with greenish-yellow on the outer webs and grey at the tips of the last; inner margins of the quills white; tail dark at the base and pale at the tip, some of the feathers slightly tinged with yellowish-green on the outer webs; base of fore-head and lores whitish; chin and middle of throat grey, sides of throat black; fore-neck and sides of neck pale grey with dark spots on the former; breast, sides of body, and axillaries also pale grey; abdomen, lower flanks, and under tail-coverts white; thighs pale rust-brown; under wing-coverts similar to the axillaries, paler and inclining to buff on the marginal series; under-surface of flight-quills dark brown with paler margins; lower aspect of tail similar to its upper-surface but paler. Eyes hazel, skin round eye lemon; feet orange-red; bill yellow. Collected at Somerville, Victoria, on the 29th of January, 1912.

Eggs. Three to four eggs form the clutch, seldom five. A clutch of three eggs taken at Belltrees, Upper Hunter River district, New South Wales, on the 20th of October, 1906, is of a pale pinkish-white ground-colour, well spotted, chiefly about the larger end, with reddish-chestnut and purplish-grey, and are rather typical specimens for this species. Ovals in shape. Surface of shell fine and smooth and rather glossy. 26-27 by 18 mm.

Nest. An open cup-shaped structure, composed of roots, twigs, grasses, strips of bark, etc., and frequently bound together and ornamented outside with small silken cocoons, and often sheep's wool is used for the purpose. Lined with fine grasses and hair, etc. Placed in a bush or tree in a variety of situations from a height of 6 feet up to 25 feet or more from the ground. Dimensions over all: 6 to 8 inches across by 4 to 5 inches in depth; the egg-cavity measures $3\frac{1}{2}$ to $3\frac{3}{4}$ inches across by $2\frac{1}{2}$ to 3 inches deep. The size of the nest depends upon the position and place wherein it is built.

Breeding-months. July to end December.

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THIS species received four names from Latham from four different paintings, but as one description was accompanied by a note, "Is said to be a noisy, chattering species, insomuch as to give the alarm in the manner of the Jay, so as to prevent the sportsman getting a shot at the *Pattegorang*," this name gained acceptance.

Sharpe copied from the Watling Drawings two notes, writing: "No. 96. Watling's note: 'One-half the natural size. This chattering bird often gives notice to the Kangaroo when the sportsmen are after them. It is pretty numerous, and always at war with others of the feathered kind. The yellow behind the eye is bare of feathers, and has just the appearance of yellow Morocco leather. The general likeness is good.' [The first paragraph given by Sharpe under this No. 96 refers to No. 94.] No. 97. Watling's note 'Natural size. The iris is doubtful. A chattering bird and often prevents the sportsman from getting a shot at the *Potrigorang*.'" This is the note Latham copied. Vigors and Horsfield recognised this description and added: "Caley's note: 'The native name of this bird is *Cobaj'gin*; it is a very common bird, and may be seen at all times of the year. Its note is loud, and like a kind of laugh. I once killed six of these birds at a shot, when on the wing hovering over a part of a tree whence some substance had exuded; but they are not gregarious.'"

Gould wrote: "The natural habits of this bird lead it to frequent the thinly timbered forest of *Eucalypti* clothing the plains and low hills, rather than the dense bushes. It moves about in small companies of from four to ten in number. In disposition it is restless, inquisitive, bold, and noisy, and frequently performs the most grotesque actions, spreading out the wings and tail, hanging from the branches in every possible variety of position, and keeping up all the time an incessant babbling; were this only momentary or for a short time, their droll attitudes and singular note would be rather amusing than otherwise; but when they follow you through the entire forest, leaping and flying from branch to branch, they become very troublesome and annoying."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "A very common species throughout the whole district, but more especially so in the open forests and partly cleared land, seldom entering thickly timbered country where there is scrub or undergrowth. It commonly goes by the name of Noisy Miner or Soldier Bird and is well known to almost every country lad. Like the White-plumed Honey-Eater, when disturbed or at the approach of any danger, they often congregate in small flocks, but instead of within a few feet of the intruder, they keep well out of harm's way, probably perched upon a dead branch near the top of the tree, holding forth their warning notes of alarm. This chattering warning has been the means of preventing many a duck being shot by a sportsman. Their usual food consists of pollen of

BLACK-HEADED MINAH.

flowers and insects, but at times they do much damage in orchards; but here they are no trouble excepting while the grapes are ripe, when they become very fearless, even walking through my house."

Captain S. A. White has written me: "This bird is confined to the big gum country and it is not so many years ago that this bird was unknown on the western side of the Mount Lofty Ranges; it seems to have worked in from the east through the ranges and is now out on the plains beyond. It is a noisy, quarrelsome bird and when it is not fighting with members of its own race is doing so with some other bird. It lives almost entirely upon insect diet and takes much of it upon the ground. They are numerous along the Murray River and many parts of the Mount Lofty Ranges; they do not extend far north and when the drier area is reached *M. flavigula* takes this bird's place. The nest is an open cup-shaped structure composed of twigs lined with rootlets and sometimes with fine grass and occasionally an inner lining of wool, soft flower heads or fur. The clutch is from two to four and the eggs vary very remarkably in shape and colour, some being almost round while others are elongated and pointed at one end, sometimes with minute spots and others with blotches, in other cases only a zone of colour round one end."

Mr. J. W. Mellor has written me: "This Minah is very common in South Australia and Victoria; they are plentiful along the Mount Lofty Ranges in South Australia, and also in the hilly country of Victoria; in the latter place I saw plenty along the Werribee Gorge while visiting there, and they are also very common in the National Park at Belair, South Australia. They like to keep to the timbered country, and are exceedingly noisy, continually calling to each other, and can often be seen chasing each other in little flocks of five or six; they feed on honey and will also eat soft fruit, while insects form a certain amount of their diet. They utter a great variety of calls and seem to imitate other birds in their endeavour to make themselves heard and attract their mates; they are exceedingly active birds, being ever on the move, hopping about amongst the foliage, and then flying from tree to tree and repeating the performance. Their nesting-months are generally September to November, but nests are sometimes found before this and when laying a second time, as they sometimes do, nests may be found into the early part of the year."

Mr. F. E. Howe's notes read: "On the flat and open country at Ferntree Gully, Victoria, this is a common resident, preferring the tall timber that is plentiful hereabout. It has been found at Bayswater also, and in this locality we found a nest with two eggs accompanied by an egg of *Cuculus inornatus*. The loud squeaking note of this bird is very unpleasant, and keeping up an incessant noise they put everything else on the qui vive."

THE BIRDS OF AUSTRALIA.

Mr. E. J. Christian has written from Victoria: "This is one of the commonest birds in these parts and it is a rather interesting bird, though most are apt to despise him. From a distance it is certainly not a handsome bird, but at close quarters he improves. At the distance he shows a fierce, ugly face, as he has a large yellow bare spot right behind the eye; close to the fierceness disappears. He is sometimes a pest and very hard on the fruit. Peaches, apples, pears, grapes and quinces are all attacked by him. When the grapes were 'bagged' against Sparrows the Minahs made huge holes in the bags and got inside and devoured many bunches. At other times of the year they feed on honey from the eucalyptus blossoms and insects. I have watched them on the side of a tree proceeding as a Treerunner would, but their progress was very slow and they had to use their wings. When searching for food on the ground it is very comical to see them turning bits of sticks, etc., with their beaks for insects hiding underneath. They become exceedingly tame and get to know persons and will come right into the house for bread."

Miss Fletcher wrote from the Cleveland District, Tasmania: "This part of Tasmania appears to be one of the strongholds of this species, consequently, they are very numerous. In whatever direction a ramble is taken, the jolly Miners are sure to be there, though very often their persistent alarum cries create a strong dislike in the mind of the observer to his grey-feathered watchers. In several parts of this district were tracts of country so barren of bird-life that I called them 'Saharas.' Strange that these should be the chief nesting districts of the Magpie (*Gymnorhina hypoleuca*) and the Miner. Generally, a nest of each bird was in the same tree. Last season two Miners drove a pair of Yellow Wattle-Birds from their partly finished nest, padded it a little more and occupied it. The pair of eggs laid was remarkably long for Miners."

Robert Hall has given a very fine account of the "Morning Song of the Noisy Miner" to which I must refer my readers, as it is too long to reproduce here and cannot be condensed without depreciation."

As previously noted, Latham named this species from drawings four times, first as the "Black-headed Gr(akle). Length nine inches; bill yellow, a trifle bent, and stouter at the base than is usual in the *Thrush* genus, though not greatly dissimilar: the fore-head is white, but the rest of the head black; the throat, whole of the neck, and all beneath are white, but inclining to bluish in some parts; the back and all the wing-coverts, without exception, are fine pale blue-grey, with a trace of white across the lower part of the last; the quills are dusky, edged with pale rust; tail three inches in length, bluish-ash colour, some of the outer feathers inclining to pale grey near the ends; legs longish, scaly, of a pale yellow oker-colour; claws dusky and stout. Inhabits

BLACK-HEADED MINAH.

New South Wales. I am indebted to General *Davies* for the knowledge of this species having been brought from *Port Jackson*, by Governor *King*."

It is in connection with this bird (and some others) that Latham wrote: "It is with no little difficulty that we have been able to fix limits to the genus of *Grakle*, more especially to those which inhabit *New Holland*; and to say the truth, great uncertainty has arisen in respect to other genera also, not only in regard to birds, but quadrupeds, as well as other classes. It is true, that whenever any difficulty presents itself, it may often be obviated by creating a new genus, and many persons are of opinion that this is the only way to ascertain the place any individual ought to hold in the system: but although it may be allowed in some instances, it should be in such only where necessity may make it unavoidable; a far better way being in our opinion rather to strain a trifling point, than burthen the memory by forming numerous new genera. On this account, I venture to enumerate the following species, reserving to others the full right of differing in sentiment."

It is noteworthy that the three following species were the above: (type of *Myzantha* Vigors and Horsfield, 1927), Pied Grakle (type of *Grallina* Vieillot 1816) and the Blue-eared Grakle (type of *Entomyzon* Swainson, 1825). I have given the above description as it has recently been questioned, but it will be seen to be pertinent. In any case the next name is that given to the "Hooded B(ee)-E(ater). Length from nine to ten inches; bill yellow, curved, and rather stout; tongue twice the length of it, and fringed at the tip; front of the head whitish; across the crown of the head black, which colour passes through the eyes on each side to the throat; the rest of the head whitish-grey and dusky in fine transverse lines; belly dirty white, crossed with clouded dusky lines; upper parts of the body pale lead-coloured brown; lower belly and vent white: the six outer quills brownish, the first very short, the others incline to brown; but six or seven of the middle ones are of a greenish-yellow in the middle on the outer webs, and the tips greenish-yellow; tail rounded, of a pale greenish lead-colour, with a dirty white tip; legs yellow-brown. Inhabits *New Holland*. In the collection of General *Davies*."

This is also applicable and has precedence over that based on the Chattering B(ee) E(ater) which has long been used, and taken from the Lambert or Watling drawings. Recently I recognised that the White-fronted B(ee) E(ater) was also given to paintings of this species, Latham writing: "I am obliged to General *Davies* for the above description, having made drawings of them from specimens in the possession of Captain *King*, which were brought from *Port Jackson*, in *New South Wales*."

In the *Austral Avian Record*, Vol. IV., pp. 114-122, an account of some drawings attributed to General *Davies* is given and I refer my readers to that

THE BIRDS OF AUSTRALIA.

place for further items of interest. At that time I had not recognised the description of the White-fronted Bee-eater, also taken from General Davies' drawings, but since have seen a copy made by Latham which proves that it was also named from a specimen of this bird. It is somewhat curious that Latham should have named such a distinct and striking form four times, as the drawings are all very much alike and should have been easily recognisable as made from the same species.

No subspecies were named until I examined the specimens for my "Reference List" in 1912, when I separated it into four, thus

Myzantha melanocephala melanocephala (Latham).

New South Wales.

Myzantha melanocephala whitei Mathews.

"Differs from *M. m. melanocephala* in its slightly smaller size and paler coloration above, especially on the head and rump. South Australia."

Victoria, South Australia.

Myzantha melanocephala leachi Mathews.

"Differs from *M. m. melanocephala* in its smaller size and its darker coloration above and below. Tasmania."

Tasmania.

Myzantha melanocephala crassirostris Mathews.

"Differs from *M. m. melanocephala* in its pale coloration and larger bill. Cairns, Queensland."

Queensland.

In my 1913 "List" these were retained unchanged, but to the range of the first named was added South Queensland, and the range of the last restricted to North Queensland.

As regards the Tasmanian form, A. G. Campbell had written: "The Tasmanian bird is distinctly larger and darker than the mainland, with darker cere, bill, and legs, and no prominent white tips to the primaries." The discrepancy in size is due to the fact that Campbell was making comparisons with Victorian birds.

Of the Cardwell bird (*crassirostris*), Campbell and Barnard have stated: "This particularly common bird was seen, but not in numbers, on the tableland. As expected, it was slightly smaller in size."

NATIONAL BUREAU OF STANDARDS



Witherby & Co

MYZANTHIA OBSCURA
 (*DUSKY MINAH*)

H. Gronvold, del.

Order PASSERIFORMES.

Family MELITHREPTIDÆ.

No. 691.

MYZANTHA OBSCURA.

DUSKY MINAH.

(PLATE 547.)

MYZANTHA OBSCURA Gould, Proc. Zool. Soc. (Lond.), 1840, p. 159, July 1841: Perth, Western Australia.

Myzantha obscura Gould, Proc. Zool. Soc. (Lond.), 1840, p. 159, July 1841: (Perth) West Australia; *id.*, Birds Austr., pt. xv. (Vol. IV., pl. 77), June 1st, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 576, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878; *id.*, Tab. List Austr. Birds, p. 14, 1888; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 421, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 204, 1907; Mathews, Handl. Birds Austral., p. 98, 1908; Gibson, Emu, Vol. IX., p. 75, 1909 (W.A.); Crossman, *ib.*, p. 90; Whitlock, *ib.*, Vol. XI., p. 243, pl. xxvi., 1912 (W.A.); Orton and Sandland, *ib.*, Vol. XIII., p. 80, 1913 (W.A.); S. A. White, *ib.*, Vol. XX., p. 129, 1921 (W.A.); Ashby, *ib.*, p. 136; Alexander, *ib.* p. 168; Ashby, *ib.*, Vol. XXI., p. 252, 1922.

Manorhina obscura Gray, Genera Birds, Vol. I., p. 127, 1847; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 260, 1884; Hall, Key Birds Austr., p. 44, 1899; Milligan, Emu, Vol. III., pp. 11, 18, 79, 1903 (W.A.); Hill, *ib.*, p. 228, 1904 (W.A.); Milligan, *ib.*, Vol. IV., pp. 6-10, 1904 (W.A.); Lawson, *ib.*, p. 135, 1905 (W.A.); Whitlock, *ib.*, Vol. X., p. 313, 1910 (W.A.).

Myzantha melanotis Wilson, Emu, Vol. XI., pt. II., p. 124, Oct. 2nd, 1911: Mallee, North-west Victoria; Ross, *ib.*, p. 210, 1912 (Eggs); Wilson, *ib.*, Vol. XII., p. 38, 1912 (Vic.); Ashby, *ib.*, p. 46 (S.A.); S. A. White, *ib.*, p. 180, 1913 (S.A.); Chandler, *ib.*, Vol. XIII., p. 44 (Vic.); Cheney, *ib.*, Vol. XIV., p. 212, 1915 (Vic.).

Myzantha flavigula melanotis Mathews, Nov. Zool., Vol. XVIII., p. 417, 1912; *id.*, List Birds Austr., p. 286, 1913.

Myzantha flavigula obscura Mathews, Nov. Zool., Vol. XVIII., p. 418, 1912; *id.*, List Birds Austr., p. 287, 1913.

Myzantha flavigula clelandi Mathews, Nov. Zool., Vol. XVIII., p. 418, Jan. 31st, 1912: Broome Hill, South-west Australia; *id.*, List Birds Austr., p. 287, 1913.

Myzantha flavigula wilsoni Mathews, Austral Avian Record, Vol. I., pt. 2, p. 51, April 2nd, 1912: Turner's Well, South Australia.

Myzantha obscura ortoni Ashby, Emu, Vol. XXI., pt. 4, p. 254, April 1st, 1922: Moora, West Australia.

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Myzantha obscura claudi, Ashby, *ib.*

Myzantha obscura melanotis Ashby, *ib.*

DISTRIBUTION. South-west Australia and the Mallee country of South Australia and Victoria.

Adult male. Feathers at the base of the upper mandible and fore-head olive-yellow; back of the neck, mantle, lower back and rump ash-brown, slightly tinged with grey; upper tail-coverts slightly paler than the rump; tail-feathers dark olive-brown, slightly margined on the outer web with olive-yellow and widely tipped with whitish-grey; primaries and secondaries dark olive-brown, with the outer web olive-yellow; chin washed with pale yellow; lores black, sides of the face black; throat and chest smoky-grey, each feather tipped with white and submarginally barred with dull brown; sides, flanks and under tail-coverts white. Eyes grey, feet yellowish-brown; bill and bare skin round eye bright yellow. Total length 242 mm.; culmen 19, wing 123, tail 106, tarsus 30. Figured. Collected at Turner's Well, 20 miles N.E. of Bow Hill, South Australia (Central), on the 10th of November, 1911.

Adult female. Feathers of the fore-head dull olive-green; top of the head, neck, back, rump and upper tail-coverts dull greyish-brown, each feather margined with dull grey, lightest in colour on the rump; tail ash-brown, the outermost pair uniform, remainder of the tail margined on the outer web with yellowish-olive; wing-coverts and innermost secondaries ash-brown; outer primaries uniform ash-brown; inner primaries and outermost secondaries ash-brown, with the outer webs greenish-yellow; lores black; feathers below the eye and extending on to the ear-coverts blackish, a bare space behind the eye; sides of the face dark ash-grey tipped with lavender-grey; chin and throat smoky-grey; lower throat and upper chest whitish-grey, each feather margined at the tip with white and with a submarginal bar of blackish-brown; breast and upper belly greyish-white; abdomen and under tail-coverts white; axillaries and under wing-coverts dark ash-grey. Eyes brown, bare skin behind eye sulphur-yellow, feet brownish-yellow, bill orange. Total length 258 mm.; culmen 19, wing 121, tail 110, tarsus 28. Figured. Collected at Kookoomboo, Victoria, on the 14th of September, 1912.

The sexes are alike.

Eggs. Three to four eggs form the clutch, four usually. A clutch of four eggs taken at Mount Scratch, Yandanooka district, Western Australia, on the 30th of August, 1907, is of a beautiful rich salmon-buff ground-colour, spotted, particularly at the larger end, with rich reddish-brown and pale purplish-brown. Swollen ovals in shape. Surface of shell fine, smooth and rather glossy. 25-27 by 19 mm.

Nest. A cup-shaped and rather bulky structure, composed of grass and dry twigs, lined with fine grasses, hair, and soft material. Dimensions over all—about 7 to 8 inches; size varies according to position and place in which the nest is built. Generally placed about 10 to 15 feet up from the ground in a bush or small tree.

Breeding-months. (July) August to February.

GOULD, who described this species, quoted Gilbert's notes (Gilbert being the discoverer of the Western form): "It inhabits every variety of wooded situation, in all parts of the colony, and is generally met with in small families. In flying the wings are moved very rapidly, but the bird does not make progress in proportion to the apparent exertion; at times, when passing from tree

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to tree, its flight is graceful in the extreme. The stomach is small but tolerably muscular; and the food, which consists of coleopterous and other insects, seeds and berries, is procured both on the ground and among the branches."

Mr. Tom Carter has written me: "The Dusky Minah is a common species in the lightly timbered districts of the south-west. These birds do not seem to like the heavily timbered coastal areas. They are numerous about Kellerberin, and are to be seen close to Perth. They are gregarious, and parties of them constantly haunt certain localities, all the year round. They are rather late breeders and the nesting season is an extended one, as at Broome Hill eggs have been found at various dates between August 21st and February 3rd. The nests are somewhat bulky, with foundation of small sticks, and finished and lined with grass and fibre. They are placed in small trees such as jams and tall wattles from eight to fifteen feet above the ground. The clutch of eggs is three or four. At all times the birds are very noisy and constantly chattering. Aug. 21, 1902. Two eggs. Oct. 7, 1906. Three eggs incubated. Oct. 10, 1908. Two nests each with three fresh eggs. Nov. 2, 1908. Four fresh eggs. Nov. 2, 1907. Four fresh eggs. Dec. 27, 1906. Recently fledged young. Feb. 3, 1907. Three fresh eggs."

Wilson described the Victorian Mallee form as a distinct species "which closely resembles *M. obscura*, of Western Australia, was fairly common in the neighbourhood of the boring camp, one flock in particular often being seen just close to our tent doors. Their note and general habits are not unlike those of *M. garrula*. We were too early to obtain eggs, but a nest being built was found when tracking back to Kow Plains from the camp. The female is similar to the male, but is slightly smaller."

Chandler later wrote: "We found this species (the Black-eared Miner) very plentiful in the dense sapling mallee south-east of Kow Plains. They search for their food on the ground, to a large extent, and after feeding in one place for a few minutes, fly through the scrub for 50 or 100 yards before settling again. On a few occasions I watched individuals searching for insects under the bark of mallee saplings. The majority of the birds was still in flocks (August)."

Ashby, from his West Australian trip, recently wrote: "*Myzantha obscura* Numerous at Moora, but not seen elsewhere. An examination of the skins obtained shows decided differences from a skin I collected near Perth in 1901. The Perth specimen has a strikingly large beak, and is generally much darker; the Moora specimens have a light rump, almost as light as in the Yellow-throated Miner (*M. flavigula*). Possibly the difference may be due to sex; anyhow, the Moora specimens are nearer to *M. flavigula* than to the Perth one."

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Alexander wrote from Perth: "Resident. Fairly common."

Myzantha obscura perplexa subsp. nov.

Differs from *M. o. clelandi* Mathews in being more uniform brown on the upper-surface, with rump uniform with the back. The throat and upper-breast are not so heavily marked. It lacks the yellow on the sides of the lower neck; fore-head not so yellowish-green. It is also smaller and darker. Wing 114 mm.

Type locality, Linga, Victoria. Collected by Mr. Tom Tregellas on September 15th, 1916. Type in my collection in Tring Museum.

In dividing what I at one time considered one species, following Mr. Ashby, whose article should be read, I find that *obscura* occurs in South-west Australia, and through the mallee of South Australia to the Victorian mallee, where at Linga it meets *flavigula* which occurs over the rest of Australia. If this eastern *obscura* should be considered distinct it will be called *Myzantha melanotis* Wilson, and *Myzantha wilsoni* will be a synonym; while *Myzantha melanotis perplexa* Mathews will be a subspecies.

Myzantha flavigula and subspecies occurs in the Gawler Ranges, Port Augusta, and Central Australia northwards to Melville Island; Victoria, New South Wales, Queensland, Northern Territory, North- and Mid-west Australia to Point Cloates, Carnarvon, Marble Bar, etc., and to Kalgoolie.

So that of this species I now admit:

Myzantha obscura obscura Gould.

Perth, West Australia.

Myzantha obscura clelandi Mathews.

Broome Hill.

Myzantha obscura ortonii Ashby.

Moora, West Australia.

and

Myzantha obscura melanotis Wilson.

(Syn. *Myzantha flavigula wilsoni* Mathews.)

Myzantha obscura perplexa Victoria.

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MYZANTHA FLAVIGULA
 (YELLOW THROATED MINAH)

MYZANTHA FLAVIGULA.

YELLOW-THROATED MINAH.

(PLATE 548.)

MYZANTHA FLAVIGULA Gould, Proc. Zool. Soc. (Lond.), 1839, p. 143, March 1840 : Naomi River, Interior New South Wales.

Myzantha flavigula Gould, Proc. Zool. Soc. (Lond.), 1839, p. 143, 1840 ; *id.*, Birds Austr., pt. xxx. (Vol. IV., pl. 79), March 1st, 1848 ; *id.*, Handb. Birds Austral., Vol. I., p. 578, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190, 1878 ; *id.*, Tab. List Austr. Birds, p. 14, 1888 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 422, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 202, 1907 ; Berney, Emu, Vol. VII., p. 81, 1907 (Food) ; Mathews, Handl. Birds Austral., p. 98, 1908 ; Whitlock, Emu, Vol. IX., p. 211, 1910 (W.A.) ; Cleland, *ib.*, p. 226 (Food) ; Howe, *ib.*, p. 233 (Vic.) ; Macgillivray, *ib.*, Vol. X., pp. 17, 20, 90 (N.S.W.) ; S. A. White, *ib.*, Vol. XII., pp. 8, 125, 129, 1912-13 (S.A.) ; Hill, *ib.*, p. 245 (Central Australia) ; S. A. White, Vol. XIII., p. 32, 1913 (S.A.) ; Chandler, *ib.*, p. 44 (Vic.) ; Campbell, *ib.*, p. 69 (Egg) ; Macgillivray, *ib.*, p. 180, 1914 (N.Q.) ; Barnard, *ib.*, Vol. XIV., p. 49, 1914 (N.T.) ; S. A. White, *ib.*, Vol. XV., p. 161, 1916 (S.A.) ; H. L. White, *ib.*, Vol. XVI., p. 228, 1917 (N.T.) ; Ashby, *ib.*, p. 233 (S.A.) ; Ashby, *ib.*, Vol. XVII., p. 220, 1918 (S.A.) ; S. A. White, *ib.*, Vol. XVIII., p. 24, 1918 (S.A.) ; Alexander, *ib.*, p. 124 ; Jackson, *ib.*, p. 169, 1919 (N.S.W.) ; S. A. White, *ib.*, p. 198 (S.A.) ; Cleland, *ib.*, p. 283 (N.S.W.) ; Ashby, *ib.*, Vol. XXI., p. 255, 1922 ; McGilp, *ib.*, Vol. XXII., p. 286, 1923 ; Whitlock, *ib.*, Vol. XXIII., p. 277, 1924.

Myzantha lutea Gould, Proc. Zool. Soc. (Lond.), 1839, p. 144, March 1840 : (Derby) North-west Australia ; *id.*, Birds Austr., pt. xv. (Vol. IV., pl. 78), June 1st, 1844 ; *id.*, Handb. Birds Austr., Vol. I., p. 577, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878 ; *id.*, Tab. List Austr. Birds, p. 14, 1888 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 423, 1899 ; Berney, Emu, Vol. V., p. 75, 1905 (N.Q.) ; North, Austr. Mus. Spec. Cat., No. 1, Vol. IV., p. 204, 1907 ; Mathews, Handl. Birds Austral., p. 98, 1908 ; Whitlock, Emu, Vol. VIII., p. 185, 1909 (N.W.A.) ; Hill, *ib.*, Vol. X., p. 288, 1918 (N.W.A.) ; Campbell, *ib.*, Vol. XVIII., p. 5, 1918 (N.Q.).

Manorhina flavigula Gray, Genera Birds, Vol. I., p. 127, 1847 ; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 261, 1884 ; Hall, Key Birds Austr., p. 44, 1899 ; Carter, Emu, Vol. III., p. 92, 1903 (M.W.A.).

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- Manorhina lutea* Gray, Genera Birds, Vol. I., p. 127, 1847; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 262, 1884; Hall, Key Birds Austr., p. 44, 1899; *id.*, Emu, Vol. I., p. 103, 1902 (N.W.A.).
- Myzantha flavigula flavigula* Mathews, Nov. Zool., Vol. XVIII., p. 417, 1912; *id.*, List Birds Austr., p. 286, 1913; S. A. White, Emu, Vol. XIV., p. 191, 1914 (Central Australia).
- Myzantha flavigula berneyi* Mathews, Nov. Zool., Vol. XVIII., p. 417, Jan. 31st, 1912: Richmond district, Queensland; *id.*, List Birds Austr., p. 287, 1913.
- Myzantha flavigula wayensis* Mathews, Nov. Zool., Vol. XVIII., p. 418, Jan. 31st, 1912: Lake Way, West Australia; *id.*, List Birds Austr., p. 287, 1913.
- Myzantha flavigula lutea* Mathews, Nov. Zool., Vol. XVIII., p. 418, 1912; *id.*, List Birds Austr., p. 287, 1913; *id.*, South Austr. Orn., Vol. 3, p. 225, 1918.
- Myzantha flavigula alligator* Mathews, Nov. Zool., Vol. XVIII., p. 418, Jan. 31st, 1912: Alligator River, Northern Territory; *id.*, List Birds Austr., p. 287, 1913.
- Myzantha flavigula melvillensis* Mathews, *ib.*: Melville Island, Northern Territory; *id.*, List Birds Austr., p. 287, 1913.
- Myzantha flavigula casuarina* Mathews, Austral Avian Record, Vol. I., pt. 4, p. 100, Sept. 18th, 1912: Mount Casuarina, North-west Australia; *id.*, List Birds Austr., p. 287, 1913.
- Myzantha flavigula pallida* Mathews, Bull. Brit. Orn. Club, Vol. XXXVI., p. 91, July 7th, 1916: Tietkin's Creek, Central Australia.

DISTRIBUTION. Australia generally, except South-west and Mallee country of South Australia and Victoria.

Adult male. Feathers at the base of the culmen and fore-head olive-yellow; top of the head, back of the neck, mantle, lower back, rump and wing-coverts brownish-grey with concealed whitish shafts; upper tail-coverts very long and white in colour; tail dull brown, broadly tipped with white and margined on the outer web with yellowish-olive; outermost primaries uniform dull brown; inner primaries and outermost secondaries dull brown, widely margined on the outer web with yellowish-olive; innermost secondaries brown on the inner web and brownish-grey on the outer web; a large spot of black in front of and below the eye; ear-coverts black washed with hoary-grey; a line of orange-yellow feathers at the base of the lower mandible and a faint collar of pale lemon-yellow across the upper chest; throat white; chest isabelline tipped with white and with a submarginal band of pale brown; remainder of the under-surface white. Eyes brown, bill, feet and bare skin yellow. Total length 264 mm.; culmen 18, wing 133, tail 111, tarsus 30. Figured. Collected at Moree, New South Wales, in November, 1898.

Adult female. Fore-head and feathers at the base of the upper mandible orange-yellow; back of the head, neck, mantle and lower back brownish-grey, each feather margined with light grey; rump and upper tail-coverts pure white; tail-feathers greyish-brown, widely tipped with white and margined on the outer web with yellowish-olive; wing-coverts like the back; outer primaries uniform brownish-ash; inner primaries and outer secondaries brownish-ash with the outer web golden olive-yellow; innermost secondaries lighter; lores and a narrow line of feathers below the eye black; ear-coverts black edged with silvery-grey; a patch of golden-yellow feathers at the angle of the mouth; chin yellow; throat white; a band of golden-yellow feathers across the upper chest; chest soiled white, each feather narrowly

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and faintly margined with greyish-brown; remainder of the under-surface pure white. Eyes dull brown, bill bright gamboge-yellow and skin around eye and tract behind lower mandible the same colour, legs and feet yellow tinged with brown. Total length 230 mm.; culmen 18, wing 122, tail 109, tarsus 32. Figured. Collected at Lake Way, East Murchison, Central Mid-west Australia, on the 19th of July, 1909, and is the type of *Myzantha flavigula wayensis*.

The sexes are alike.

Nestling. Top of head, hind-neck, back, scapulars, and upper wing-coverts dark fawn-grey; bastard-wing, primary-coverts, and flight-quills dark brown fringed with yellow on the outer webs except the five outer primaries which are slightly edged with white, more broadly at the tips; upper tail-coverts fawn-colour like the tip of the tail, the base of which is blackish; cheeks, lores, and chin pale yellow; under-surface of body white tinged with fawn-colour on the fore-neck and breast; thighs fawn-colour like the under wing-coverts; under-surface of flight-quills pale brown; lower aspect of tail similar to its upper-surface but paler. Bill yellow, legs and feet yellowish-ochre, eyes deep brown. Collected at East Murchison, West Australia, on the 18th of September, 1909.

Immature male. Fore-part of head, chin, sides of neck, greater upper wing-coverts, outer webs of primary-coverts, and flight-quills yellow; lores and eye-ring black; ear-coverts blackish streaked with white; hinder crown, nape, hind-neck, sides of neck, back, and lesser upper wing-coverts pale grey tinged with fawn-colour; upper tail-coverts fawn-colour, becoming paler and inclining to white towards the tips; bastard-wing, primary-coverts and flight-quills hair-brown, with pale edgings to the inner webs of the last; tail-feathers dark brown fringed with yellow and tipped with buffy-white; throat white; breast and sides of breast grey; abdomen, sides of body, and under tail-coverts white; thighs sandy-buff; outer edge of wing buffy-white; axillaries and under wing-coverts grey; under-surface of flight-quills pale brown; lower aspect of tail pale brown tipped with pale buff. Eyes light brown, feet greenish-yellow, bill orange, gape and bare space round the eye light yellow. Collected at the Hugh River, New Depôt Well, Central Australia, on the 25th of September, 1913.

Eggs. Three to four eggs form the clutch, frequently four. A clutch of four eggs taken at Buckingham Station, Central New South Wales, on the 16th of September, 1897, is of a rich salmon-colour, spotted, particularly about the larger end, with reddish-brown and purplish-grey. Ovals in shape. Surface of shell fine and smooth and rather glossy. 25-28 by 18 mm.

Nest. An open cup-shaped structure, composed of dried grasses and twigs, lined with horse-hair, fine grasses and other material. Dimensions over all: 6 to 8 inches across by 3½ to 4½ inches in depth. Placed in a bush or tree at heights varying from 7 up to 20 feet or more from the ground.

Cup-shaped, somewhat loosely constructed. Outwardly of thin twigs and lined with grasses and fibrous roots, also wool interwoven both inside and out. Outside measurements, 3½ inches deep by 6 wide; inside, 4 inches across by 2¼ inches deep. (South Australia).

Breeding-months. July to November.

WHEN Gould described this species he contented himself with remarking upon its similarity in actions and habits to the preceding species as hereafter quoted.

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Mr. Thos. P. Austin has written me from Cobbora, New South Wales : "I found this species just as common in the Bourke district of New South Wales as *M. garrula* is here. It was the first bird I saw after leaving that town on my way further north. A few years ago when the country was suffering a very severe drought, a few of these birds put in an appearance here, several of them taking up their abode in my garden, but when the drought broke they soon disappeared."

Captain S. A. White's notes read : "This is a dry-country bird although some of the subspecies, such as *obscura*, are found in heavy rainfall country. It is remarkable that along the River Murray, *M. melanocephala* has possession of the big timber along the water-courses and on the flats ; yet a short distance away on the edge of the vast mallee country *M. flavigula* is found. This, in my mind, is due partly to the stronger birds keeping the yellow-throated ones back into the dry country which they have no liking for, and partly to the fact that *M. flavigula* likes the mallee ; but in the interior this species is found in the big timber along all the big water-courses. I have found this bird in nearly every part of the interior I have yet visited. These birds nest in varied localities. I have seen their nests in a shrub 15 to 25 feet from the ground up to 60 feet in large Red Gum. Their nest is often suspended and in thick drooping foliage of a gum, constructed of grass and twigs bound together with cobwebs and spider cocoons, horsehair and wool often being interwoven, lined with wool but sometimes horsehair alone. I have found them breeding from August to November. Like other members of the group they are very pugnacious. Re *melanotis*, since I have found these birds breeding all through the mallee bordering the Murray to the Victorian border, their eggs are very distinctive, being of a much darker coloration than those of *M. flavigula*. *M. obscura* seems to have the same habits as the others, note the same and the flight, though the latter is not so sustained and the wings beaten rapidly when in flight."

Mr. J. W. Mellor writes : "This bird can be detected easily from *M. garrula* while on the wing by the white rump which shows out conspicuously. I saw it plentifully distributed about the scrub country inland from Arno Bay, Eyre's Peninsula, also in the Flinders Ranges at Port Pirie and Port Augusta, and also at the Port Germein Gorge ; here they seem to like the hilly country and frequent the large gums in the deep gullies and ravines of these mountainous ranges. Their habits are similar to those of the Noisy Minah, going about in little flocks of five or six and following each other from tree to tree and are just as noisy in their calls as that bird, which they are also like in being somewhat pugilistic in their habits, driving away other birds that happen to come within the precincts of their domain. Their food consists of honey

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from flowers, principally those of the eucalyptus, also insects in the shape of small beetles and flies."

Mr. F. E. Howe wrote: "Fairly plentiful about Carina and Kow Plains in the mallee, where I have noticed them flying up above the scrub after insects."

Berney has recorded from the Richmond district, North Queensland: "A permanent resident, and a very noisy one, and breeds apparently all the year round. I was much interested in making the acquaintance of a pair at Gladevale homestead, where they had become so tame that they would enter the dining room at meal times, and while waiting to be served would perch on the eruet stand, the back of your chair, or any convenient spot; this, too, with several people seated at table and a cat on the floor. A few small pieces of bread or cake put down for them by the side of your plate are quickly gathered up without the birds showing any fear. Honey on a plate is much relished by them, and they like a jam tin to clear out. They had a nest some twenty yards away from the house and later used to bring their family with them. They are the tamest wild birds I ever came across. The site for the nest is usually the top of a eoolibah or whitewood, at a distance of 20 or 30 feet from the ground."

Maegillivray has recorded: "Numerous in the Gulf country, where they were nesting in and after the wet season. Noted as a foster parent of the Koel."

In connection with the South Australian form Captain White has written: "Very numerous all through the (Flinders) Ranges. This bird does not seem to vary, although it is distributed over thousands of miles."

From the Pungonda district, South Australia, Ashby has written: "*Myzantha flavigula* Gld. (the Yellow-throated Miner) was very numerous; nests with eggs were found. It was rather remarkable the Black-eared Miner (*M. melanotus*) was not to be seen; neither was the Southern Black-headed Miner (*M. melanocephala whitei* Mat.) present, though this latter was common along the river a few miles away, near Loxton. Certainly the Black-eared Miner would be met with a few miles further south; it was the only species I noticed near Karoonda. I would suggest that the respective habitats of these three species are determined by the vegetation; thus, the Black-headed Miner is not found any distance away from the large red gums along the River Murray, the Yellow-throated Miner in the pine and large mallee country, and the Black-eared Miner in the small mallee."

From the Pilliga Scrub, New South Wales, Cleland reported: "280 were counted, giving an estimated minimum population of 18,480. Unfortunately, beyond counting the Minars as they were seen, a careful scrutiny of them was

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not made at the time to see if they were all *M. flavigula*, or whether both species were present."

Mr. Tom Carter writes: "The Yellow Minah is very common on the Lower Gascoyne River, and also occurs, sparingly, about fifty miles inland from Point Cloates, in some scattered patches of mallee. A few of these birds have been observed on the Minilya and Lyndon Rivers, between the Gascoyne River and Point Cloates. On July 19th, 1900, a nest was found south-east of Point Cloates, built in the top twigs of a small tree, about 25 feet from the ground. The nest was bulky, made of small twigs and lined with spinifex and grass. It contained two fresh eggs. The nesting cavity (inside of nest) was shallow. In a similar tree, about fifteen yards distant, was a nest of *Cracticus nigrigularis*, also with eggs. Recently fledged young birds were seen on the Minilya River on September 9th, 1911. September 23rd, 1913. Many of these birds were breeding in the thick scrub on banks of the Lower Gascoyne River."

No notes of the habits were given by Gould in connection with the north-western form.

Mr. J. P. Rogers notes read: "This species was first seen when twenty miles up Jagurra Creek and were found on the well-timbered flats along the creeks. At Mungi this bird was not very numerous, but some were seen every day; they are usually found in patches of the largest trees and are very noisy birds. In the locality of Mungi the largest trees would only be sixty or seventy feet high and perhaps three feet in diameter. This species is numerous around the base of the Grant Ranges. At Emu Spring, 60 miles south of Wyndham, a few pairs seen and at Mary River, 290 miles south, at a soak in very rough country."

From Melville Island, Rogers wrote: "Cooper's Camp. Nov. 20th, 1911. This bird is fairly numerous on a high ridge four miles north of this camp. I have never seen this bird near the sea (that is, on this island). Dec. 30, 1911. 10 miles S.E. of Snake Bay. None were seen on my way across to the spot, although I was in forest all the way, and none were seen on the north side of the island. Jan. 16, 1912. On my way back across the island to Cooper's Camp, when about halfway, I saw a small flock of these birds in a clump of tall trees."

Campbell has written: "(The eggs of) the *Myzanthæ* are full flushed in coloration; the similarity of (those of) *M. flavigula* and *M. lutea* strongly show their subspecific connection, and together with *M. obscura* appear oologically separate from the common Miner, *M. garrula*."

Later, Campbell on Coongan specimens observed under the name "*Myzantha lutea*. Female. Palest skin of this kind in the 'H. L. White

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Collection.' (Wing $4\frac{1}{2}$ inches, or $\frac{1}{2}$ inch shorter than typical birds from Napier Broome Bay.) Like others from North-west Cape, this Coongan bird comes nearest Mathews's *wayensis*, evidently a more pallid form of *lutea*. The Great Sandy Desert, in this case, appears to operate between the true *lutea* and *wayensis*."

Gould described three species of *Myzantha* in 1839-1840: the first (*M. flavigula*) from New South Wales, the second (*M. lutea*) from the north-west coast, and the third (*M. obscura*) from the Swan River, which, moreover, he apparently considered little more than subspecies of the earlier known bird, as he wrote of the first-mentioned: "This species is tolerably abundant in the belts of Eucalypta bordering the river Namoi, and all similar situations in the interior of New South Wales. Although it has many of the habits and actions of its near ally, the *Myzantha garrula*, it is much more shy in disposition, less noisy, and more disposed to frequent the tops of the trees; and so exclusively does it replace the common species in the districts alluded to that the latter does not occur therein." Of the second Gould wrote: "I consider this to be by far the finest species of the genus yet discovered, exceeding as it does every other both in size and in the brilliancy of its colouring. I am indebted to Messrs. Bynoe and Dring for fine specimens of this beautiful bird, which were obtained by those gentlemen on the north-west coast of Australia, in which part of the country it supplies the place of the *Myzantha garrula* of New South Wales. The law of representation is rarely carried out in a more beautiful manner than in members of the present genus: the *Myzantha garrula* being, so far as is yet known, confined to the south-eastern portion of the country, the *M. lutea* to the neighbourhood of the north coast, the *Myzantha obscura* to Swan River, and the *M. flavigula* to the north-eastern portion of the country." His remarks on the third species read: "This species inhabits Swan River and the south-western portion of Australia generally, where it beautifully represents the *Myzantha garrula* of New South Wales. In habits, actions, and disposition the two birds closely assimilate."

These were early recognised as of only subspecific value, and, receiving birds from the north-west, Hall wrote: "The length of wing shows these specimens to be *M. flavigula* rather than the subspecies of it. The citron-yellow is, however, indicative of *M. lutea*."

When I reviewed the species for my "Reference List" in 1912 I found them to be only subspecies, but that this species was extraordinarily variable geographically and that many subspecies were easily recognisable.

Just a little previously, Wilson had described as a new species *Myzantha melanotus*, from the Mallee of Victoria, as differing from *M. obscura* from West Australia in having the auricular patch conspicuously black and larger, and

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the abdomen a clear white, and also the yellow frontal patch less extensive, and an absence of the lighter colouring on the rump. The cross-barring also is different, and the bill and bare ocular patch have a deeper shade of yellow.

I concluded this was the Mallee form of this species and therefore arranged :

Myzantha flavigula flavigula Gould.

New South Wales.

Myzantha flavigula melanotus Wilson.

North-west Victoria.

Myzantha flavigula berneyi Mathews.

“ Differs from *M. f. flavigula* in its slightly smaller size and paler coloration : Richmond district, Queensland.”

Queensland.

Myzantha flavigula obscura Gould.

West Australia.

Myzantha flavigula clelandi Mathews.

“ Differs from *M. f. obscura* in being dark below : Broome Hill, South-west Australia.”

South-west Australia.

Myzantha flavigula wayensis Mathews.

“ Differs from *M. f. obscura* in its pallid coloration, especially on the under-surface, which is almost white, while the green is much brighter : Lake Way, West Australia.”

Mid Westralia.

Myzantha flavigula alligator Mathews.

“ Differs from *M. f. lutea* in its much larger size ; wing 142 mm. : Alligator River, Northern Territory.”

Northern Territory.

Myzantha flavigula lutea Gould.

North-west coast Australia (Derby).

Receiving specimens from Melville Island, I re-examined the species and added

Myzantha flavigula wilsoni.

“ Differs from the type of *M. f. melanotis* in having a longer wing, viz. 131 mm. : Turner's Well, South Australia.

South Australia.

and

Myzantha flavigula melvillensis.

“ Differs from *M. f. lutea* in its large size, and from *M. f. alligator* in its much darker coloration and smaller size.”

Melville Island, Northern Territory.

YELLOW-THROATED MINAH.

A little later I named

Myzantha flavigula casuarina.

“ Differs from *M. f. alligator* in its much paler upper-surface, lighter ear-coverts, and in having a white rump. Mount Casuarina, North-west Australia.”

Mount Casuarina, N.W.A.

In my 1913 “ List ” I allowed ten subspecies as above, only synonymising *M. f. wilsoni* with *M. f. melanotis*, with the range “ Mallee district of Victoria and South Australia.”

I then introduced

Myzantha flavigula pallida.

“ Differs from *M. f. flavigula* Gould in being much paler : Tietkens Creek, Central Australia.”

But now I consider that *obscura* is a species, and admit

Myzantha flavigula flavigula Gould.

New South Wales.

Myzantha flavigula lutea Gould.

Derby, North-west Australia.

Myzantha flavigula berneyi Mathews.

Queensland.

Myzantha flavigula wayensis Mathews.

Central West Australia.

Myzantha flavigula alligator Mathews.

Northern Territory.

Myzantha flavigula melvillensis Mathews.

Melville Island.

Myzantha flavigula casuarina Mathews.

North-west Australia (inland).

Myzantha flavigula pallida Mathews.

Central Australia.

GENUS—COLEIA.

COLEIA Mathews, Austral Avian Record, Vol. I,
 p. 116, Dec. 24th, 1912. Type (by original
 designation) *Merops carunculatus* Latham.

WHEN I proposed this genus I wrote: "Differs from *Anthochæra* in its longer bill and short rounded wattles, and from *Dyottornis* in its shorter wing and tail and different shaped wattles, though the bill is as powerful," explaining: "*Anthochæra* was introduced by Vigors and Horsfield in the Trans. Linn. Soc. (Lond.), Vol. XV., p. 320, 1826, and three species were attached, *A. carunculata*, *A. mellivora* and *A. phrygia*. In a footnote they added *A. lewinii* and noted that *Merops novæzealandiæ* may be referred to this group. No type was designated, and *A. carunculata* Latham has been generally accepted as type. But *A. carunculata* Vigors and Horsfield was not *M. carunculata* Latham as they supposed, but *Corvus paradoxus* Daudin, which they included in the synonymy. Their *A. lewinii*, only added in the footnote, is the true *M. carunculatus* Latham. Consequently, the acceptance of *A. carunculata* (nec Latham) as type would involve the use of *Anthochæra* for *Corvus paradoxus* Daudin. But Vigors and Horsfield carefully diagnosed their genus, and this diagnosis, upon which the genus must stand, forbids such action. The words '*Cauda elongata, rotundata, vix gradata*' are not applicable to Daudin's species, but are quite correct when *A. mellivora* (the second species) is examined. I therefore designate this as type of *Anthochæra* Vigors and Horsfield, and have generically named the other species as above. Thus *Anthochæra* Vigors and Horsfield, 1826, will replace *Anellobia* Cabanis, 1851, and *Dyottornis* will replace *Anthochæra* Auct., not Vigors and Horsfield."

Further complications as to the last mentioned will be discussed under the next genus.

As the next genus was the first to be established, I have given a detailed account of its structure and here note the differential characters of the present form.

Structurally the birds agree, but in place of the long pendant facial wattle of cylindrical shape there is only a small rounded one. The birds are slightly smaller but the coloration is similar. The wing has the third primary about equal to the seventh, but these are shorter than the fourth, fifth, and sixth,

COLEIA.

which are subequal and longest; the second primary is longer than the eighth primary and also than the secondaries, the first primary being more than half the length of the second. The tail is shorter than in that of the succeeding genus, much less wedge-shaped, the outer tail-feathers much longer than half, more than three-fourths, the length of the middle feathers.

Legs and feet similar, but not so stout.

The three species classed in *Anthochaera* in a wide sense agree in coloration, but differ in size and wattle and tail gradation. The smallest form has no wattle and a gradate tail, little more than rounded; the intermediate form is larger, with small rounded face wattles and a wedge-shaped tail scarcely more developed than in the preceding, while the insular bird is much larger with a long, strongly wedge-shaped tail and long cylindrical face wattles.

The difficulty in lumping these lies in the form *Acanthagenys*, which is a little smaller than the first mentioned, has no wattle, a similar tail, and has developed spiny processes on the cheeks and ear-coverts with a different coloration. It is, however, closely related to the above and would require inclusion if a lumping policy were adopted, and then the differences between it and the largest wattled form would make the series appear ludicrous.

Schufeldt's essay on the osteology of the Red Wattle-Bird (*Anthochaera carunculata*), *Emu*, Vol. XIII., p. 1 *et seq.*, 1913, does not give us any clue to the relationship of this group, as he had no material for comparison.

Order PASSERIFORMES.

No. 693.

Family MELITHREPTIDÆ.

COLEIA CARUNCULATA.

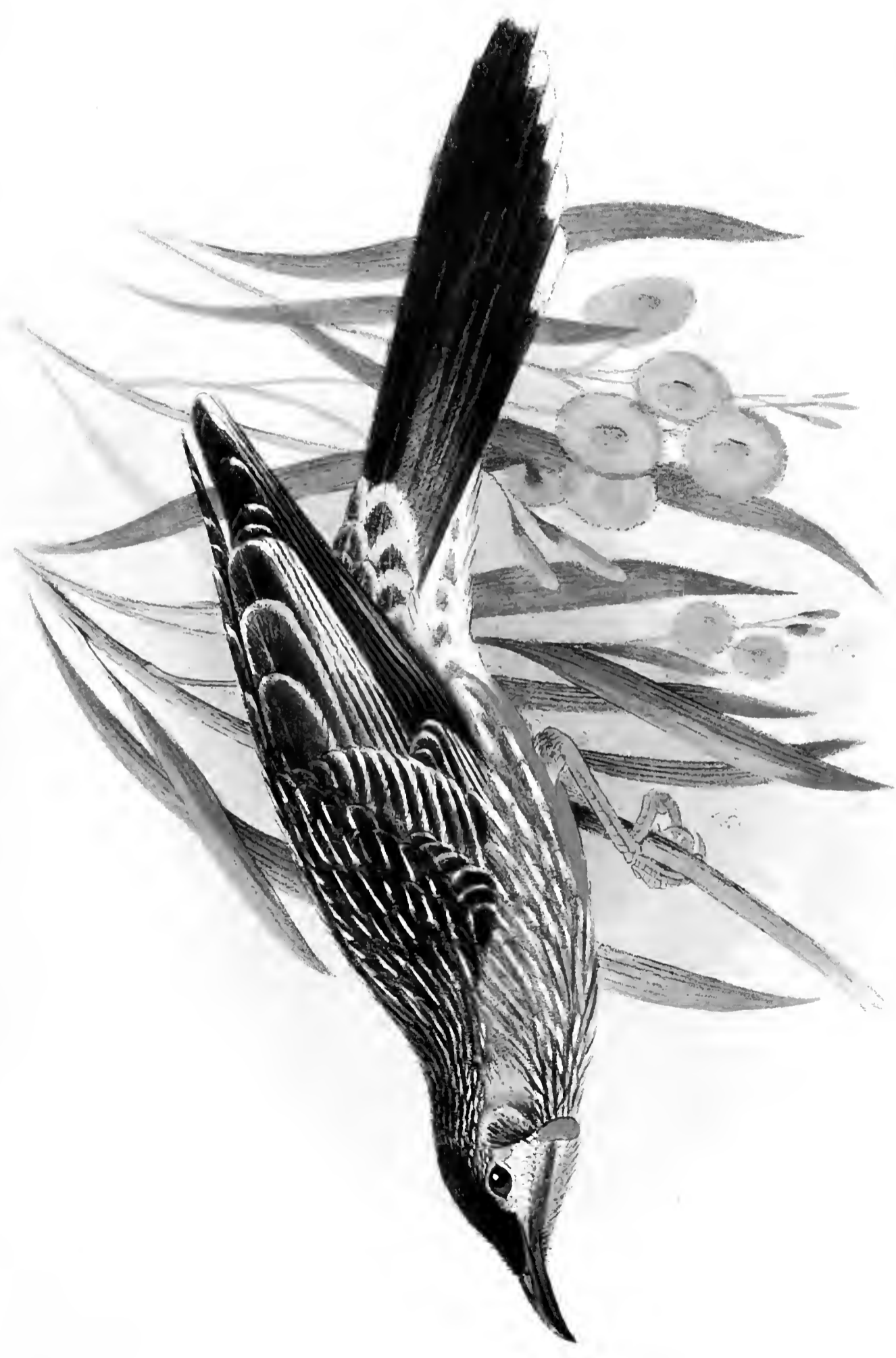
RED WATTLE-BIRD.

(PLATE 549.)

- MEROPS CARUNCULATUS White, Journ. Voy. New South Wales, 1st print, p. 240, before Aug. 9th, 1790 : New South Wales, based on Phillips.
- Wattled Bee-eater Phillips, Voy. Botany Bay, p. and pl. 164, 1789 ; White, Journal Voy. New South Wales, p. 144, and pl. opp. p. 240, 1790 ; Latham, Gen. Synops. Birds, p. 150, 1801.
- Merops carunculatus* White, Journ. Voy. New South Wales, 1st print, p. 240, 1790 ; Latham, Index Ornith., Vol. I., p. 276, 1790 ; Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 38, 1923.
- Anthochaera lewini* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 322 (note), Feb. 17th, 1827 : New South Wales.
- Anthochaera* carunculata* Gould, Birds Austr., pt xxvi. (Vol. IV., pl. 55), March 1st, 1847 ; *id.*, Handb. Birds Austr., Vol. I., p. 538, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190, 1878 ; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 263, 1884 ; Ramsay, Tab. List Austr. Birds, p. 13, 1888 ; Hall, Key Birds Austr., p. 44, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 423, 1901 ; Hill, Emu, Vol. II., p. 164, 1903 (Vic.) ; Milligan, *ib.*, Vol. III., p. 18, 1903 (W.A.) ; Hill, *ib.*, pp. 107-228, 1904 (W.A.) ; Lawson, *ib.*, Vol. IV., p. 135, 1905 (W.A.) ; A. G. Campbell, *ib.*, Vol. V., p. 144, 1906 (Kangaroo Island) ; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 160, 1907 ; Batey, Emu, Vol. VII., p. 9, 1907 (Vic.) ; Hill, *ib.*, p. 19 ; Austin, *ib.*, Vol. VII., pp. 30-91, 1907 (N.S.W.) ; Mathews, Handl. Birds Austral, p. 98, 1908 ; Chisholm, Emu, Vol. VIII., p. 37, 1908 (Vic.) ; Howe, *ib.*, p. 131, 1909 (Vic.) ; Gibson, *ib.*, Vol. IX., p. 75, 1909 (W.A.) ; Hill, *ib.*, p. 129, 1910 (S.A.) ; Howe, *ib.*, p. 234 (Vic.) ; Dove, *ib.*, Vol. XI., p. 43, 1911 (Tas.) ; Cleland, *ib.*, p. 92 (Food) ; Sullivan, *ib.*, p. 115 (Vic.) ; S. A. White, *ib.*, Vol. XII., pp. 2-6, 1912 (S.A.) ; Wilson, *ib.*, p. 38 (Vic.) ; Shufeldt, *ib.*, Vol. XIII., p. 1, 1913 (Osteology) ; S. A. White, *ib.*, p. 32 (S.A.) ; Chandler, *ib.*, p. 44 (Vic.) ; S. A. White, *ib.*, Vol. XX., p. 129, 1921 (W.A.) ; Eylmann, Journ. für Ornith., 1914, p. 34 ; Ashby, Emu, Vol. XX., p. 136 ; Mellor, *ib.*, p. 139 ; Alexander, *ib.*, p. 168.

* Also wrongly spelt *Acanthochæra*.

Witherby & Co



H Grönvold, del

COLEIA CARUNCULATA
(RED WATTLE-BIRD)

RED WATTLE-BIRD.

Mimus carunculatus Buller, Essay New Zeal. Orn. (prof. Feb.), p. 10, 1865 : New Zealand (accidental).

Anthochaera bulleri Finsch, Journ. für Ornith., 1867 (for Sept.), p. 307 : now name for "*Mimus carunculatus* Buller."

Anthochaera carunculata carunculata Mathews, Nov. Zool., Vol. XVIII., p. 418, Jan. 31st, 1912.

Anthochaera carunculata tregellasi Mathews, *ib.*, p. 419 : (Frankston) Victoria ; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs).

Anthochaera carunculata woodwardi Mathews, *ib.* : (Broome Hill) West Australia ; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs).

Coleia carunculata carunculata Mathews, List Birds Austr., p. 287, 1913.

Coleia carunculata tregellasi Mathews, *ib.*, p. 288 ; Belcher, Birds Geelong, p. 351, 1914.

Coleia carunculata woodwardi Mathews, List Birds Austr., p. 287, 1913.

Coleia carunculata clelandi Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 38, Feb. 21st, 1923 : Kangaroo Island.

Coleia carunculata perthi Mathews, *ib.* : Perth, West Australia.

DISTRIBUTION. South Queensland ; New South Wales ; Victoria, South Australia ; South-west Australia.

Adult male. Lores, fore-head, and crown black with whitish shaft-stripes ; back of the neck, mantle, back, rump and wing-coverts greyish-black, each feather with a broad white streak down the shaft, terminating in a point ; upper tail-coverts greyish-black with a very broad margin of white ; two middle pairs of tail-feathers greyish-black tipped with white and bordered on the outer webs with greyish-white ; outer pairs of tail-feathers black, widely tipped with white ; outer primaries black tipped with white, and narrowly margined on the base of the inner web with pale fawn ; inner primaries black, narrowly margined on the outer web and broadly on the inner web with pinkish-buff ; secondaries black, margined on both webs with white ; feathers in front of and below the eye silvery-white with black bases ; chin smoky-black ; throat, neck and upper-breast ash-brown with broad shaft-streaks of white ; middle of the belly bright golden-yellow ; under tail-coverts ash-brown, very widely margined with white. Total length 345 mm. ; culmen 25, wing 162, tail 172, tarsus 36. Figured. Collected at Frankston, Victoria, on the 20th of April, 1908, and is the type of *A. c. tregellasi*.

Adult female. Fore-part of head, including the lores and upper region of eye, blackish ; hinder-crown blackish-brown with white shaft-lines to the feathers ; fore-part of cheeks blackish ; space in front, below, and behind the eye silvery-white like the sides of the crown ; hinder cheeks and ear-coverts blackish at the base and tipped with white ; hind-neck, sides of neck and mantle paler than the crown and the shaft-streaks more conspicuous ; back and scapulars similar but slightly darker and the shaft-streaks lanceolate in form ; rump and upper tail-coverts similar with enlarged colour-pattern ; upper wing-coverts dark brown margined with white ; the primary-coverts fringed with buff on the inner webs ; flight-quills also dark brown edged on the outer webs and tipped with white, the inner webs margined with buff ; tail-feathers dark brown tipped with white, the middle ones somewhat paler than the lateral ones ; chin dark brown with dark hair-like tips to the feathers ; throat pale brown with white lanceolate shaft-streaks, which become less conspicuous on the breast, upper abdomen, and sides of body ; lower abdomen and vent bright yellow ; thighs earth-brown ; under tail-coverts white with pale brown shaft-

THE BIRDS OF AUSTRALIA.

streaks; axillaries and under wing-coverts pale brown fringed with white; under-surface of flight-quills dark brown margined with buff; lower aspect of tail greyish-brown tipped with white. Bill black, eyes rich hazel, feet light brown. Wing 135 mm. Collected at Warunda, Eyre's Peninsula, South Australia, on the 25th of August, 1911.

The sexes are alike.

Nestling, with down adhering to various parts of its plumage. Fore-head and lores blackish-brown, becoming paler on the crown, nape, and hind-neck, with white shaft-lines to the feathers; mantle, entire back and scapulars similar but more coarsely marked; upper wing-coverts dark brown with white shaft-streaks; flight-quills blackish fringed and tipped with buffy-white; tail dark brown tipped with buff; region of eye studded with minute quill-feathers; throat whitish; sides of neck buffy-white; ear-coverts show the approach of dark feathers with white tips; fore-neck, breast, and sides of body drab-brown, broadly streaked with white; middle of abdomen lemon-yellow, becoming cream-white on the vent; thighs drab-brown; under tail-coverts buff marked with black; under-surface of flight-quills dark brown tipped with white; lower aspect of tail buff. Eyes light grey, feet fleshy-grey, bill horn, gape cream. Collected at Blackburn, Victoria, on the 29th of November, 1912.

Eggs. Two eggs generally form the full clutch, seldom three. A clutch of two eggs taken near Belltrees, Upper Hunter River, New South Wales, on the 28th of October, 1907, is of a beautiful pinkish-buff ground-colour, spotted with reddish-brown and purplish-grey, which become thickly set together at the larger end. Ovals in shape. Surface of shell smooth and glossy. 33-34 by 23 mm.

Nest. An open structure, and frequently rather flat and saucer-shaped. Composed of twigs, grasses, strips of bark, etc., and lined with grasses, soft bark, wool, or hair. Dimensions over all vary much, but a typical nest measures about 7 or 8 inches across. Placed in a tree or bush at heights varying from 10 to 30 feet or more up from the ground.

Cup-shaped. Composed of twigs and lined with soft pieces of bark. Outside measurements, 3½ inches deep by 8 wide; inside, 2 inches deep by 4.

Breeding-months. July to early December.

SOME time ago I noted that there were two prints of White's *Journal of a Voyage to New South Wales* which apparently only differed in one leaf, and that on one of these editions the name *Merops carunculatus* appeared for the Wattleed Bee-eater, while it was missing in the other. Reasonably, I concluded that the technical name was added in the second print and allowed Latham as the authority of the name.

A recent examination of almost a proof copy shows the reverse state of affairs, a quite unexpected result. In this copy The List of Plates shows two obvious printer's errors, the word "of" in the heading being printed "op," and the second page reference being printed 237 instead of 137. These errors were early corrected, as in the other copy seen without the name "*Merops carunculatus*" these are adjusted. In addition, the plates are beautifully printed and bear the artist's name "S. Stone" clearly in every instance. In the later

RED WATTLE-BIRD.

copies this is indistinct and in many cases obliterated. The List of Subscribers is missing, and when it is included in later copies it is inserted in the middle of Sheet A. In this proof copy the plate of the Wattled Bee-eater is missing, but that of the female is present. This bird is described in the text opposite this page, and apparently when attention was drawn to this fact the complete description given on p. 240, being recognised as a duplicate, was suppressed, and in its place was inserted the description of the Wattled Merops, female. There can be no doubt, whatever the reasons for the alteration, that *Merops carunculatus* appeared on p. 240 in the earliest copies, and was cancelled in the later ones. Consequently the correct primary reference for this species will read:

Merops carunculatus White, Journ. Voy. New South Wales, first print, p. 240, (before August 9th) 1790: Near Port Jackson.

Phillips gave an illustration of this species in his book and called it the Wattled Bee-eater, but did not give it a Latin name, and Latham, who had access to Phillip's specimens and assisted in drawing up the descriptions, while his daughter prepared the paintings, included it in his Index Ornithologicus with the name *Merops carunculatas*.

The name selected was an unfortunate choice and was the cause of many complications afterward, which will be dealt with in the technical part of this species' history.

When Latham examined the Lambert drawings he added as habits: "Inhabits *New Holland*, especially the seashores, and are pretty numerous; they chatter much, and are bold to a great degree, for when other birds, even larger and stronger than themselves, approach, they drive them away. Their chief food is insects, but they likewise are very fond of sucking the honey from the different kinds of *Banksia*. They are known to the natives by the name of *Goo-gwar-neck*, which word much resembles the kind of note they are incessantly chattering."

This note was copied almost word for word from that given by Watling, as shown on the Watling drawings and reprinted by Sharpe in the Hist. Coll. Nat. Hist. Brit. Mus., Vol. II., p. 124.

Vigors and Horsfield, in their exposition of the Australian Birds in the collection of the Linnean Society, transferred the name to a Tasmanian bird, recording Caley's note: "All my specimens of this bird were shot in Van Diemen's Land. I have met with it at Western Port in the trees close to the seaside. To my knowledge it never occurred about Sydney, although it is said by Mr. White to be an inhabitant of the colony," and then introduced as a new species *Anthochæra lewinii*, the true *Merops carunculatus* of Latham, writing: "We take this opportunity of characterizing the following bird, which has been generally considered the young of *Anth. carunculata*."

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Gould wrote: "Enjoys a wide range of habitat extending as it does over the whole of the southern portion of the continent, the bird being equally as abundant in Southern and Western Australia as in New South Wales; how far it may proceed to the northward has not yet been ascertained; it does not inhabit Tasmania. I observed it to be very numerous in all the high gum-trees around Adelaide, in most parts of the interior, and in all the *Angophora* flats and forests of *Eucalypti* of New South Wales. It is a showy, active bird, constantly engaged in flying from tree to tree and searching among the flowers for its food, which consists of honey, insects, and occasionally berries. In disposition it is generally shy and wary, but at times is confident and bold; it is usually seen in pairs, and the males are very pugnacious. Its habits and manners, in fact, closely resemble those of the *A. inauris*, and, like that bird, it utters with distended throat a harsh, disagreeable note. It breeds in September and October."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "Some years towards the end of the winter, more especially if the native apple trees are in bloom, this species arrives in thousands, and the effect of their curious notes uttered by so many birds is most extraordinary, especially to anyone unacquainted with them. Most years there are just a few of them scattered about, but other years not a bird is to be seen. In some districts I know they are a great nuisance in orchards and vineyards, but here I have never seen one in my garden, although often plentiful in the eucalyptus trees just outside the fence. They are rather shy, seldom allowing of a close approach. They sometimes breed very early, as I have seen young birds just out of the nest early in September, and I have taken their eggs from August 22nd up till October 19th. Two eggs usually form the clutch, only twice have I found three."

Captain S. A. White has written me: "This is a widely distributed bird, but is becoming scarcer each year as they have been shot down in great numbers in the past owing to their being good eating and being troublesome at times in the orchards. From twenty to thirty years ago these birds appeared with us in the autumn on the Adelaide Plains in great numbers and their harsh note could be heard everywhere, but now an odd one or two puts in an appearance and that is all. I have never seen this bird in the interior. Their food consists chiefly of insects with fruit berries and nectar from many blossoms. They breed in August, September and October; the nest is a loose open structure composed of twigs and rootlets, two eggs forming a clutch. The nest is sometimes placed low down in a bush banksia, at others high up in a tree. Their note is a very harsh and loud one, at times almost a bark; their flight short, clumsy and erratic. I have seen them spending much time chasing small birds in and out the branches in their efforts to keep them away from a gum tree in blossom."

RED WATTLE-BIRD.

Mr. J. W. Mellor's notes agree in almost every detail.

Mr. H. Stuart Dove has sent the following important note: "Large numbers of this handsome species frequent the vicinity of Lakes Entrance during autumn and winter to feed upon the nectar from blooms of Giant Banksia (*B. serrata*), very plentiful here, as well as the ordinary Coast Banksia. A good number remained to breed, the favourite spot being a clump of mistletoe (*Loranthus*) in Box (Eucalyptus) trees. Four out of five nests we examined were in this; continuous observations were made on two, the first situated in a small clump of stiff leaved *Loranthus* on bunch of 'Box' about 25 feet from ground; made of twigs, lined with fibres of stringy bark on which was placed sheep's wool; one egg on 13th Oct., 1910, second egg on 14th, both of a salmon-buff, with chestnut markings. Bird sitting on 15th Oct., young hatched on 30th Oct., giving *fifteen days' incubation*; young sparsely covered with blackish down, long tufts on heads; the eyes were wide open on 7th Nov., bodies and head covered with long dark down, wing quills developing well. On 9th Nov. they still had some down at ten days old, although plumage developing well. When camera was taken up tree, parents became wildly excited, dashing furiously from tree to tree with harsh grating cries, the female sometimes 'shamming wounded' like the Yellow Robin and *fluttering* along the ground in the endeavour to lure us away. This trait in the Wattle-Bird was new to me. On 13th Nov. they had streaked light and dark grey plumage, much like adults, a little down still showing through; one left nest and sailed to ground when touched, and next day they finally left nest, giving *fifteen days fledging*. In the second nest on 3rd Nov. the young were hatched, having reddish skin, sparsely covered with dark grey down, and tufts on heads. On 10th Nov. their eyes were open, long dark down on head and back, wing quills sprouting; one which I took to be the male had a large reddish bill, the other a smaller yellow bill. They had left nest on 17th Nov., thus giving *fourteen days fledging*, but the extreme warmth of the previous day and the heat of the thick wool lining probably hastened their departure by a day."

Mr. E. J. Christian has written me: "This bird is rare in this district but is common in the south, especially near the coast, where they frequent the Coast Honeysuckles, but are often bullied out of the trees by *Meliornis novæhollandiæ*. They are highly esteemed as game. They are very noisy birds and have a peculiar note which sounds like 'Black-cock-gua' said very quickly several times. It is indeed peculiar to see one perched up in a tree making his notes and looking extremely as though he were not well."

Mr. F. E. Howe wrote: "The loud harsh call is frequently heard and the bird seems fairly plentiful. It is very local in its habits and nests in the same locality time after time. On the 8th October, 1905, a nest containing

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one egg was found and, though the egg was taken, the second egg was laid and incubated in the same nest. This also occurred to us the following year."

Hill wrote from the Geelong and Oburg districts: "All over the district, but not common except in the more heavily timbered country. Very common in the Otways, but very local; for instance it was frequent on the Erskine but scarce on the St. George, though these two creeks are only a couple of miles apart."

Chisholm also recorded from the Maryborough district in 1908: "On account of the early flowering of the various eucalypts, these birds have arrived here over a month earlier than last year. Although the main body of the 'Wattles' has not yet arrived, the birds are very plentiful about the bush, and their numbers are being added to daily. It would be interesting to know how the birds learnt of the early flowering of the trees. I notice they do not confine themselves to an honey diet, but may be seen ever and anon darting after various insects. The blossoms of the ironbark (*Eucalyptus*) trees are specially favoured by these birds."

Howe has noted: "Young about a week old; the quills on the primaries, about an inch long and of a blue colour, were not yet broken; the eyes were just opening. They were clothed with a dark grey down, while the inside of the mouth and the gape were both yellow."

From Eyre Peninsula, Captain S. A. White wrote: "*Acanthochaera carunculata* was very numerous around our camp. Their peculiar harsh cry and queer calls are kept up from the first streak of dawn till darkness sets in. They are very early nesters, nearly all we saw having fully fledged young. They were one or two late broods—most likely second ones. Their chief food appears to consist, at this time of the year, of soft, hairy caterpillars. . . . A nest containing three young, covered in grey down, was found."

Alexander, of the Perth district, has written: "Resident. During the winter these birds assemble in great numbers in those parts of the district where flowering banksias are," and Ashby recorded it as "Common at Claremont, W.A."

Mr. Tom Carter has given me a long note: "The Red Wattle-bird is one of the commonest species through the south-west (in your 1912 'Reference List' you give 'West Australia' generally) from the Moore River, southwards. It is not so common in the heavily timbered coastal areas as it is in the more open country further inland. About Broome Hill it is very numerous and noisy; the loud 'hiccupping' notes of the birds may be heard all over. The uttering of this note seems to require a considerable effort on the part of the bird, as, while producing it, its head is thrown up and far back, and its body moved by a violent jerk, in quite a comical way. Another common note is a deep guttural single one. On the north side of my land at Broome

RED WATTLE-BIRD.

Hill there is a strip of rough scrubby ground, left in its natural state as a reserve for wild life. Upon it are thickets of saplings of the Mallet trees (*Euc. occidentalis*) which towards the end of summer are usually covered with masses of blooms full of honey. This is a favourite feeding ground for Wattle-birds and many species of Honey-eaters, and at such times birds swarm there, and the chorus of the voices of the thousands of Wattle-birds can be heard at a considerable distance in calm weather. The Wattle-birds are of a very bullying and pugnacious disposition, constantly driving away smaller birds from their vicinity. The breeding-season is a very extended one, in fact I think that odd pairs of birds breed any time, and some rear two broods in a season. The nests are rather flat in shape and rough in make, mostly of small sticks, and lined with grass and roots, and some sheep's wool when procurable. Clutch two or three. The situation of nests varies much, sometimes being only four feet above ground, at others any height up to forty feet. May 28, 1911. Three fresh eggs. August 21, 1912. Two fresh eggs. October seems chief breeding month. Many nests found with eggs, and young birds fledged from early nests. December 5, 1910. Small young in nest (second brood in *same* nest). Dec. 11, 1906. Two fresh eggs in nest. Dec. 1, 1912. Three eggs, just hatching."

Although no forms had been differentiated when I prepared my "Reference List" in 1912, I found that three could be easily diagnosed thus:

Anthochaera carunculata carunculata (Latham).

South Queensland, New South Wales.

Anthochaera carunculata tregellasi Mathews.

"Differs from *A. c. carunculata* in its darker coloration above and in having the wattles slightly more elongated than in the typical form. (Frankston) Victoria."

Victoria, South Australia.

Anthochaera carunculata woodwardi Mathews.

"Differs at sight from *A. c. carunculata* in its elongated wattle and more thickly striped under-surface (Broome Hill)."

West Australia.

With transference to the genus *Coleia* no addition was made in my 1913 "List," but as long ago as 1906 A. G. Campbell had written of the Kangaroo Island form: "One specimen examined has a bill 1.2 in. long, wing 6.4 in., both of which are larger than the mainland form, while it is without the prominent silky-white patch under the eye."

I have named the Kangaroo Island subspecies

Coleia carunculata clelandi

and the Perth form

Coleia carunculata perthi.

GENUS—C R E A D I O N.

- CREADION Vieillot, Analyse nouv. Ornith., p. 36,
 April 14th, 1816. Type (by subsequent
 designation) Lesson, Compl. des Œuvres Buffon,
 Vol. IX., p. 7, 1837 *Corvus paradoxus* Latham
i.e., Daudin.
- Dyottornis* Mathews, Austral Avian Record, Vol. I.,
 pt. 5, p. 116, Dec. 24th, 1912. Type (by
 original designation) *Corvus paradoxus* Daudin.

LARGEST Honey-eaters with short stout bills, long cylindrical facial wattles, long wings, very long wedge-shaped tail and short stout legs and feet.

The bill is short and stout, shorter than the head, straight, the culmen arched, the tip pointed, posteriorly notched, edges straight, laterally compressed, base a little expanded, the culmen semi-keeled; the nasal groove half the length of the bill, the linear nostrils long, the operculum notable, a few nasal bristles and weak rictal bristles; the under mandible fairly stout, but the depth of the bill at the base not as much as the width; the interramal space feathered, narrowly triangular and less than half the length of the bill, the gonys nearly straight.

The wing long with the third, fourth, fifth, sixth and seventh primaries subequal and longest, the fifth sometimes a little longer, and the third and seventh a little shorter; the second equal to the eighth primary and longer than the secondaries; the first primary short but more than half the length of the second.

The tail is very long and strongly wedge shaped, the outside feathers being less than half the length of the central pair.

The feet are very strong, the front of the tarsus scutate, but the scutes tend to fuse, the hind aspect bilaminar; the toes short and stout, the hind-toe very stout and longest, the inner toe less than the outer, and the inner toe and claw about equal to the middle toe alone, all the claws curved and long, the hind-toe claw longest and stoutest.

In connection with the preceding genus I have given the account of the proposal of *Anthochæra* and the introduction of *Dyottornis* which I diagnosed: "Differs from *Anthochæra* Vigors and Horsfield, Type *A. mellivora* (= *Merops*

CREADION.

chrysopterus Latham), in its longer bill, much stronger feet, longer wing and very long fan-shaped tail, and the presence of long pendulous wattles."

Recently, however, I have been compelled to reject my own *Dyotornis* in favour of *Creadion* Vieillot, proposed as long ago as 1816 and commonly used for a New Zealand bird. *Creadion* was proposed for all the wattled birds of the Southern seas, which had been placed in *Merops*, *Sturnus* and *Corvus* by his predecessor. Vieillot, however, recognised that these differed essentially and made two divisions in his fuller account, and when he gave a picture of one of his species in connection with his genus it was the Australian bird he figured. Vigors and Horsfield, noting the confusion, proposed a new genus for the Australian birds, stating they did not know the New Zealand form. Lesson, however, determined that *Anthochæra* was based on the same group as Vieillot had diagnosed, and there can be no doubt that Lesson's action was right. The matter is technically discussed in the *Austral Avian Record*, Vol. IV., No. 7, p. 169, March 7th, 1922.

Order *PASSERIFORMES*.

No. 694.

Family *MELITHREPTIDÆ*.

CREADION PARADOXUS.

WATTLE-BIRD.

(PLATE 550.)

- CORVUS PARADOXUS* Daudin, *Traité d'Orn.*, Vol. II., p. 246, (May 14th) 1800 : " In Nova Zealandia " errore=Tasmania.
- Corvus paradoxus* Daudin, *Traité d'Orn.*, Vol. II., p. 246, 1800 ; Latham, *Index Ornith. Suppl.*, p. xxvi., 1801.
- Creadion novæhollandiæ* Stephens in Shaw's *Gen. Zool.*, Vol. XIV., p. 265 (end), 1826 : " N.Z. " =Tasmania.
- Anthochæra carunculata* (not Latham) Vigors and Horsfield, *Trans. Linn. Soc. (Lond.)*, Vol. XV., p. 321, 1827.
- Creadion pedunculatus* Voight, ed. Cuvier's *Thier. Reich.*, Vol. I., p. 497, (pref. Easter) 1831 : " N.Z. " =Tasmania.
- Philedon paradoxus* Voight, *ib.*
- Anthochæra** *inauris* Gould, *Birds Austr.*, pt. xvi. (Vol. IV., pl. 54), Sept. 1st, 1844 : Tasmania ; *id.*, *Handb. Birds Austr.*, Vol. I., p. 536, 1865 ; Ramsay, *Proc. Linn. Soc. N.S.W.*, Vol. II., p. 190, 1878 ; Gadow, *Cat. Birds Brit. Mus.*, Vol. IX., p. 263, 1884 ; Legge, *Papers Proc. Roy. Soc. Tasm.*, 1886, p. 240, 1887 ; Ramsay, *Tab. List Austr. Birds*, p. 13, 1888 ; Hall, *Key Birds Austr.*, p. 44, 1899 ; Campbell, *Nests and Eggs Austr. Birds*, Vol. I., p. 425, 1901 ; McClymont, *Emu*, Vol. II., p. 97, 1902 ; A. G. Campbell, *ib.*, p. 208, 1903 (King I.) ; Littler, *ib.*, Vol. III., p. 88, 1903 ; A. G. Campbell, *ib.*, Vol. IV., p. 123, 1905 ; Mellor, *ib.*, Vol. VI., pp. 162-169, 1907 ; S. A. White, *ib.*, Vol. VIII., p. 197, 1909 (King I.) ; Littler, *Handb. Birds Tasm.*, p. 62, 1910 ; Fletcher, *Emu*, Vol. XI., p. 108, 1911 ; *id.*, *ib.*, Vol. XIII., p. 50, 1913.
- Anthochæra paradoxa* North, *Ibis*, 1906, p. 57 ; North, *Austr. Mus. Spec. Cat.*, No. 1, Vol. II., p. 163, 1907 ; Mathews, *Handl. Birds Austral.*, p. 99, 1908 ; *id.*, *Nov. Zool.*, Vol. XVIII., p. 419, 1912.
- Dyoltornis paradoxus* Mathews, *List Birds Austr.*, p. 288, 1913.
- Dyoltornis paradoxus westernensis* Mathews, *Austral Avian Record*, Vol. III., pt. III, p. 63, April 7th, 1916 : Western district of Tasmania.
- Creadion paradoxus paradoxus* Mathews, *Austral Avian Record*, Vol. IV., pt. 7, p. 169, 1922.

* Also incorrectly spelt *Acanthocæra*.



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Witherby & 1906

CREADION PARADOXUS
(YELLOW WATTLE - BIRD)

WATTLE-BIRD.

Creadion paradoxus westernensis Mathews, *ib.*

Creadion paradoxus Mathews, *ib.*

DISTRIBUTION. Tasmania and Islands of Bass Straits.

Adult female. Feathers of the top of the head and back of the neck black, each feather margined down the sides with white; mantle and wing-coverts blackish-brown with whitish shaft-streaks; rump and upper tail-coverts greyish-ash, shaded with dusky and with a whitish shaft-streak; the largest upper tail-coverts ash-grey, with a reddish shaft stripe; secondaries brownish-black, very widely margined on the inner web with silvery-white; primaries blackish-brown, fringed on the outer web with white, the inner web margined with greyish-white and with a broad white tip; tail very long, dark brown in colour and widely tipped at the extremity with white; a whitish eyebrow terminating in a white patch behind the eye; sides of the face barred with black and white, a whitish streak from the base of the lower mandible down the sides of the throat; feathers of the throat white and terminating in long whiskers; sides of the neck and of the head blackish-grey; chest-feathers long and pointed, greyish-white in colour with a broad streak of dark ash down the centre, widest at the base; belly white with oval spots of dark ash, upper abdomen golden-yellow; lower abdomen and under tail-coverts white with ash middles. Bill black, feet yellow, claws brown, eyes brown, wattle rich orange at tip, whitish at base. Total length 470 mm.; culmen 20, wing 178, tail 213, tarsus 43. Figured. Collected at Launceston, Tasmania, in June, 1905.

Adult male similar to the adult female, but smaller, and with smaller wattles.

The young seem to take on the adult plumage from the nest, that is, resemble the adult.

“*Young birds* resemble the adults, but the margins of the feathers on the crown of the head and hind-neck are pale brown and the central dark brown streaks are not so sharply defined; the wattles are much smaller and the under-parts are less distinctly defined, especially on the lower side of the breast.” (North.)

Nest. Cup-shaped, placed in a fork. Composed of small twigs, loosely put together and lined with fine grass and wool. Decorated with cocoons (green and white). Outside dimensions, 4 inches deep by 6 wide; inside, 1½ inches deep by 3½ wide.

A rather flat structure, and very similar in construction to that of *A. carunculata*, only sometimes it is larger, the dimensions over all at times being as much as 10 and 11 inches.

Eggs. Two to three eggs form the clutch. A clutch of two eggs taken near Launceston, Tasmania, on the 25th of October, 1905, is of a pinkish-buff ground-colour, spotted, chiefly about the larger end, with reddish-brown and purplish-grey. Swollen ovals in shape. Surface of shell smooth and glossy. 32-33 by 23 mm.

Breeding-months. July to December.

As already noted, this Tasmanian bird was confused with the New South Wales bird named *Merops carunculatus* by Latham, and Vigors and Horsfield used Latham's name for the Tasmanian bird, renaming the continental bird.

Gould pointed this out, describing the Tasmanian bird as a distinct species and gave the following note of its habits: “The vast primeval forests of *Eucalypti* clothing the greater portion of Tasmania are the habitual resort of this bird; from these retreats, however, it frequently emerges, and visits the

THE BIRDS OF AUSTRALIA.

flowering *Eucalypti* of the more open parts, where forty or fifty individuals may be frequently seen on a single tree, even in the vicinity of Hobart Town and the islands of South Arm and Bruni. The neighbourhood of the Macquarrie Plains is also a locality particularly favourable to it; from this district hundreds are annually sent to the markets of Hobart Town for the purposes of the table. It is highly prized as an article of food, and in winter becomes excessively fat, the entire body and neck, both internally and externally, being completely enveloped. This bird feeds almost exclusively on honey and the pollen of the *Eucalypti*, the only other food detected in its very diminutive stomach being the remains of coleopterous insects. Its whole structure is admirably adapted for procuring this kind of food; its long tongue, with its brush-like tip, being protruded into the honey-cups of the newly opened flowers, a succession of which appears with every rising sun throughout the year, upon one or other of the numerous species of *Eucalypti*. The same restless disposition seems to be common to all the tribe of Honey-eaters, and this bird is as active and quick in its movements as the smallest of the genus, hanging and clinging to the branches in every possible variety of position; and when thirty or forty are seen on a single tree, they present a very animated appearance. Its flight, which seldom extends farther than from tree to tree, is very similar to that of the Magpie of Europe. Its note is a harsh and disagreeable scream, resembling in loudness and somewhat in tone the call of the Pheasant. Both sexes have the wattled appendages beneath the ear, but they are less developed in the female, which, moreover, is smaller than the male."

Mr. Frank Littler has written me: "This species is universally, but unevenly, distributed throughout Tasmania and is among the most highly esteemed of our game birds. By an Act of December 30th, 1901, it was afforded absolute protection for two years owing to the great slaughter during the shooting seasons previously, which lasted from May 24th to July 30th inclusive. Breeding-months, August to December. During the season in which flowering eucalypts are plentiful the bird becomes very fat and weighs over six ounces. During the winter its food consists of rich nectar from eucalypt blossoms and honeysuckle cones. In summer, as the honeysuckle alone are in flower, insects, especially beetles, are added to its diet. In some districts the eucalypts blossom one year and in other districts the next, consequently the birds move from one district to another. In the summer it resorts to the mountain slopes, returning to the plains as winter approaches; the harder the winter the more plentiful the bird is expected to be, as the thickly wooded plains are warmer than the mountain slopes. It soon becomes very wild after being shot at and is difficult to approach, giving the alarm and taking flight at the slightest sign of danger. It moves in flocks which greatly vary in number. At the first glimmer of

WATTLE-BIRD.

daylight it can be heard among the tree tops. I have watched large flocks leaving their feeding ground at dusk and moving further into the bush. It has a most remarkable voice which, once heard, is not easily forgotten or mistaken for that of any other species. The cry is loud and harsh and is between a cough and a scolding voice suffering from a cold in the throat. When two birds are quarrelling their voices sound very harsh and discordant."

Miss J. A. Fletcher has sent me a note on this and the Brush Wattle-Bird in Tasmania, stating: "It is perhaps worth noting that these birds have a great liking for one locality and keep to it ten out of the twelve months. I find that in nesting they choose in many cases the same tree in which they nested the previous season, and if not the exact tree they still stick to the same patch of scrub. Generally the spot selected is where two or three banksia trees are growing closely together, the nests being placed in forks of the banksia, from 6 to 16 feet high. The Wattle-Bird generally fixed a lot of wool in the twigs and leaves of which its nest was made, but though I found several nests of the Brush Wattle-Bird I never found any wool in their nests. They used instead soft strips of bark to mix with the twigs. The eggs are laid daily. When the bird is sitting the male often betrays the situation of the nest by flying ahead of the intruder uttering a warning cry. He generally alights on a neighbouring tree, occasionally on the tree itself in which the nest is built. The female will sometimes stay on the nest until a person is nearly up the tree, then she flies off and joins her mate in his alarm cries. The birds, both species, are very plentiful in the banksian forests around Cleveland, North Tasmania, and appear to be little disturbed by shooters. The nesting is somewhat later here (north) than in other parts of the island (indeed, generally speaking, the birds appear a month later in nesting than the southern birds). On November 4th a nest was found partly built and on the 9th bird was sitting on two eggs; then several fresh nests and eggs were found during the month and on December 11th two young just getting their feathers. Next year the birds bred earlier, three nearly fledged young being found in a nest on November 15th."

Captain S. A. White has written me: "This fine bird is quite numerous in parts of Tasmania, and I found it feeding amongst the topmost branches of the high eucalypts which were in flower; it seems to get back to the high land in the summer, for when I paid a second visit to the same locality where I had previously found it plentiful none were to be seen. The settlers kill these birds in numbers for food, and it is quite likely, if not afforded protection, it will be exterminated like other game birds. Its flight is rather laboured, and it is quarrelsome and pugnacious; the note is a strange muffled sound between a suppressed cough or bark. I found them very numerous on King Island, and stomach contents revealed insects, berries and honey."

THE BIRDS OF AUSTRALIA.

I recently named the western Tasmanian form on account of its darker coloration, and it is worth emphasizing the fact that the Tasmanian aviforms vary among themselves in the different districts as this is a subject yet unstudied. The King Island subspecies may be named

Creadion paradoxus kingi, subsp. nov.

being not so yellowish on the under-surface as the Tasmanian bird and the wattles not so long. The bird I figured has a much smaller bill than Gould's type, so I call it *Creadion paradoxus brevirostris*, subsp. nov.

The name *westernensis* is a synonym.

GENUS—ANTHOCHÆRA.

ANTHOCHÆRA Vigors and Horsfield, Trans.
 Linn. Soc. (Lond.), Vol. XV., p. 320,
 Feb. 17th, 1827. Type (by subsequent
 designation) Mathews, Austral Av. Rec.,
 Vol. I., pt. 5, p. 116, 1912 *A. mellivora*
 = *Merops chrysopterus* Latham.

Also spelt—

Acanthochæra Gadow, Cat. Birds Brit. Mus. Vol. IX., p. 263, 1884,

Anellobia Cabanis, Mus. Heim., Vol. I., p. 120,
 (after Oct. 23rd) 1851. Type (by sub-
 sequent designation) Gray, Cat. Gen.
 Subgen. Birds, p. 25, 1855, or monotypy *A. mellivora* and *M. lunulata*
 = *Merops chrysopterus* Latham.

Melichæra Reichenbach, Handb. Spec. Ornith.,
 Abth. II. (Handb. Meropinæ), Vol. I.,
 p. 130, (Iones, Cont. No. IX., March
 1st, 1852). Type (by monotypy) .. *M. mellivora* and *M. lunulata*
 = *Merops chrysopterus* Latham.

I HAVE given the history of this genus name under *Coleia* and here note the differential features.

These are smaller birds with no wattle but coloration similar.

The bill is similarly formed, but thinner and proportionately longer.

The wing is similarly formed, but the second primary, though longer than the secondaries, is shorter than the ninth primary. The tail is fan-shaped like that of *Coleia*, not wedge-shaped like that of *Creadion*.

The legs are weaker and the claws shorter, the scutes on the front of the tarsus more pronounced, though the legs are less stout.

The blunderer who changed *Anthochæra* into *Acanthochæra* cannot be too strongly condemned, as Vigors and Horsfield in the original introduction of their name gave the etymology correctly, and this should have been referred to before such a silly alteration was published.

ANTHOCHÆRA CHRYSOPTERA.

BRUSH WATTLE-BIRD.

(PLATES 551-552.)

MEROPS CHRYSOPTERUS Latham, Index Ornith. Suppl., p. xxxiii., (after May 30th) 1801 :
New South Wales, based on Lambert drawing (Watling No. 90).

Merops chrysopterus Latham, Index Ornith. Suppl., p. xxxiii., 1801.

Certhia mellivora Latham, *ib.*, p. xxxvii. : New South Wales, based on Lambert drawing
(Watling No. 104).

Golden-winged Bee-eater Latham, Gen. Synops. Birds, Suppl., p. 153, 1801.

Mellivorous Creeper Latham, *ib.*, p. 166.

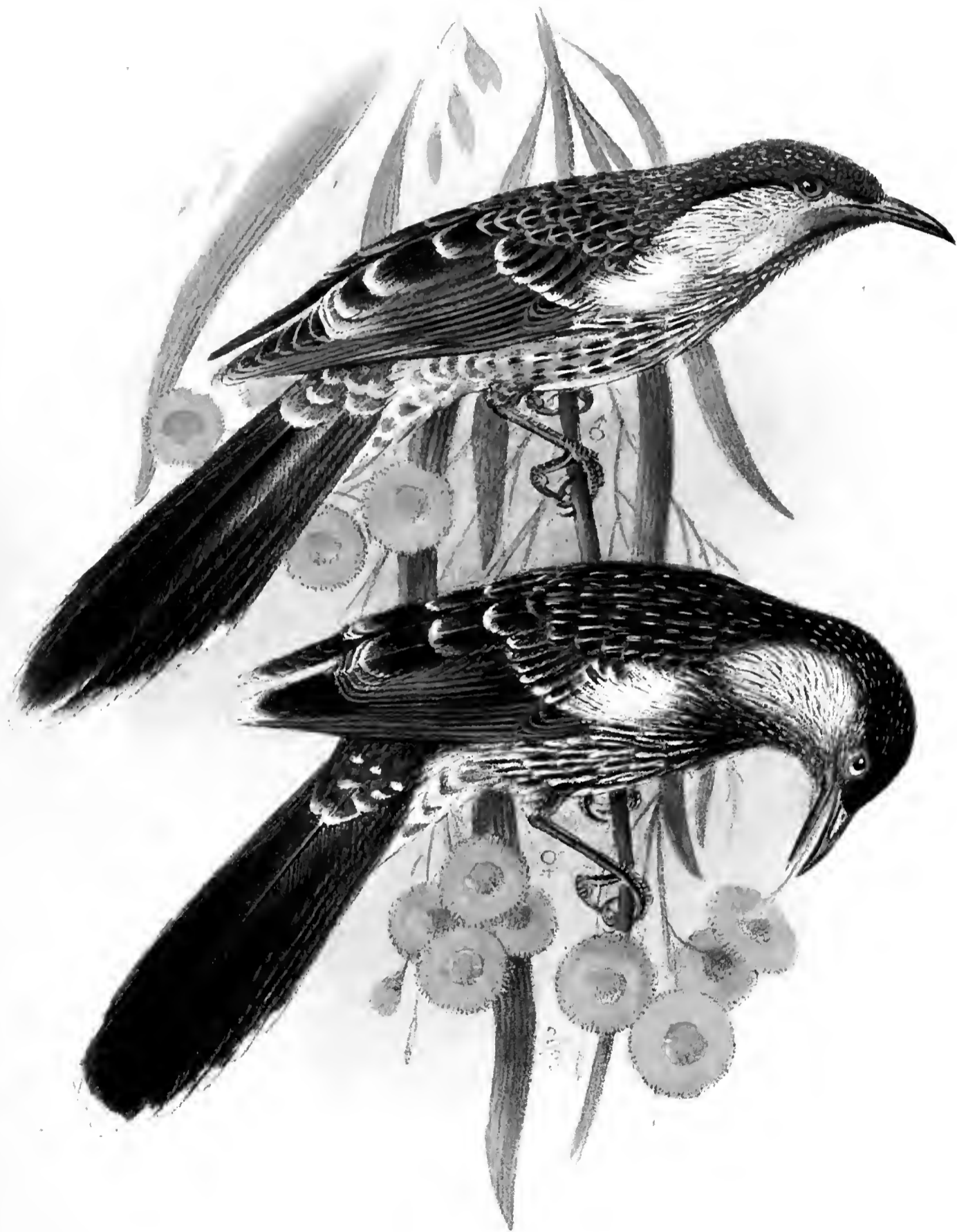
Certhia goruck Bechstein, Kurze Uebers. Vögel, p. 198, 1811: New South Wales.

Anthochæra mellivora* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 321,
1827 ; Gould, Birds Austr., pt. II. (Vol. IV., pl. 56), March 1st, 1841 ; Gadow, Cat.
Birds Brit. Mus., Vol. IX., p. 264, 1884 ; Legge, Papers Proc. Roy. Soc. Tasm.,
1886, p. 240, 1887 ; Hall, Key Birds Austr., p. 44, 1899 ; Campbell, Nests and
Eggs Austr. Birds, Vol. I., p. 425, 1901 ; Fletcher, Emu, Vol. IV., p. 15, 1904
(Tas.) ; Milligan, *ib.*, p. 51 (W.A.) ; A. G. Campbell, *ib.*, p. 123, 1905 (Tas.) ; *id.*,
ib., Vol. V., p. 144, 1906 (Kangaroo Island) ; Batey, *ib.*, Vol. VII., p. 9, 1907
(Vic.) ; Hill, *ib.*, p. 19 (Vic.) ; North, Austr. Mus. Spec. Cat. No. 1, Vol. II., p. 165,
1907 ; Hall, Emu, Vol. IX., p. 130, 1910 (S.A.) ; Littler, Handb. Birds Tasm., p. 64,
1910 (Tas.) ; Fletcher, Emu, Vol. XI., p. 108, 1911 (Tas.).

Anthochæra lunulata Gould, Synops. Birds Austr., pt. iv., App., p. 5, April 1st, 1838 :
Swan River, West Australia ; *id.*, Proc. Zool. Soc. (Lond.), 1837, p. 153, Dec. 1838 ;
id., Birds Austr., pt. xxiii. (Vol. IV., pl. 57), June 1st, 1846 ; Gadow, Cat. Birds
Brit. Mus., Vol. IX., p. 265, 1884 ; Hall, Key Birds Austr., p. 45, 1899 ; Campbell,
Nests and Eggs Austr. Birds, Vol. I., p. 426, 1901 ; Milligan, Emu, Vol. II., p. 74,
1902 ; *id.*, *ib.*, Vol. III., p. 19, 1903 ; Hill, *ib.*, p. 228, 1904 ; Milligan, *ib.*, Vol. IV.,
p. 51, 1904 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 167, 1907.

Anellobia mellivora Cabanis, Mus. Hein., Vol. I., p. 120, 1851 ; Gould, Handb. Birds
Austr., Vol. I., p. 541, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190,
1878 ; *id.*, Tab. List Austr. Birds, p. 13, 1888 ; S. A. White, Emu, Vol. XIV., p. 143,
1915 (Mallacoota).

* Also incorrectly spelt *Acanthochæra*.



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Anellobia lunulata Cabanis, Mus. Hein., Vol. I., p. 120, 1851; Gould, Handb. Birds Austr., Vol. I., p. 543, 1865; Ramsay, Proc. Linn. Sec. N.S.W., Vol. II., p. 190, 1878; *id.*, Tab. List Austr. Birds, p. 13, 1888; Mathews, Handl. Birds Austral., p. 99, 1908; Crossman, Emu, Vol. IX., p. 90, 1910; Orton and Sandland, *ib.*, Vol. XIII., p. 80, 1913; S. A. White, *ib.*, Vol. XX., p. 129, 1921; Ashby, *ib.*, p. 136; Alexander, *ib.*, p. 168.

Melichæra mellivora Reichenbach, Handb. Spec. Ornith., Abth. II. (Handb. Merop.), p. 130, 1852.

Melichæra lunulata Reichenbach, *ib.*, p. 132.

Anellobia chrysoptera Sharpe, Hist. Coll. Nat. Hist., Brit. Mus., Vol. II., p. 125, 1906; Mathews, Handl. Birds Austral., p. 99, 1908; Hill, Emu, Vol. IX., p. 130, 1910 (S.A); Cleland, *ib.*, Vol. XI., p. 93, 1911 (Food).

Anellobia chrysoptera chrysoptera Mathews, Nov. Zool., Vol. XVIII., p. 419, Jan. 31st, 1912.

Anellobia chrysoptera intermedia Mathews, *ib.*: (Adelaide) South Australia; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs).

Anellobia chrysoptera tasmanica Mathews, *ib.*, p. 420: Tasmania.

Anellobia chrysoptera lunulata Mathews, *ib.*

Anellobia chrysoptera halmaturina Mathews, Austral Avian Record, Vol. I., pt. 4, p. 101. Sept. 18th, 1912: Kangaroo Island.

Anellobia halmaturina S. A. White, Emu, Vol. XII., p. 263, 1913.

Anthochæra chrysoptera chrysoptera Mathews, List Birds Austr., p. 289, 1913.

Anthochæra chrysoptera intermedia Mathews, *ib.*; Belcher, Birds Geelong, p. 353, 1914.

Anthochæra chrysoptera halmaturina Mathews, List Birds Austr., p. 289, 1913.

Anthochæra chrysoptera tasmanica Mathews, *ib.*

Anthochæra chrysoptera lunulata Mathews, *ib.*

Anthochæra chrysoptera albani Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 39. Feb. 21st, 1923: Albany, South-west Australia.

DISTRIBUTION. South Queensland, New South Wales, Victoria, South Australia, South-west Australia, Kangaroo Island, Tasmania.

Adult male. General colour of the upper-surface dark earth-brown, including the top of the head, hind-neck, sides of neck and back, where the feathers have pale shaft-lines; upper tail-coverts edged with white at the tip; scapulars rather darker than the back and fringed with white at the tips; upper wing-coverts blackish with white tips to some of the median and greater series; flight-quills blackish-brown slightly fringed with rufous on the outer webs of the basal portion and with white on the apical portion; inner webs chestnut towards the base but fades away towards the innermost quills; tail blackish tipped with white; chin, throat, and fore-neck dusky lead-grey minutely dotted with white; sides of face and sides of neck silvery-white with dark bases to the feathers; breast drab-brown with white shaft-lines and lead-grey bases to the feathers; abdomen for the most part white with dark brown centre to the feathers; flanks, thighs, and under tail-coverts fringed or tipped with white; axillaries and under wing-coverts white; under-surface of flight-quills dark brown on the apical portion and rufous at the base; lower aspect of tail similar to its upper-surface but the dark portion paler. Bill dark purple-horn, eyes deep crimson, feet and legs purple-flesh. Total length

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315 mm. ; culmen 27, wing 137, tail 153, tarsus 31. Figured. Collected on the Warren River, South-west Australia, on the 17th of February, 1910.

Adult female similar to the adult male.

Adult male. General colour of the upper-surface bronze-brown with blackish centres ; white shaft-streaks and edgings to the feathers on the top of the head, hind-neck, back, rump, upper tail-coverts, scapulars, and upper wing-coverts, the centres darker and inclining to black on the last ; flight-quills blackish-brown tipped with white, fringed with yellowish-green on the outer webs, inner webs of the outer quills for the most part bright chestnut which fades away towards the innermost ; tail-feathers blackish-brown tipped with white and slightly fringed with bronze-green on the outer webs ; chin, throat, fore-cheeks and fore-neck dusky-brown, dotted with dull white, and having hair-like tips to the feathers ; sides of face silvery-white with dark bases to the feathers ; breast blackish with grey bases to the feathers, white shafts and white tips ; abdomen and sides of body similar in colour, but the white pattern much more extensive ; thighs and under tail-coverts pale brown fringed with whitish ; axillaries and under wing-coverts cream-white, becoming white on the greater series ; under-surface of flight-quills dark brown tipped with white, basal portion cinnamon-rufous : lower aspect of tail dark brown tipped with white. Total length 355 mm. ; culmen 22, wing 144, tail 167, tarsus 31. Figured. Collected in Tasmania.

Adult female. Similar to the adult male.

Adult female. General colour of the upper-surface blackish-brown, streaked, dotted, or with white edgings to the feathers on the top of the head, hind-neck, back, upper tail-coverts, scapulars, wings, and tail ; some of the flight-quills fringed with dull olive-green on the outer webs ; inner webs for the greater part bright chestnut, which fades away and become almost obsolete on the innermost ; tail broadly tipped with white ; chin and throat dusky greyish-black minutely dotted with whitish ; sides of face and sides of neck silvery-white with black bases to the feathers ; breast and upper abdomen lead-grey with black centres and white shaft-lines to the feathers ; lower abdomen and flanks similar, but the white is much increased in extent at the tips of the feathers ; thighs and under tail-coverts brown fringed with white ; axillaries and under wing-coverts white, the latter marked with black ; under-surface of flight-quills dark brown tipped with white, the remainder rufous ; lower aspect of tail similar to its upper-surface but the dark portion paler. Eyes grey, feet ashy-grey, bill black. Total length 288 mm. ; culmen 22, wing 128, tail 144, tarsus 29. Figured. Collected on Kangaroo Island on the 14th of April, 1912, and is the type of *A. c. halmaturina*.

Adult male similar to the adult female.

Adult female. Top of the head blackish-brown, each feather margined with dark grey, producing a scaled appearance ; lores blackish, a line of deep umber-brown feathers from above the eye continued on to the sides of the neck ; back of the neck, mantle and wing-coverts brownish-ash, each feather with the entire shaft whitish and a rounded spot at the extremity ; lower back, rump and upper tail-coverts olive-brown with the entire shafts white and each feather terminally margined with white ; inner secondaries olive-brown fringed on their outer webs with grey and margined at the extremity with white ; primaries and outermost secondaries blackish-brown, with the greater part of the inner web chestnut and fringed on the outer web with the same colour ; tail-feathers brownish-black, the middle pair with the basal two-thirds olive-grey and all the feathers widely tipped with white ; throat blackish-grey, each feather with a silvery-white spot at the tip, producing a starred appearance ; a line of silvery-white feathers below the eye extending down the sides of the neck ;



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(BRUSH WATTLE - BIRD)

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chest ash-coloured with the entire shaft and a drop-like spot at the tip white; a large patch of white feathers on the sides of breast; sides of the body brownish-ash, each feather with the shafts white and with a large white spot at the extremity; middle of the belly and the under tail-coverts white. Eyes dark red, bill blackish-horn, feet and legs purplish-brown. Total length 300 mm.; culmen 28, wing 135, tail 143, tarsus 29. Collected on the Vasse River, South-west Australia, on the 23rd of April, 1919.

"*Young birds* are dull brown above, clearer brown on the head, hind-neck and upper tail-coverts, with indistinct whitish shafts to the feathers; the quills have smaller white tips, the tail-feathers are more strongly washed with olive than in the adult, but the lateral feathers only are tipped with white; ear-coverts and sides of the neck dark brown, all the feathers centred with silvery-white, all the under-surface dull greyish-brown, the feathers on the fore-neck having indistinct whitish shaft-streaks." (North.)

Young. Head, neck, mantle, rump, upper tail-coverts and wing-coverts dark umber-brown, each feather with the shafts buffy-white, producing a streaked appearance; flight-feathers dark umber-brown tipped with white, with the basal two-thirds of the inner web deep chestnut and margined on the outer web with greenish-yellow; secondaries similarly coloured, the outermost widely margined on their inner webs with chestnut and outwardly margined with yellowish-green; tail-feathers dark blackish-brown tinged with olive, the middle pair being uniform and the outer pairs widely tipped with white; throat dusky-brown, mesially streaked with whitish; chest-feathers and sides of the body brownish-ash with their shafts whitish; abdomen and under tail-coverts whitish-buff with paler shafts to the feathers; under-surface of wing dark ash with the inner webs chestnut. Collected in New South Wales.

Immature male. Head dark brownish-olive, all the shafts of the feathers indistinctly streaked with whitish; back of the neck, mantle, rump, upper tail-coverts ash-brown, each feather with the shafts white for their entire length; innermost secondaries brownish-ash margined on both webs with whitish; outermost secondaries dark ash-brown margined on the outer web with olive-brown and the inner webs margined with rusty chestnut; primaries blackish-brown with the greater part of the inner web and fringed on the outer web with chestnut, the outermost primaries fringed with whitish towards the tip; tail blackish-brown, all the feathers widely tipped on both webs with white; a line of silvery-white feathers down the sides of the face from the angle of the mouth to the ear-coverts; chin, throat and chest dark grey tipped with white and with the shafts indistinctly white; a tuft of whitish feathers on each side of the chest; sides of the body grey, becoming whiter on the abdomen. Bill dark purple-horn, eyes hazel, feet and legs fleshy. Collected at Albany, South-west Australia, on the 4th of February, 1905.

Nest. Cup-shaped; composed of grass and tendrils and lined with the soft parts of flowering plants. Outside measurements, 2 inches deep by almost 4 wide. Inside, 1 inch deep by $2\frac{1}{2}$ wide (*lunulata*).

Cup-shaped, placed in a fork of a tree. Composed of small twigs, loosely put together. The lining of soft grass and wool looks like a smaller nest placed inside. Outside measurements, 3 inches deep by 6 wide; inside, 1 inch deep by about 3 wide (*chrysoptera*).

A rather flat or shallow saucer-shaped structure, composed of thin dead sticks and twigs, and usually lined with a good quantity of soft brownish bark broken up into very thin strips. Dimensions over all: 4 to 6 inches across by $2\frac{1}{2}$ to 4 inches in depth.

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Eggs. One to three eggs form the clutch, rarely three. A clutch of two eggs taken at St. Kilda, near Melbourne, on the 8th of November, 1894, is of a beautiful pinkish-buff ground-colour, spotted, chiefly at the larger end, with reddish-brown and purplish-grey. Swollen ovals in shape. Surface of shell fine, smooth, and rather glossy. 27-28 by 20-21 mm.

Breeding-months. August to December.

ANOTHER prominent species which was given two names by Latham when he examined the Lambert drawings, naming it first as the Golden-winged Bee-eater and giving a note: "Inhabits *New South Wales*; feeds chiefly on flies and other insects, as well as by sucking honey from the various kinds of *Banksia*, etc. The natives name it *Goo-gwar-ruck*." Then as the Mellivorous Creeper with the note: "Inhabits *New South Wales*, and is called *Goo-gwar-ruck*; is a numerous species, seldom seen but near the seashore, especially about where the natives resort; is a lively bird, constantly in action, in sucking honey, taking flies, or contending with other birds; two or three of these will often rout a flock of *Blue-bellied Parrots*, with which genus they are often engaged. For the above information I am indebted to Mr. Lambert."

In the "Watling" drawings, which apparently were examined later than the Lambert series, also prefaced by Watling, the above notes are given in connection with No. 90, while attached to No. 89 is a note: "One-half the natural size. Called by our English people Querick from its note. Native name Wad-de-ar-gal." This plate 89 was identified by Sharpe as representing the Golden-winged Bee-eater, and in connection with it he wrote (*Hist. Coll. Nat. Hist. Brit. Mus.*, Vol. II., 1906), p. 125: "The oldest name for *A. mellivora* (*Acanthochæra mellivora* (Lath.) Gadow, Cat. B., IX., p. 264) appears to be *A. chrysoptera* (Lath.), both being founded on Watling's drawings."

No. 104 was named Mellivorous Creeper and the only note given in connection with it by Watling reads: "Native name *Goo-gwar-ruck*."

When Vigors and Horsfield dealt with Australian birds in the collection of the Linnean Society of London they introduced a genus *Anthochæra* and included *A. mellivora*, the *Certhia mellivora* of Latham, quoting Caley's note that "he called this bird *Cookaycock*, from its uttering a sound like that word. The natives call it *Coke'ran*. It now and then may be seen in the scrubs about Paramatta, always on trees; but it is common in the neighbourhood of Sydney. It is what I should call an inhabitant of the coast. I have met with it at Western Port."

Gould wrote: "This bird is a native of Tasmania, New South Wales, and South Australia; and in all these countries may be found in such situations as are favourable to the growth of *Leptospermums*. In the former country it is especially abundant on the banks of the Tamar, and in the belts

BRUSH WATTLE-BIRD.

of Banksias that stretch along the northern shores of that island. Among the places in which it is most numerous on the continent are near the Port of Adelaide in South Australia; and Illawarra, Newcastle and Sydney in New South Wales. The Botanic Garden at the latter place, although in the midst of a populous city, is visited by great numbers of this bird, and I may mention that two of their nests with eggs, forming part of my collection, were taken from the shrubs growing on the borders of this place of public resort. It is but sparingly dispersed in the interior of New South Wales and South Australia, how far its range may extend to the westward of Spencer's Gulf I have no means of ascertaining; I have never yet received it from Swan River or any part of the western coast, its place being there supplied by an allied species, *A. lunulata*. The Brush Wattle-Bird is a bold and spirited species, evincing a considerable degree of pugnacity, fearlessly attacking and driving away all other birds from the part of the tree on which it is feeding. During the months of spring and summer the male perches on some elevated branch and screams forth its harsh and peculiar notes, which have not unaptly been said to resemble a person in the act of vomiting, whence the native name *Goo-gwar-ruck*. While thus employed it frequently jerks up its tail, throws back its head, and distends its throat, as if great exertion was required to force out these harsh and guttural sounds. The breeding-season commences in September and continues during the three following months."

Mr. J. W. Mellor's notes read: "Is very widely distributed over Australia, from South Australia all through the eastern states. At the Reed-beds, where I live, the bird stays all the year round and nests in the garden, being quite tame and confiding in its habits; they seem to like to build their nests in the thick foliage of the orange trees. The nesting-season starts early in August and ends in January, and during this time they have two broods; this is perhaps owing to there being plenty of food, and the birds stay about throughout the year. They feed on honey from the eucalyptus and other flowers, but when these are scarce they live largely on insect life which they capture on the wing, the young being fed on an insectivorous diet to a large extent. The young utter a low plaintive note as they sit waiting for the tit-bits that their parents keep supplying them with; the old birds utter a somewhat loud call for their size, harsh and grating, not at all musical."

Captain S. A. White has written: "This bird has a wide range and is common in many parts, but does not go into the dry interior. They are plentiful in the Mt. Lofty Ranges, and a few pairs nest each year on the Adelaide plains. They generally choose a thick lemon or orange tree to nest in here in the garden, but out in the bush a banksia tree is a favourite place or a bunch of loranthus. They are very noisy birds and pugnacious at nesting

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time. They have a great variation of notes at nesting time: the male bird will sit on a limb, hold his head straight up and depress the tail and say, 'Get-up, Get-up, Wak, Wak, Keik Kewick, Keik Kewick.' The young after they have left the nest keep up the incessant call all day long of 'Wak Wak' as they move about in the shrubs and trees after their parents for food. Insects and honey from flowers seem to form their food. The nesting period extends from August to November and they often bring out two broods. The nest is an open depressed structure composed of twigs and lined with fine rootlets, usual clutch being two eggs."

Mr. A. G. Campbell has written: "Is common during the winter months about the shores of Port Phillip, where it feeds upon the flowers of *Banksia*, but it disappears therefrom in spring to nest about the quiet gullies of the Pyrenees and other ranges in Central Victoria."

Mr. Frank Little has observed that it is becoming very scarce in many districts where it was once plentiful, owing to the opening up of the country by axe and fire.

From the Stirling Ranges, Western Australia, Milligan wrote: "I was also in doubt as to *Acanthochæra lunulata*. The specimen which I shot in a secluded mountain gorge resembled *A. mellivora* as much as the species named, and appeared to form a connecting link between the two—that is to say, if it be possible to define a difference between the two species"—but later added: "I have compared a number of skins of the western form with a skin of the eastern one, with the result . . . in the latter form the head, hind-neck, and mantle are boldly streaked, while in the former the streaks are confined to the mantle only. The head and hind-neck are, however, in most instances minutely spotted with white. The most striking differences are those mentioned by Gould—namely, the very much longer bill of *A. lunulata* and the presence of the conspicuous tracts of glossy white feathers along the sides of the neck. Each form has the remarkable 'meteoric shower' on the chest and breast. I do not know of any Australian species where individual members of both sexes exhibit *inter se* such variations in size as in *A. lunulata*."

From the Margaret River district, South-west Australia, Milligan had written: "These noisy birds were very plentiful in the sheltered pockets in the sea-hills."

Gould described the western form as a distinct species, writing: "This species is very nearly allied to the *Anthochæra mellivora*, but differs from that bird in the greater length of its bill, in the entire absence of the striae down the head and back of the neck, and in the possession of a lunulate mark of white on either side of the neck. Its natural habitat is Western Australia, where it generally frequents the *Banksias* bordering rivers and lakes, and in fact all

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situations similar to those resorted to by its near ally; it is to be found in every part of the colony, but appears to be "more abundant in the neighbourhood of Swan River than elsewhere. In its habits it is very solitary and shy, and is moreover very pugnacious, attacking every bird, both large and small, that approaches its domicile. Its flight is rapid and uneven, and its general note is a discordant cackling sound of the most disagreeable description."

Goold described this "species" from the collection of birds at Fort Pitt, Chatham, but in the Catalogue published at the same time this species is not mentioned. It may have been described after the Catalogue was in print. The type was apparently lost at the dispersal of the Museum. It will be noted above, however, that Goold mentioned as a distinguishing character of his species "the greater length of the bill," and while this is a very noticeable feature in specimens, especially old males, from the Perth district, it is only subspecific, as the south-west birds do not show it, though they agree more or less in the possession of the other features Goold noted.

Milligan, as noted above, recognised the characteristic long bill when he had Perth specimens before him, and commented upon the variability in the species without recognising that geographically more than one subspecies might exist in West Australia.

Mr. Tom Carter's notes read: "The Little Wattle-Bird is given in your 1912 'Reference List' as ranging through West Australia. It seems to be confined to the south-west corner, being especially common along the coastal districts. About Broome Hill they are not numerous, but some of them could almost always be seen in some thick rough scrub and timber in one of my paddocks. They feed largely on honey obtained from the blossoms of various kinds of Banksia trees, which blossoms are known as 'Mungite' (an aboriginal name) in the south-west. The birds are garrulous and somewhat local in their habits, feeding in parties where food is abundant. They seem to nest very irregularly, but from the end of July to October are the chief nesting months. As a rule, one egg only is laid; I have no note of ever having found two in a nest. The nests are slightly made of small twigs, lined with a little soft bark or other fibre and are rather flat. They are usually built in dense foliage of some description. In the neighbourhood of Albany there grows on the coastal sandhills dense thickets of a species of tall bush, thickly covered with foliage that at first glance resembles that of Pine, but upon examination it is found to be very soft, pliable and silky to the touch. These bushes have scarlet flowers and are much frequented by Little Wattle-Birds, Long-billed Honey-eaters, Spinebills and other species, as they afford splendid shelter and no doubt food as well."

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Captain S. A. White has written: "*A. lunulata* seems to be identical in habits and very like in call, so that it seems strange it should only lay one egg. The nest is very shallow, composed of small twigs and lined with strips of bark and grass. Nesting-season seems from September to November."

Ashby wrote that it was common at Claremont, West Australia, and Alexander recorded from the Perth district: "Resident. Common, especially in the coastal districts."

As already indicated, the variation between the eastern and western forms described as distinct species by Gould was queried by Milligan, but then allowed. However, he only made comparison with one eastern skin and lumped the variable western forms together. In my "Reference List" in 1912 I subordinated the western form subspecifically and added two others, thus:

Anellobia chrysoptera chrysoptera (Latham).

South Queensland, New South Wales.

Anellobia chrysoptera intermedia Mathews.

"Differs from *A. c. chrysoptera* in its larger size (wing 138 mm.) and darker upper coloration. (Adelaide) South Australia."

Victoria, South Australia.

Anellobia chrysoptera tasmanica Mathews.

"Differs from *A. c. intermedia* in its slightly larger size and still darker upper coloration."

Tasmania.

Anellobia chrysoptera lunulata (Gould).

West Australia.

I then added

Anellobia chrysoptera halmaturina.

"Differs from *A. c. intermedia* in its much darker colour, and from *A. c. tasmanica* in its smaller size."

Kangaroo Island.

In my 1913 "List" I transferred the genus name *Anthochæra* to this species and admitted the above five subspecies, but it is obvious many more must be distinguished, there being three or four in Western Australia alone, Albany specimens being smaller with smaller bills and paler coloration throughout.

GENUS—ACANTHAGENYS.

ACANTHAGENYS Gould, Synops. Birds

Austr., pt. IV., pl. 69, April 1st, 1838.

Type (by monotypy) *Acanthagenys rufogularis* Gould.

Also spelt—

Acanthygenys Gould, *ib.*, on plate.

Acanthogenys Gould, Birds Austr., pt. XVI. (Vol. IV., pl. 53), Sept. 1st, 1844.

GOULD separated this genus before he went to Australia and upon his return wrote: "Numerous and diversified as are the forms of the great family of the *Meliphagidæ*, the present species has always appeared to me more than usually interesting, because in the first place few are more elegantly formed, and in the second it differs widely from all others in plumage, and in the singular spiny processes which adorn its checks and ear-coverts. In its habits and general economy it bears a close alliance to the Wattle-birds (*Anthochaeræ*), but still presents in these respects sufficient difference to warrant its separation into a distinct genus or subgenus, as ornithologists may think fit to designate the division."

This monotypic genus comprises a form smaller than any of the three preceding and of slightly different coloration, and with no wattle, but spiny-like processes on the cheeks and ear-coverts.

The bill is of the same style but is a little shorter and stouter.

The wing has the fourth and fifth primaries subequal and longest, the third and sixth little shorter, the second equal to the eighth and longer than the secondaries, the first primary half the length of the second.

The tail is long and rounded.

The legs are more slender but though short are comparatively longer, scutes delicate in front, posteriorly bilaminate; the anterior toes are delicate, the middle toe and claw equal to the hind-toe and claw, but the latter stouter, especially the claw; the inner and outer toes subequal, the inner toe and claw less than the middle toe alone, claws sharp and small.

ACANTHAGENYS RUFOGULARIS.

SPINY-CHEEKED HONEY-EATER.

(PLATE 553.)

ACANTHAGENYS RUFOGULARIS Gould, Synops. Birds Austr., pt. iv., pl. (69), Apl. Ist. 1838.
New South Wales.

Acanthagenys rufogularis*† Gould, Synops. Birds Austr., pt. iv., pl. (69), Apl. Ist. 1838;
id., Proc. Zool. Soc. (Lond.). 1837, p. 153, Dec. 1838; *id.*, Birds Austr., pt. xvi. (Vol.
IV., pl. 53), Sept. 1st, 1844; *id.*, Handb. Birds Austr., Vol. I., p. 534, 1865;
Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190, 1878; *id.*, Tab. List Austr. Birds,
p. 13, 1888; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 427, 1901; Berney,
Emu, Vol. V., p. 76, 1905 (N.Q.); North, Austr. Mus. Spec. Cat., No. 1, Vol. II.,
p. 157, 1907; Mathews, Handl. Birds Austral, p. 99, 1908; Dove, Emu, Vol. VIII.,
p. 70, 1908 (Vic.); Gibson, *ib.*, Vol. IX., p. 75, 1909 (W.A.); Crossman, *ib.*, p. 90
(W.A.); Whitlock, *ib.*, p. 211, 1910 (W.A.); Wilson, *ib.*, Vol. XII., p. 38, 1912 (Vic.);
S. A. White, *ib.*, p. 125, 1912 (S.A.); *id.*, *ib.*, Vol. XIII., pp. 32, 128, 131, 1913-14;
Chandler, *ib.*, p. 44 (Vic.); Orton and Sandland, *ib.*, p. 80 (W.A.); Cheney, *ib.*
Vol. XIV., p. 212, 1915 (Vic.); Whitlock, *ib.*, Vol. XVII., p. 175, 1918 (W.A.);
S. A. White, *ib.*, Vol. XVIII., pp. 24-198, 1918-19 (S.A.); Campbell, *ib.*, p. 264
(W.A.); Mellor, *ib.*, Vol. XX., p. 139, 1921 (W.A.); McGilp, *ib.*, Vol. XXII., p. 287,
1923; Whitlock, *ib.*, Vol. XXIII., p. 277, 1924.

Acanthochæra‡ rufigularis Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 265, 1884; Hall, Key
Birds Austr., p. 45, 1899; Hill, Emu, Vol. II., p. 164, 1903 (Vic.); Carter, *ib.*,
Vol. III., p. 93, 1903 (M.W.A.); Hill, *ib.*, Vol. VII., p. 19, 1907 (Vic.); Howe,
ib., Vol. IX., p. 234, 1910 (Vic.).

Anthochæra roborhyncha Cotton, Tasm. Journ. Nat. Sci., Vol. III., No. 5, p. 362, July
1848: Upper Goulburn River, Victoria.

Acanthogenys flavicanthus Campbell, Victorian Naturalist, Vol. XVI., p. 3, May 1st, 1899:
North-west Cape, Mid-west Australia; *id.*, Nests and Eggs Austr. Birds, Vol. I.,
p. 429, 1901.

Acanthagenys rufogularis rufogularis Mathews, Nov. Zool., Vol. XVIII., p. 420, 1912;
id., List Birds Austr., p. 289, 1913.

* Also spelt *Acanthogenys*.† Also spelt *rufigularis*.‡ Also spelt correctly *Anthochæra*.



H. Grönvold, del.

Witherby & Co

ACANTHAGENYS RUFOGULARIS
(*SPINY-CHEEKED HONEY-EATER*)

SPINY-CHEEKED HONEY-EATER.

- Acanthagenys rufogularis cygnus* Mathews, Nov. Zool., Vol. XVIII., p. 420, Jan. 31st, 1912 : Swan Island, Victoria ; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs) ; *id.*, List Birds Austr., p. 289, 1913 ; Beleher, Birds Geelong, p. 354, 1914 ; S. A. White, Emu, Vol. XIV., p. 191, 1915 ; *id.*, *ib.*, Vol. XV., p. 161, 1916 (S.A.) ; *id.*, *ib.*, Vol. XVI., pp. 15-76, 1916.
- Acanthagenys rufogularis flavacanthus* Mathews, Nov. Zool., Vol. XVIII., p. 420, 1912 ; *id.*, List Birds Austr., p. 290, 1913.
- Acanthagenys rufogularis territorii* Mathews, Nov. Zool., Vol. XVIII., p. 420, Jan. 31st, 1912 : Alexandra, Northern Territory ; *id.*, List Birds Austr., p. 290, 1913.
- Acanthagenys rufogularis wei* Mathews, Nov. Zool., Vol. XVIII., p. 421, Jan. 31st, 1912 : Lake Way, West Australia ; *id.*, List Birds Austr., p. 290, 1913.
- Acanthagenys rufogularis queenslandicus* Mathews, Nov. Zool., Vol. XVIII., p. 421, Jan. 31st, 1912 : North Queensland.
- Acanthogenys cygnus* S. A. White, Emu, Vol. XII., p. 180, 1913 (S.A.).
- Acanthogenys rufogularis woolundra* Mathews, Bull. Brit. Ornith. Club, Vol. XL., p. 76, Jan. 30th, 1920 : Woolundra, South-west Australia.
- Acanthogenys rufogularis augusta* Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 39, Feb. 21st, 1923 : Port Augusta, South Australia.

DISTRIBUTION. Australia generally throughout the interior districts, not coastal.

Adult. Top of head, hind-neck, sides of neck, mantle, back, and scapulars drab-grey with dark brown centres to the feathers ; upper tail-coverts whitish with dark brown shaft-streaks, the long ones grey ; upper wing-coverts blackish-brown with whitish margins to the feathers ; primary-coverts and flight-quills dark brown slightly fringed with olivo on the outer webs and broadly margined with buff on the inner ones of the latter, the innermost secondaries margined with white ; tail blackish-brown ; loreal streak, eye-ring, and a patch behind the eye black, the last tipped with buff ; a moustacial streak straw-white, margined below, on the fore cheek with pale brown minutely dotted with white and with black on the hinder face ; lower sides of neck black margined above with pale sulphur-yellow streaked with black ; chin, throat, and breast pale buff with dark hair-like tips to the feathers on the chin, and more or less black on the sides of the breast ; abdomen and sides of the body pale sulphur-yellow with dark brown centres to the feathers ; thighs pale earth-brown ; under tail-coverts white with dark shaft-lines ; axillaries and under wing-coverts buff ; under-surface of flight-quills dark brown margined with pale buff ; lower aspect of tail similar to its upper-surface but the dark pattern paler. Eyes dark, feet slate, bill black at the tip, with deep pink in the middle and light pink at the gape. Total length 238 mm. ; culmen 20, wing 113, tail 112, tarsus 28. Figured. Collected at Port Augusta, South Australia, on the 24th of August, 1912.

The sexes are alike.

Adult female. Top of head, sides of crown and nape dark brown with pale edgings to the feathers ; mantle, back, and scapulars dark brown with olive margins to the feathers ; upper tail-coverts straw-white with dark brown centres to the feathers ; upper wing-coverts dark brown with whitish margins to the feathers ; flight-quills dark brown margined with buffy-white on the inner webs, the innermost secondaries broadly margined with white ; tail blackish-brown tipped white ; loreal-streak, eye-ring, and feathers behind the eye black ; a silvery-white moustacial streak

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which extends to behind the eye where it widens out, becomes yellow, and finally yellowish-white with black shaft-lines on the sides of the neck; chin, throat, and breast buff; abdomen and sides of body yellowish-white with dark brown elongated centres; thighs pale brown; under tail-coverts white with dark brown shaft-streaks; axillaries and under wing-coverts buff; under-surface of flight-quills dark brown with buffy-white margins; lower aspect of tail similar to its upper-surface but the dark portion paler. Total length 220 mm.; culmen 18, wing 107, tail 105, tarsus 27. Figured. Collected in North Queensland and is the type of *A. r. queenslandicus*.

The sexes are alike.

Immature female. Fore-head, top of the head and back of the neck ash-grey, sides of the head tinged with dark ash; mantle and wing-coverts dark ash-grey, margined with buff; upper tail-coverts grey with a broad mesial shaft-streak of dark brown; primaries and secondaries blackish-brown, the former margined towards the extremity with white, secondaries margined on their outer webs with dark yellowish-olive and widely bordered at the extremity with white; tail-feathers blackish-brown, narrowly fringed with olive and widely tipped with white; lores and a line through the eye black; a tuft of yellow feathers below the eye; ear-coverts silvery-white; a line of blackish feathers along the sides of the throat; chin, throat and fore-neck rich buff; remainder of the under-parts including the under tail-coverts greyish-white, each feather with a broad mesial streak of brownish-ash; under-surface of wings greyish-ash widely margined on the inner web with pinkish-buff. Eyes bluish, bill base and gape and bare space round eye rich flesh, tip black. Collected N.W. of Port Augusta, South Australia, on the 4th of October, 1911.

“*Young* birds resemble the adults, but the centres to the feathers on the upper-parts are duller in colour, rendering it more uniform; the spines are fewer and shorter on the ear-openings; the throat and fore-neck is paler and the remainder of the under-surface is less conspicuously streaked.” (North.)

Nest. Cup-shaped, suspended from a fork of a twig by the rims. Composed of grass and rootlets, with spiders' cocoons and thistledown on the outside. Lined with grass, and on the bottom some softer material. Outside measurements, 3 to 4 inches deep by 4 or 5 wide. Inside, $1\frac{1}{4}$ to $1\frac{1}{2}$ deep by $2\frac{1}{2}$ to 3 wide (two nests).

A cup-shaped structure, composed of grasses well matted together with spiders' webs, and sometimes a little sheep's wool, lined on the bottom with a pad of wool, cowhair, fur or other such soft material. Suspended by the rim from the branches or twigs of a tree, vine, or bush, and placed at heights varying from 10 to 50 feet or more up from the ground. Dimensions over all, $4\frac{1}{2}$ to $5\frac{1}{2}$ inches across by $2\frac{1}{2}$ to nearly 3 inches in depth.

Eggs. Two to three eggs form the clutch, rarely three. A clutch of two eggs taken at Lake Way, Western Australia, on the 24th of September, 1909, is of a very pale olive-ground colour, spotted, chiefly at the larger end, with dark to light umber and purplish-grey. Ovals in shape. Surface of shell fine and smooth, and rather glossy. 26-27 by 18-19 mm.

Breeding-months. August to end November.

GOULD'S notes after he had seen this bird in Australia read (he described it before he went out as a new genus and species): “The Spiny-cheeked Honey-eater ranges very widely over the interior of Australia. I observed it to be very numerous on the Lower Namoi to the northward of the Liverpool

SPINY-CHEEKED HONEY-EATER.

Plains in New South Wales. It was the commonest species of the *Meliphagidæ* I met with in the interior of South Australia; and I have also received a pair of this or a closely allied species from the interior of Western Australia; as, however, some difference exists between these latter and the birds from New South Wales, I refrain, until I have seen other examples, from stating that it goes as far to the westward as the Swan River Settlement. Like the Brush Wattle-Bird it is rather a shy species, but its presence may at all times be detected by the loud, hollow, whistling note which it frequently utters while on the wing, or while passing with a diving flight from tree to tree. It appears to give a decided preference to the Banksia and other trees growing upon sandy soil; its presence therefore is a certain indication of the poverty of the land. It is very active among the branches, clinging and creeping about with the greatest ease and elegance of position."

Mr. Thos. P. Austin has written me: "This species is only a visitor to this district (Cobbora, New South Wales), they only come here from the western part of the state during very severe drought. While I was on a visit to the Bourke district in November, 1910, I found numbers of them breeding there."

Mr. J. W. Mellor's notes state: "In South Australia it is common in most places; I have seen it on Eyre's Peninsula, Yorke's Peninsula, all along the valley of the River Murray, and even on the Coorong. It feeds on honey from flowers, but also largely on insects, and breeds from September to November. This bird has a most pleasing and melodious whistle, quite a contrast to that of the Wattle-Bird group; it is full, round and somewhat prolonged, and when heard in the natural surroundings it strikes one as being most melodious and pleasing."

Captain S. A. White has written me: "This is a dry-country bird although it is at times found near the coast within the heavy rainfall zone. My first meeting with this bird was on the River Murray in 1887 when it was quite new to me, but strange to say within the last few years it has come on to the Adelaide plains, and I have heard them calling in their wonderful way for months in the garden. I have met with them in numbers on every trip I have made into the interior. Their nesting-season varies according to the rainfall but generally from August to November, and the nest is a small but deep structure suspended in a shrub generally not more than six or seven feet from the ground and composed of grass stems (often green ones) bound up with cobwebs and cocoons, eggs being two or three in number. The flight is strong and rapid, at times erratic; the food, insects (mostly beetles), nectar and berries. The note is a wonderful one, being a series of jerky, guttural, gurgling, liquid sounds, breaking off suddenly for a moment as if out of breath, then continuing. While the bird is singing it sits with its head up and sways

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from one foot to the other, rising and falling at the same time as if it required every effort to get the notes out. I have met with them in some of the driest country in the interior. They are very pugnacious and I have seen several male birds in deadly combat, feathers flying in every direction. They have a way of darting about among the foliage of flowering bushes after birds and snapping their bills vigorously."

Mr. A. G. Campbell wrote: "A familiar voice in all parks and gardens of Melbourne in winter, but the bird leaves in spring to nest throughout the Mallee."

Mr. F. E. Howe's notes read: "The Mallee appears to be the stronghold of this species and I have seen them in hundreds, even thousands, feeding on the ti'tree blossom. We have taken their eggs at Pine Plains and Kow Plains. This bird makes its appearance in the gardens round Melbourne during autumn and departs again before September."

Mr. Tom Tregellas has written me: "The Spiny-cheek comes eastward in the early part of March, the 15th being the first record in my book of their coming this year. I have never known them to come further out than Camberwell, and only isolated specimens at that. Their peculiar trilling notes are heard a great way off, and in flight they utter a call resembling 'taw-tawer' several times repeated. Whilst sitting in a bush they often utter a sharp click like a frog's chirp. As far as I know, there have been no nests found this side of the Bay, as they all leave here on the approach of the nesting-season and go westward to nest. I spent a few days on Swan Island during the Christmas holidays, and there I found the Spiny-cheeks in hundreds. Only one nest containing eggs was found and they were nearly incubated. Many other nests were seen from which the young had flown, and these were following their parents all about the island."

G. F. Hill wrote from the Ararat district, Victoria: "A spring arrival, found almost invariably in the sheoaks (*Casuarina*) growing on the bare hillsides. I have no notes of their nesting habits, but I believe that they build in these trees. Like the White-bearded Honey-eater and the Crimson Parrakeet, they are most destructive to the flowers of the native *Correa speciosa*, whether they be growing in the flower garden or in the bush."

Berney has written from the Richmond district, Queensland: "Although never numerous, still, in suitable localities, the Spiny-cheeked Honey-eater may be seen or heard all through the year. At times I miss it for a while, but this is doubtless owing to a temporary shortage of some item in its *menu*. It is particularly partial to the honey of the mistletoe (*Loranthus quandong*). I have pleasant recollections of them at one camp where our dining table was built under the refreshing shade of a bauhinia (*B. carronii*). Here 'Spiny-cheeks' would

SPINY-CHEEKED HONEY-EATER.

busy himself all day, passing from bunch to bunch of the mistletoe with which the tree was covered, our meals being accompanied by its quaint but cheerful song—just a subdued, bubbling, gurgling song, that was very pleasant to listen to.”

Captain S. A. White has also noted in connection with the birds of the Port Augusta district: “Wherever there was a patch of scrub the noisy Spiny-checked Honey-eater was to be found. Many of their notes were very pleasing to the ear, liquid and gurgling, like the sound of running or falling water. These Honey-eaters were very pugnacious; two or three males were often seen in fierce conflict,” and of the Gawler Ranges: “This is one of the most (if not the most) familiar bird of the vast northern country. Wherever a bit of scrub is found surely these birds are there. How often is the death-like silence which reigns amidst the hills broken by the strange guttural and gurgling notes of these birds! Stomach contents, one bird: fragments of at least two kinds of weevils, and of seeds, of the same kind.”

Chandler has written of the bird-life of Kow Plains, Victoria: “These noisy birds were observed in hundreds. Most of them were preparing to nest about the middle of October. Two pairs nested close to camp, in mallee gums. I watched one bird nest-building. The female alone was doing the work. The male frequently flew near her while she was flying to and from the nest. In the intervals he would perch in a pine tree, close to the nesting site, and utter his gurgling notes. At times he made a curious flight into the air, emitting a loud chattering call the while, then floated on outstretched wings back to the pine tree. Perhaps on his return he would savagely chase a Graceful Honey-eater out of the neighbourhood.”

Captain S. A. White, reporting on the Birds of Lake Victoria and Murray River, noted: “A very common bird. The rufous coloration on the throat seemed to be much paler in comparison with birds from further north.”

Mr. Tom Carter's notes read: “The Western Spiny-cheeked Honey-eater is a fairly common winter visitor in the Gascoyne and North-west Cape districts. They feed mostly in thickets, composed of wattles and other bushes, and usually near, or on the ground. The peculiar liquid gurgling notes of these birds are quite distinct from those of any other species of my knowledge, and are unmistakable. A few of these birds have been observed feeding in dense mangroves near the North-west Cape, also in bushes on the rocky ranges near Point Cloates; neither of these two last-named localities have any fresh-water pools or even ‘dubs’ at *anytime* within thirty miles, but small cavities in the ranges hold a little water for a few days after rain in winter. I mention this because Mr. Shortridge (*Ibis*, 1909, p. 654) states that this species is known as the ‘Water-bird’ by the colonists of Western Australia, a name that is

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new to me. Such names are usually very *local* in the colonies. Neither nests nor eggs were ever found by me, but on September 5th, 1911, I shot a bird on the Lyndon River that was certainly breeding. *Both sexes* utter the peculiar notes (song). This species does not occur in heavy timbered south-west; it is a north and mid-west bird, coastal Gascoyne and North-west Cape. In the summer of 1911 I saw a Spiny-cheeked Honey-eater in my paddock at Broome Hill and secured it, while there were many feeding in an orchard and picking fruit in a neighbour's orchard at the same time. He shot one and sent it to me to know what it was, never having seen the birds before. This seems to be a record for the south-west."

Whitlock wrote from the East Murchison: "Very common on migration in July and August, but comparatively few remained to breed. I found a very pretty nest on 20th July, with one fresh egg. At Bore Well, the first week in September, I found nests containing young just ready to fly, but at Milly Pool on 24th September I obtained a pair of incubated eggs. This nest was in a bunch of mistletoe."

No subspecies of this bird was distinguished until I prepared my "Reference List" in 1912. Previously, Campbell had named a young bird from the North-west Cape district as a distinct species on account of its smaller size and yellow cheek-spines, and then when he received the adult he suggested that there might be other differences to validate his name. As a matter of fact there is a recognisable subspecies from the North-west Cape district which will bear Campbell's name, but all the describer himself could write about it twenty years after he had named it was "Western birds are slightly smaller (wing 107 mm.) than typical or eastern ones (wing 113 mm.)."

When series are criticised it is a somewhat variable species in narrow limits, the subspecies being separable but not strikingly different when single birds are examined. In 1912 I separated

Acanthagenys rufogularis rufogularis Gould.

South Queensland, New South Wales.

Acanthagenys rufogularis cygnus Mathews.

"Differs from *A. r. rufogularis* in its darker coloration above and below, especially noticeable on the breast. Swan Island, Victoria."

Victoria, South Australia.

Acanthagenys rufogularis flavacanthus Campbell

North-west Australia.

Acanthagenys rufogularis territori Mathews.

"Differs from *A. r. flavacanthus* in its pallid coloration, almost white under-surface, especially noticeable on the throat. Alexandra, N.T."

Northern Territory.

SPINY-CHEEKED HONEY-EATER.

Acanthagenys rufogularis wei Mathews.

“Differs from *A. r. flavacanthus* in being slightly darker above and below. Lake Way, West Australia.”

Mid Westralia.

Acanthagenys rufogularis queenslandicus Mathews.

“Differs from *A. r. rufogularis* in its smaller size, less spotting on abdomen, and the post-auricular patch being more streaked. North Queensland.”

North Queensland.

In my 1913 “List” I conservatively reduced this number to five, ranking the last named as a synonym of *A. r. territorii* and making the range of this Northern Territory and North Queensland. Later, I found out that many years ago, in 1848 in fact, Cotton had named the Victorian bird, and therefore his name would replace my *A. r. cygnus*, the correct name being

Acanthagenys rufogularis rodorhynchus (Cotton)

and the range being Victoria and South Australia.

I recently named

Acanthogenys rufogularis woolundra

“Differs from *A. r. flavacanthus* Campbell in being paler above and below, with a longer wing. Woolundra.”

South-west Australia

and according to Captain White the birds vary from Victoria to South Australia, and the Port Augusta form I named

Acanthogenys rufogularis augusta.

GENUS—NEOPHILEMON.

NEOPHILEMON Mathews, Austral Avian
 Record, Vol. I., pt. 5, p. 117, Dec.
 24th, 1912. Type (by original
 designation) *Philedon buceroides* Swainson, *i.e.* auct.
 = *Philemon buceroides yorki* Mathews.

WHEN I introduced *Neophilemon* I diagnosed the genus thus: "Differs from *Philemon* in the presence of a high swollen protuberance on the basal half of the keel of the upper mandible, and in its comparatively shorter tail; from *Tropidorhynchus* it differs in the nature of the protuberance, and in the feathering on the top of the head, and in lacking the pointed scaly breast-feathers and in its more powerful bill and longer first primary of the wing."

The "Friar Birds" constitute a remarkable series of birds inhabiting Papuasia and Australia, and a large super-genus *Philemon* may be easily recognised, but cannot be succinctly diagnosed as it contains large and small birds with long and short bills, bare or feathered heads, straight or curved bills with or without protuberances of varied sizes at the base of the culmen.

In my "Reference List" in 1912 I classed all the species under *Philemon*, but in my 1913 "List" I allowed four groups, placing *argenticeps* under *Philemon*, *buceroides* under *Neophilemon*, *corniculatus* under *Tropidorhynchus*, and *citreogularis* (as *orientalis*) under *Microphilemon*. The consideration of the whole series for the purpose of this work shows that *argenticeps* and "*buceroides*" (auct.) are closely allied but are easily separable from *Philemon*, and I reject *Philemon* from the Australian List placing the two together, but as the name *Neophilemon* may be questioned I propose *Argentiphilemon* for *Tropidorhynchus argenticeps* Gould.

The genus *Philemon* was proposed by Vieillot and the type is *Merops moluccensis* Gmelin (*Philedon* Cuvier independently proposed is a different spelling of the same name, both being taken from Commerson's MS.), and I here diagnose that group as it is important in view of its usage for the whole series. The type is a large Honey-cater with a long curved bill, thin neck, long wings, long square tail and short stout legs and feet. The head is feathered but there is a bare eye species. The bill is long, slightly curved, longer than the head, laterally compressed but basally expanded, the culmen

NEOPHILEMON.

arched, tip sharp, posteriorly notched, culmen semi-keeled, a little broader at the base. The nasal depression long, nearly half the length of the bill; the nostrils small ovals placed anteriorly in a depression; short bristles on the nasal depression; no rictal bristles. The lower mandible is a little decurved, basally straight, and the long narrow interramal space extends nearly half the length of the bill and is feathered. The tail is long and square. The long wing has the third, fourth, fifth and sixth primaries subequal and longest, the second shorter than the eighth but longer than the secondaries, the first primary short but more than half the length of the second. The legs are short and stout, the front of the tarsus showing five strong scutes, the back bilaminate; the anterior toes long and slender, the hind-toe and claw very long and very stout, longer than the middle toe; the inner toe less than the outer, but with claw longer than the middle toe alone, the claws long and slender.

The type of *Neophilemon* differs at sight in its shorter, deeper, strongly keeled bill, which bears basally a protuberance which extends from above the nostrils backwards to above the gape. Two fine photographs by Cornwall, published in the *Emu*, Vol. XV., pls. XLV. (p. 258) and XLVI. (p. 260), show this bill excellently. The head is feathered, but there is an extensive bare eye-patch and a bare patch on the back of the neck, while the breast feathers are not pointed to any degree.

The species *argenticeps* is slightly smaller than *buceroides* but has the same shaped bill with a similar but shorter protuberance on the basal portion of the culmen, beginning behind the nostril and ending in front of the gape. The back of the neck is feathered and the breast feathers are lanceolate. The wing formula is a little different, the third, fourth and fifth primaries subequal and longest, the sixth a little less, the second longer than the eighth, and the first equal to half the length of the second. The tail is long and square. The feet are weaker though of the same construction throughout. These species have been placed in the next genus, *Tropidorhynchus*, which differs in its still smaller protuberance and bare head; but as the immature of *Tropidorhynchus* has a feathered head this must be regarded as a fixed stage in the evolution of *Tropidorhynchus*, but these must be separated from true *Philemon* from the different feathering at the base of the bill.

Order PASSERIFORMES.

Family MELITHREPTIDÆ.

No. 697.

NEOPHILEMON ARGENTICEPS.

SILVERY-CROWNED FRIAR-BIRD.

(PLATE 554.)

TROPIDORHYNCHUS ARGENTICEPS Gould, Proc. Zool. Soc. (Lond.), 1839, p. 144, March 1840 : North-west Coast Australia=Port Essington, Northern Territory.

Tropidorhynchus argenticeps Gould, Proc. Zool. Soc. (Lond.), 1839, p. 144, 1840; *id.*, Birds Austr., pt. II. (Vol. IV., pl. 59), March 1st, 1841; *id.*, Handb. Birds Austr., Vol. I., p. 548, 1865; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 172, 1907; Mathews, Handl. Birds Austral., p. 99, 1908; Hill, Emu, Vol. X., p. 288, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 28, 1911 (N.Q.); Hill, *ib.*, Vol. XII., p. 260, 1913 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 180, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 49, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 229, 1917 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 207, 1918 (N.Q.); Campbell, *ib.*, Vol. XVIII., p. 186, 1919 (N.T.).

Philemon argenticeps Gray, Handl. Gen. Sp. Birds, Vol. I., p. 160, 1869; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190, 1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 272, 1884; Ramsay, Tab. List Austr. Birds, p. 13, 1888; Hall, Key Birds Austr., p. 45, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 434, 1901.

Philemon argenticeps argenticeps Mathews, Nov. Zool., Vol. XVIII., p. 422, Jan. 31st, 1912; *id.*, List Birds Austr., p. 291, 1913; *id.*, South Austr. Orn., Vol. III., p. 226, 1918.

Philemon argenticeps alexis Mathews, Nov. Zool., Vol. XVIII., p. 422, Jan. 31st, 1912: Alexandra, Northern Territory; *id.*, List Birds Austr., p. 291, 1913.

Philemon argenticeps melvillensis Mathews, Austral Avian Record, Vol. I., pt. 2, p. 51, April 2nd, 1912: Melville Island.

Philemon argenticeps kempfi Mathews, *ib.*, pt. 4, p. 101, Sept. 18th, 1912: Cape York, Queensland; *id.*, List Birds Austr., p. 292, 1913.

Philemon argenticeps broomei Mathews, *ib.*; Napier, Austral Avian Record, Vol. I., pt. 4, p. 101, Sept. 18th, 1912: Napier Broome Bay, North-west Australia; *id.*, List Birds Austr., p. 292, 1913.

DISTRIBUTION. Northern Tropical Australia from North-west Australia to Cape York, Queensland.



Witherby & Co

NEOPHILEMON ARGENTICEPS
 (SILVERY-CROWNED FRIAR-BIRD)

H. Gronvold, del.

SECRET

SILVERY-CROWNED FRIAR-BIRD.

Adult male. General colour of the upper-surface pale earth-brown, including the back, wings, and tail, the feathers on the back and upper tail-coverts slightly fringed with white at the tips; flight-quills and tail-feathers somewhat darker than the back; top of head, hind-neck, and sides of neck silvery-white with dark shaft-streaks on the former and dark bases to the feathers of the two latter; chin, throat, and breast silvery-white with dark shaft-lines and lanceolate tips to the feathers; sides of breast like the back. Eyes grey, bill black, feet dark grey. Total length 290 mm.; culmen from knob 23, wing 140, tail 110, tarsus 33. Figured. Collected at Napier Broome Bay, North-west Australia, on the 7th of March, 1910, and is the type of *P. a. broomei*.

Adult female similar to the adult male.

Adult female. General colour of the upper-surface earth-brown, including the lower hind-neck, sides of neck, back, rump, upper tail-coverts, scapulars, wings, and tail; top of head and nape silvery-white with dark shaft-streaks; sides of neck and hind-neck dark brown with whitish tips to the feathers; chin and throat white with hair-like tips to the feathers on the former; fore-neck silvery-white with dark shaft-streaks and lanceolate tips to the feathers; breast, abdomen, sides of body, thighs, under tail-coverts, axillaries, and under wing-coverts drab-grey; under-surface of flight-quills glossy hair-brown with white shafts; lower aspect of tail similar but paler. Eyes red, orbits and naked skin of head black; feet and tarsus leaden-brown, bill black. Total length 280 mm.; culmen from knob 25, wing 127, tail 103, tarsus 29. Figured. Collected on Melville Island, Northern Territory, on the 27th of May, 1912.

Adult male similar to the adult female.

Nearly adult male. Fore-head and middle of the crown silvery-white, each feather with a dark brown shaft-stripe; mantle and wing-coverts ash-grey, widely bordered with white; rump and upper tail-coverts of a very soft texture and of a reddish-buff; primaries and secondaries brownish-ash, the former fringed with olive-grey on the outer web and the latter margined on the outer web with olive-green; tail brownish-ash, fringed on the outer webs with olive-green, slightly tipped with rust-colour; sides of the face, above and behind the eye, naked; chin and upper throat white, tinged with yellow; lower throat white; wing dark; shaft-streaks tinged with yellow; chest, sides of the body greyish-fawn; middle of the belly whitish; under tail-coverts light ash. Eyes greyish-brown, orbits black, feet and tarsus leaden-blue, bill and naked skin on head black. Collected on Melville Island, Northern Territory, on the 17th of June, 1912.

“*Young* birds resemble the adults, but all the feathers on the upper-parts are margined with white around their tips; the upper tail-coverts, too, have a slight fulvescent tinge; the feathers on the sides of the neck are brown, and those on the throat dull white, washed with yellow.” (North.)

Immature. A high compressed casque at the base of the upper mandible; sides of the face and over the eye devoid of feathers; middle of the head white with ash bases and with a fine hair-streak of brown down each feather; mantle light greyish-ash, broadly margined at the extremity with white; lower back, rump, and upper tail-coverts rufous-brown; primaries and secondaries and tail greyish-ash, margined on the outer web with yellowish-olive; chin and throat light yellow with hair-like extremities; chest greyish-ash, widely margined with yellowish-white; remainder of the under parts pale greyish-ash, darker on the sides of the body. Collected on Port Darwin, Northern Territory, in April 1902.

Eggs. Two to three eggs form the clutch, two usually. A clutch of two eggs taken at Lockerbie, Cape York, North Queensland, on the 1st of December, 1910, is of a

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pale pinkish-buff ground-colour, spotted with rounded markings of rusty brown, purplish-brown and purplish-grey, the markings being confined chiefly to the larger end. Ovals in shape. Surface of shell fine and smooth, and slightly glossy. 28-29 by 20 mm.

Nest. A deep cup-shaped structure and very similar to that of *P. corniculatus*.

Breeding-months. August to January, or even March.

THIS fine species was named by Gould, who wrote: "For the first knowledge of this species of *Tropidorhynchus*, science is indebted to the late Mr. Bynoe, Surgeon of Her Majesty's Surveying Ship 'Beagle,' who, on my visiting Sydney, placed his specimens at my disposal; after my return, other examples were sent to me by Sir George Grey. Bynoe's specimens were all obtained during the survey of the north-west coast, a portion of Australia, the national productions of which are but little known, and Sir George Grey's during his expedition into the interior, from the same coast . . . Of its habits and economy nothing is known; but as it is very nearly allied to the other species, we may reasonably conclude that they are very similar."

Mr. J. P. Rogers wrote me from Melville Island: "Nov. 20, 1911. This species is the common Friar-Bird of the island and is found both in the forest country and the mangroves. On Oct. 20 I found a nest which was built in a tall thin sapling. The nest was about 35 feet from the ground and completely out of reach as the sapling was too thin to climb. Another nest found on Nov. 1 was in a clump of leaves at the end of a horizontal limb about 40 feet from the ground and was also not procurable. Jan. 13, 1912. This species was very numerous on the north side of the island and is also very numerous on the heavily timbered creeks, and is one of the very common birds of this island."

Capt. White says: "Met with in several parts of the Northern Territory. They are very noisy birds and when camped at Marrionboy, N.T., they made a great din both morning and evening when they visited some eucalypts which were in blossom near our camp. Their flight is very erratic, for they dive and twist about in a most remarkable manner."

Hill wrote from Kimberley, North-west Australia: "In January these birds leave the level forest country for the sandstone plateau, where the nests are found in January, February and March. Two eggs are laid. Their food consists principally of the fruit of species of fig and other trees."

Barnard from Cape York recorded: "These birds were plentiful in the forest country, and a number of their nests were found, mostly containing two nestlings. Of three clutches of eggs taken, one numbered three and others two each."

SILVERY-CROWNED FRIAR-BIRD.

Hill from Borroloola wrote: "Uncommon. Appear to frequent the range more than the lower country."

Macgillivray, from Cape York, observed: "These birds were only noted on the western side of the Peninsula, where they were numerous in 1911 in the messmate and bloodwood forest country. The nest is usually placed high in one of these trees and is a pendant one, somewhat smaller than that of the Helmeted Friar-Bird. Usual clutch two. ♂, Irides light brown, bare skin of head black, legs slaty-blue. Stomach contents, honey and insects."

He added later: "Mr. McLennan saw numbers on the Pascoe River in messmate and bloodwood country," while Barnard noted: "A common bird about the lower McArthur, where it was found breeding." H. L. White also published McLennan's note "that at the King River it was numerous in forest amongst flowering trees, and occasionally seen in mangroves."

Reporting upon these King River specimens Campbell wrote: "Two ♂ ♂, wing 135-138 mm.; one ♀, wing 139 mm. Same drab-coloured back as in *Philemon sordidus*, and does not appreciably differ from Macarthur River (Territory) and North-west birds, the latter locality evidently being the true type locality (see *P.Z.S.*, 1839, p. 144). Gould procured his original specimens from Ben. Bynoc, surgeon, H.M.S. 'Beagle,' whom Gould met at Sydney. That being so, Mr. Mathews can hardly sustain his sub. *broomei* for North-west Australia."

The reason why the "sub. *broomei*" was named was because Gould labelled his type specimens "Port Essington, North-west Australia," and I followed Gould's own idea; and as the birds differed I named a bird from a new locality. It is possible that Gould substituted birds from Port Essington for his original types procured from Ben. Bynoc from "North-west Australia," in which case Campbell would be right, but at present we must take Gould to have acted rightly in localising his own "types" as from Port Essington. I have mentioned already two or three times that geographically Port Essington is in "North-west Australia," although *politically* in Northern Territory, which, moreover, was not distinguished when Gould wrote.

In my "Reference List" in 1912 I separated two subspecies:

Philemon argenticeps argenticeps (Gould).

North-west Australia.

It may be noted that here I gave the type locality as "North-west Coast Australia (Napier Broome Bay)."

Philemon argenticeps alexis Mathews.

"Differs from *P. a. argenticeps* in its smaller size (wing 122 mm.) and paler coloration. Alexandra, Northern Territory."

Northern Territory.

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I then added

Philemon argenticeps melvillensis.

“ Differs from *P. a. alexis* in its very much smaller size generally and darker upper-surface. Melville Island.”

and

Philemon argenticeps kempi.

“ Differs from *P. a. argenticeps* in its generally smaller size. Cape York, Queensland.”

and

Philemon argenticeps broomei.

“ Differs from *P. a. argenticeps* (from Port Essington) in its larger size and longer bill, Napier Broome Bay, N.W.A.”, and in my 1913 “ List ” I queried the Melville Island form as distinct from the mainland one and allowed four sub-species alone.

At the present time, according to Campbell's King River birds, the Melville Island form is quite distinct, and I admit all five named forms under the genus name *Neophilemon* thus :

Neophilemon argenticeps argenticeps (Gould).

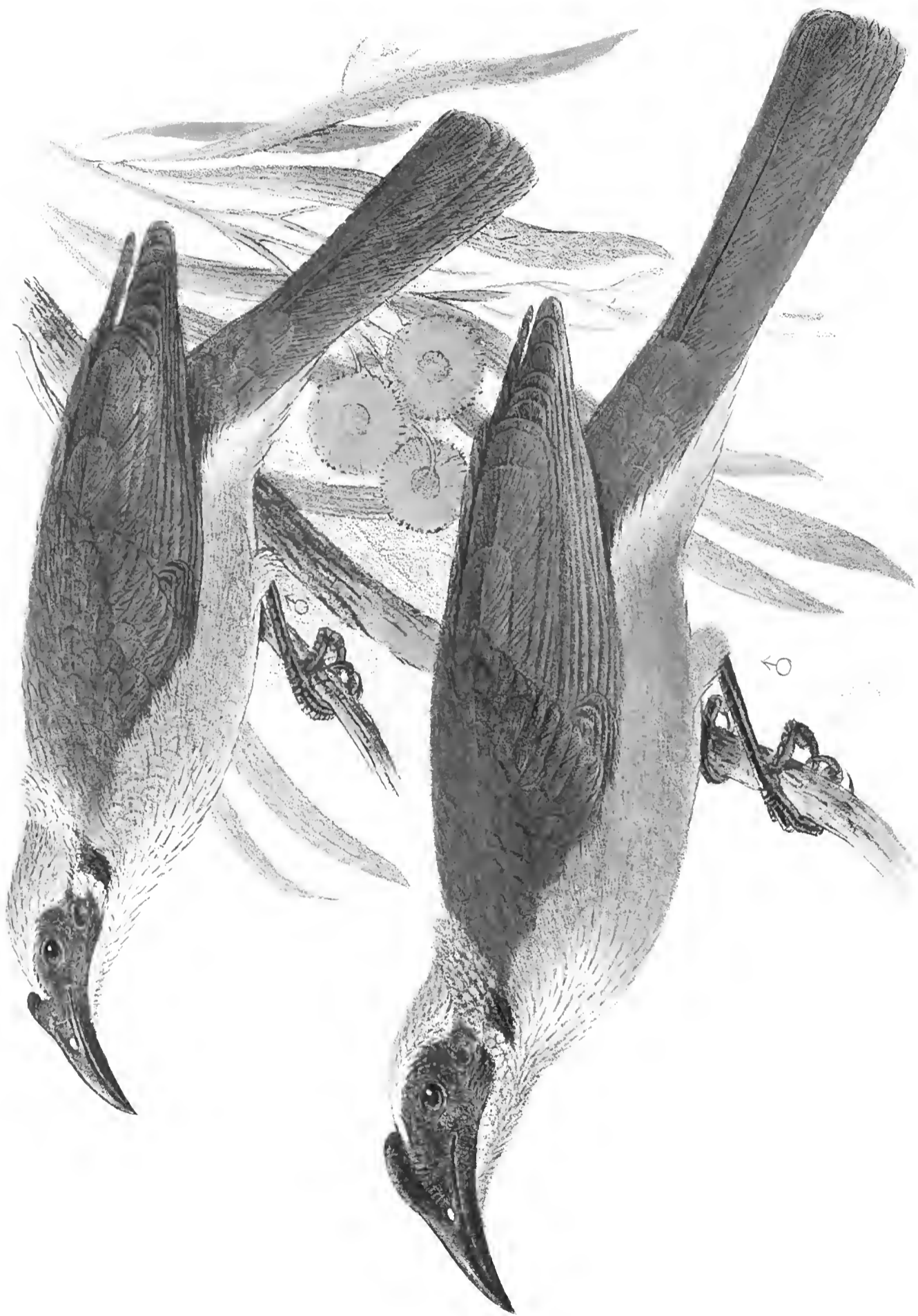
Neophilemon argenticeps alexis (Mathews).

Neophilemon argenticeps melvillensis (Mathews).

Neophilemon argenticeps kempi (Mathews).

Neophilemon argenticeps broomei (Mathews).

NATIONAL MUSEUM, WASHINGTON



H Gronvold, del

NEOPHILEMON GORDONI
(ALLIED FRIAR-BIRD)
NEOPHILEMON YORKI
(HELMETED FRIAR-BIRD)

Witherby & Co

NEOPHILEMON YORKI.

HELMETED FRIAR-BIRD.

(PLATE 555.)

PHILEMON BUCEROIDES YORKI Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 102, Sept. 18th, 1912: Cape York, Queensland.

Tropidorhynchus buceroides Gould, Birds Austr., Suppl., pl. 44 (pt. II.), Sept. 1st, 1855; Not *Philedon buceroides* Swainson, Anim. in Menag., p. 325, Dec. 1837.

id., Handb. Birds Austr., Vol. I., p. 547, 1865; Mathews, Handl. Birds Austral., p. 100, 1908; Macgillivray, Emu, Vol. X., pp. 216-230, 1910 (N.Q.); Barnard, *ib.*, Vol. XI., p. 28, 1911 (N.Q.); Campbell, *ib.*, Vol. XIII., p. 69, 1913 (Egg); Macgillivray, *ib.*, p. 180, 1914 (N.Q.); Campbell and Barnard, *ib.*, Vol. XVII., p. 34, 1917 (N.Q.); Macgillivray, *ib.*, p. 207, 1918 (N.Q.); Campbell, *ib.*, Vol. XX., p. 64, 1920 (N.Q.).

Philemon buceroides Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190, 1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 272, 1884; Ramsay, Tab. List Austr. Birds, p. 13, 1888; Hall, Key Birds Austr., p. 45, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 434, 1901; Le Souëf, Emu, Vol. II., p. 148, 1903 (N.T.); Mathews, Nov. Zool., Vol. XVIII., p. 422, 1912; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 171, 1907.

Philemon buceroides yorki Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 102, Sept. 18th, 1912: Cape York, Queensland.

Neophilemon buceroides buceroides Mathews, List Birds Austr., p. 292, 1913; *id.*, South Austr. Orn., Vol. 2, p. 60, 1915.

Neophilemon buceroides yorki Mathews, List Birds Austr., p. 292, 1913.

Neophilemon orientalis Mathews, Austral Av. Rec., Vol. V., p. 39, Feb. 21st, 1923.

Neophilemon orientalis orientalis Mathews, *ib.*

Neophilemon orientalis yorki Mathews, *ib.*

Neophilemon orientalis confusus Mathews, Austral Av. Rec., Vol. V., p. 39, Feb. 21st, 1923: Cairns, North Queensland.

DISTRIBUTION. Cape York Peninsula, Queensland; Melville Island.

Adult male. General colour of the upper-surface dark drab-grey, including the back, rump, upper tail-coverts, scapulars, and upper wing-coverts; bastard-wing and flight-quills hair-brown, margined with white on the basal portion of the inner webs of the latter; tail-feathers dark brown with pale margins and inclining to whitish at the tips; top of head and nape silvery-white with dark brown centres to the feathers, which are lanceolate in form; sides of neck darker than the nape and

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more rounded in form ; hinder face blackish with a pale edging, pale drab-grey, with hair-like tips to the feathers ; throat and fore-neck silvery-white with dark centres to the feathers, becoming whiter on the latter where the feathers have dark shaft-streaks and lanceolate tips ; breast, abdomen, sides of body, thighs, under tail-coverts, axillaries, and under wing-coverts pale drab-grey ; under-surface of flight-quills dark brown with white shafts ; lower aspect of tail similar but paler. Eyes brown, bill and feet black. Total length 335 mm. ; culmen from knob 35, wing 155, tail 132, tarsus 42. Figured. Collected at Cape York, North Queensland, on the 13th of May, 1912, and is the type of *P. b. yorki*.

Adult female similar to the adult male.

Adult female. A large swollen helmet at the base of the upper mandible ; feathers of the head, short, narrow and pointed, whitey-brown in colour, with light brown shafts ; back, scapulars, wing-coverts, rump and upper tail-coverts smoky-brown, slightly fringed with ash-colour ; primaries, secondaries and tail like the back, slightly fringed and bordered with greyish-ash ; lores, a large space surrounding the eye to behind the ear, devoid of feathers ; chin and throat composed of short pointed feathers, greyish-brown at the base, whitish at the tip, the shafts produced beyond the feathers and terminating in a long hair-like beard ; a patch across the crop similar to the feathers of the throat but wider ; under-surface of the body, including the thighs and under tail-coverts, light brownish-ash, paler on the middle of the belly ; under-surface of wings and tail brownish-grey, inner margins slightly fulvescent. Eyes brown, feet and bill black. Total length 310 mm. ; culmen from knob 22, wing 147, tail 122, tarsus 38. Collected at Cape York, North Queensland, on the 23rd of May, 1912

Almost adult male. Head covered with very short pointed feathers brownish-buff in colour, with the white bases showing through ; a ring of white feathers surrounding the neck ; mantle, back and wing-coverts tawny-brown ; rump buffish-white fringed with light buff ; upper tail-coverts brownish-buff ; wings ash-brown, the innermost primaries and secondaries margined with yellowish-olive ; tail-feathers ash-brown, margined on the outer web with olive and with whitish-buff at the extremity ; lores, a space over the eye and sides of the face, devoid of feathers ; middle of the throat brownish-ash with the brownish shafts terminating in a hair-like tip ; a whitish spot at the base of the neck ; chest greyish-white ; remainder of the under-surface including the sides ash-grey ; under-surface of wings and tail ash-brown. Eyes grey, feet slate-blue, bill and face black. Collected at Cape York, North Queensland, on the 13th of May, 1913.

“ *Young birds* may be distinguished by having the sides of the neck entirely covered with silvery-brown or pale brown feathers.” (North.)

Nestling. Sides of face, over and above the eye, devoid of feathers ; head and back of the neck greyish-white with blackish shaft-streaks ; upper back, rump, upper tail-coverts and secondaries brownish-ash, the former slightly tinged with dark grey ; primaries brownish-ash, narrowly margined with yellowish-olive ; tail brownish-ash slightly margined with white ; throat whitish ; remainder of under-parts greyish ash-colour, slightly darker on the sides of the chest. Eyes grey, feet blue-grey, bill and face grey, palate bright yellow. Collected at Cape York, North Queensland, on the 29th of October, 1912.

Eggs. Three to four eggs form the clutch. A clutch of three eggs taken at Borroloola, Macarthur River, Northern Territory, on the 28th of January, 1914, is of a beautiful pinkish-white ground-colour, spotted and boldly blotched with reddish-brown, brownish-red, and dull purple, the blotches being largest and most numerous about the larger end. Long ovals in shape. Surface of shell fine and slightly glossy. 34 by 22 mm.

HELMETED FRIAR-BIRD.

Nest. A very deep cup-shaped structure, composed of strips of bark, grasses, roots, etc., well woven in together, and lined with fine grasses and thin twigs. It is a bulky structure, and is suspended from a fork near the end of a branch of a tree, and is situated at heights varying from 10 to 40 feet or more from the ground. Dimensions over all, 8 to 10 inches across by 7 to 8 inches in depth.

Breeding-months. August to January.

WHEN Gould added Swainson's species to the Australian List he wrote: "This bird may be regarded as the representative on the north coast of *Tropidorhynchus corniculatus* of the southern part of the country, for it was in the Cape York Peninsula that it was obtained; not, however, by Mr. Macgillivray, who, I believe, mistook it for the common species, and did not procure examples; which is much to be regretted, since the bird is so extremely rare in our collections."

Swainson had described his species from New Holland from a specimen in the Paris Museum and gave an accurate drawing of the head and tongue. As Gould determined the Cape York bird as Swainson's species the usage continued until 1916, as will be shown later.

Macgillivray (not the one above mentioned) recorded it from Cooktown and Cape York, adding: "Numerous all the year round in the forest country at Cape York, where they nest in the Moreton Bay ash trees in company with *Sphecotheres*, *Drongo* and *Aplonis*, laying three to four eggs. ♀, Iris dark orange, bill and naked skin of head black, legs dark leaden-grey," and "Common in the open forest on the Claudie, where they nested in company with Fig-Birds and Drongos."

Barnard also noted that it was very plentiful all through the forest country, four usually forming the clutch of eggs.

Broadbent regarded it as common at Cardwell, and Campbell and Barnard wrote from the same locality: "At first from field observation we thought this large species was *argenticeps*, because of its silvery crown, but on procuring a skin it was undoubtedly *buceroides*. Several of their large nests and handsome red-marked eggs were subsequently taken. These big birds were always about the flowering trees, notably gums, and were very pugnacious towards smaller birds that came to the same tree. Among the curious calls of the Large Friar-Bird is one that resembles the words 'Poor devil, poor devil' repeated many times."

Campbell later gave McLennan's note made on Moa Island, Torres Strait: "Heard a bird call that I thought was a Rail of some sort. Sat down, and started to imitate the call—rather a difficult job. In about half an hour the bird called again, apparently from the ground, about 50 yards away. It called again, this time in the tree above me. It was a Friar-Bird. I never

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heard one utter this call previously—a hissing, throaty ‘Kurr-rk,’ slowly repeated eight or ten times.”

Upon receiving specimens from Melville Island I recognised their difference, and criticising the Queensland specimens I separated these into two subspecies, restricting Swainson’s name to the Cairn’s form, as no Cape York birds had reached Europe at the time he described his species. I therefore named

Philemon buceroides yorki.

“Differs from *P. b. buceroides* (from Cairns) in being much lighter above and below, and in having a deeper bill. Cape York,”

and, what is now considered a different species,

Philemon buceroides gordonii.

“Differs from *P. b. buceroides* in its much smaller size generally; the bill is very small, and the knob on the top of the culmen not much raised. Melville Island.”

In my 1913 “List” I placed these in the genus *Neophilemon*, still allowing the three subspecies.

Hellmayr drew up a List of the Avifauna of Timor and being a specialist in South American birds was unacquainted with the literature of Timor Birds. Consequently his nomenclature was not all correct. A little later, visiting the Paris Museum, he took the opportunity of rectifying his nomenclature by an examination of the Paris types collected by Lesueur and Mauge and Peron. As is well known to Australian ornithologists the collections made by these voyageurs were confused, and many Australian forms were labelled Timor, Shark’s Bay, King Island and King George Sound inaccurately.

Hellmayr found that the species named *Philedon buceroides* by Swainson was one of these and, though Swainson said “New Holland,” his type had been collected at Timor by Mauge, and was the species known as *P. timoriensis* Müller, quite distinct from the Australian species. This was also obvious from the excellent figure given by Swainson, but it had not been regarded as accurate. This left the Australian bird to bear the name I had given to the Cape York form, and Hellmayr called it *Philemon yorki* and the Melville Island form *Philemon yorki gordonii* (Nov. Zool., Vol. XXIII., pp. 101–2, 1916).

I still consider that *Neophilemon* is available for this group and that the type should be considered as *P. buceroides* auct, i.e. *P. buceroides yorki* Mathews. I therefore use:

Neophilemon yorki yorki (Mathews).

Cape York, North Queensland.

Neophilemon yorki confusus (Mathews).

Cairns district, Queensland.

Darker above and below than the above and has a slimmer bill.

I consider the Melville Island bird as a different species.

Order PASSERIFORMES.

No. 699.

Family MELITHREPTIDÆ.

NEOPHILEMON GORDONI.

ALLIED FRIAR-BIRD.

(PLATE 555.)

PHILEMON BUCEROIDES GORDONI Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 102, Sept. 18th, 1912 : Melville Island (Gordon Point), Northern Territory.

Philemon buceroides gordonii Mathews, Austral Av. Rec., Vol. I., pt. 4, p. 102, Sept. 18th, 1912 : Melville Island.

Neophilemon buceroides gordonii Mathews, List Birds Austr., p. 292, 1913.

Neophilemon orientalis gordonii Mathews, Austral Av. Rec., Vol. V., p. 39, Feb. 21st, 1923.

DISTRIBUTION. Melville Island.

Adult male. Top of head and nape pale earth-brown with whitish margins to the feathers along the sides of the crown ; a white band across the hind-neck ; back, rump, upper tail-coverts, scapulars, wings and tail earth-brown ; inner webs of flight-quills margined with buffy-white ; tail-feathers dark brown, slightly paler on the margins ; cheeks blackish, paler on the hinder margins ; chin dusky-grey with hair-like tips to the feathers ; throat and fore-neck silvery-white with dark shaft-lines to the feathers ; breast, abdomen, sides of body, thighs, and under tail-coverts pale drab-grey ; axillaries and under wing-coverts similar, tinged with buff ; under-surface of flight-quills hair-brown with white shafts ; lower aspect of tail similar but paler. Eyes reddish-brown, feet leaden-blue, tarsi leaden-brown, bill black, naked skin of head black, cheeks leaden-blue. Total length 310 mm. ; culmen from knob 32, wing 145, tail 121, tarsus 37. Figured. Collected on Melville Island, Northern Territory, on the 14th of June, 1912, and is the type of *P. b. gordonii*.

Adult female similar to the adult male.

Birds from Melville Island have a much smaller knob on the top of the culmen. The feathers of the top of the head lack the silvery appearance of these parts in birds from Cape York. Their upper-surface is distinctly browner.

Nest, eggs and breeding-months not described.

GENUS—TROPIDORHYNCHUS.

TROPIDORHYNCHUS Vigors and Horsfield,
Trans. Linn. Soc. (Lond.), Vol. XV.,
p. 323, Feb. 17th, 1827. Type (by subsequent designation) Gray, 1840, p. 16.. *Merops corniculatus* Latham.

VIGORS and Horsfield wrote: "The strong bill, with its elevated keel, and the nostrils oval, pervious, and situated near the middle of the beak, offers a very distinguishing character by which this group is known from the more typical *Meliphagidæ*." As they included *cyanotis* (type of *Entomyzon*) in their group they wrote: "Caput plus minusve nudum."

Gray designated the present type species, and this group is well characterised by the naked head and small projection on the basal half of the culmen. The bill is formed as in the preceding, not as in *Philemon s. str.*, and the protuberance small and conical, a little behind the nostril but over the nasal groove; the head and neck are naked all round, but the throat and chin are feathered, while on the breast long lanceolate feathers are present.

The wing has the third, fourth and fifth primaries subequal and longest, the second longer than the seventh, and the first about half the length of the second. The tail is long and square. The legs are like those of the preceding. This appears to be the end of the development of the bare eye-patch first seen in such a species as the next and in the type of *Philemon*. The frontal protuberance has not developed as largely, but, while the head and neck are naked, the chin is feathered and the breast has developed long lanceolate feathers.



H Gronvold. del.

Witherby & Co.

MICROPHILEMON CITREOGULARIS.
(YELLOW-THROATED FRIAR-BIRD)
TROPIDORHYNCHUS CORNICULATUS
(FRIAR-BIRD)

TROPIDORHYNCHUS CORNICULATUS.

FRIAR-BIRD.

(PLATE 556.)

MEROPS CORNICULATUS Latham, Index Ornith., Vol. I., p. 276, (before Dec. 9th) 1790 :
New South Wales.

Merops corniculatus Latham, Index Ornith., Vol. I., p. 276, 1790.

Knob-fronted Bee-eater White, Journal Voy. New South Wales, p. 190, pl. 16, 1790 ;
Latham, Gen. Synops. Birds, Suppl. II., p. 151, 1801.

Cowled Bee-eater Latham, *ib.*, p. 155.

Merops monachus Latham, Index Ornith., Suppl., p. xxxiv., 1801 : New South Wales ;
based on Lambert drawing (Watling No. 87).

Tropidorhynchus corniculatus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV.,
p. 324, 1827 ; Gould, Birds Austr., pt. II. (Vol. IV., pl. 58), March 1st, 1841 ; *id.*,
Handb. Birds Austr., Vol. I., p. 545, 1865 ; Ramsay, Proc. Zool. Soc. (Lond.),
1875, p. 596 (Q.) ; Mathews, Handl. Birds Austral, p. 100, 1908 ; Cleland, Emu,
Vol. IX., p. 226, 1910 (Food) ; Agnew, *ib.*, Vol. XIII., p. 96, 1913 (Q.) ; Cheney,
ib., Vol. XIV., p. 212, 1915 (Vic.) ; Campbell and Barnard, *ib.*, Vol. XVII., p. 35,
1917 (N.Q.) ; Macgillivray, *ib.*, p. 207, 1918 (N.Q.) ; Cleland, *ib.*, Vol. XVIII., p. 283,
1919 (N.S.W.) ; Kersey, *ib.*, Vol. XIX., p. 52, 1919.

Philemon corniculatus Gray, Handl. Gen. Sp. Birds B.M., Vol. I., p. 160, 1869 ; Ramsay, Proc.
Linn. Soc. N.S.W., Vol. II., p. 190, 1878 ; Gadow, Cat. Birds Brit. Mus., Vol. IX.,
p. 271, 1884 ; Ramsay, Tab. List Austr. Birds, p. 13, 1888 ; Hall, Key Birds Austr.,
p. 45, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 432, 1901 ; Berney,
Emu, Vol. V., p. 76, 1905 (N.Q.) ; Batey, *ib.*, Vol. VII., p. 9, 1907 (Vic.) ; Hill, *ib.*,
p. 20 (Vic.) ; Austin, *ib.*, p. 31 (N.S.W.) ; North, Austr. Mus. Spec. Cat., No. 1,
Vol. II., p. 168, 1907 ; Broadbent, Emu, Vol. X., p. 238, 1910 (N.Q.).

Philemon corniculatus corniculatus Mathews, Nov. Zool., Vol. XVIII., p. 422, 1912.

Philemon corniculatus ellioti Mathews, *ib.*, p. 423, Jan. 31st, 1912 : Mount Elliot, Towns-
ville, North Queensland ; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs).

Tropidorhynchus corniculatus corniculatus Mathews, List Birds Austr., p. 292, 1913.

Tropidorhynchus corniculatus ellioti Mathews, *ib.* ; *id.*, South Austr. Orn., Vol. II., p. 60,
1915.

Entomyzon cyanotis White, Emu, Vol. XVIII., p. 24, 1918 (see p. 147).

DISTRIBUTION. Queensland as far north as the Archer River ; New South Wales and
Victoria.

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Adult female. General colour of the upper-surface drab-grey tinged with pale buff on the upper back and interscapulary region; tips of upper tail-coverts slightly fringed with white; flight-quills dark hair-brown, edged with grey on the outer webs and somewhat paler at the tips; tail dark brown with pale tips to the feathers; interramal space whitish with dusky shaft-streaks; fore-neck and upper breast silvery-white with dark shaft-streaks and lanceolate tips to the feathers; lower breast, abdomen and under tail-coverts cream-white; thighs pale brown; axillaries and under wing-coverts pale grey; under-surface of flight-quills greyish-brown with white shafts; lower aspect of tail pale greyish-brown, with white shafts and pale tips to the feathers. Eyes light grey, bill and naked skin of head and neck black; legs and feet dark grey, claws black. Total length 280 mm.; culmen from below knob 28, wing 138, tail 112, tarsus 32. Figured. Collected on the Watson River, North Queensland, on the 22nd of June, 1914, and is the type of *T. c. watsoni*, subsp. new.

Adult male. Similar to the adult female.

Adult male. An elevated compressed casque at the base of the upper mandible; head and sides of the face entirely naked, except for a few scattered brown feathers on the lores and round the eye; entire upper-parts greyish-ash with indistinct brownish shaft-streaks; primaries and secondaries greyish-ash with the shafts of the feathers brown; chin and upper throat whitish, indistinctly streaked down the shaft with pale brown; base of the throat dark umber-brown; chest ashy-white with brownish shafts; sides and flanks brownish-ash; middle of the breast, belly, and under tail-coverts white; tail greyish-ash, tipped with white. Eyes brown, bill black, legs steel-grey, feet black. Total length 320 mm.; culmen from knob 25, wing 140, tail 120, tarsus 32. Collected on Mount Elliot, near Townsville, Northern Queensland, on the 1st of December, 1907, and is the type of *P. c. ellioti*.

“*Young birds* resemble the adults, but have a much smaller protuberance on the upper mandible; many of the feathers on the upper parts are brown and are broadly margined with white at the tip; the feathers also extend right on to the nape, those on the latter part, as well as those above the eye, chin, and margin of the throat, are rich brown; those on the fore-neck are shorter, less lanceolate in form, and tipped with pale yellow; remainder of the under-surface dull white, those on the sides of the body being long, downy, and washed with pale brown.” (North.)

Immature female. An elevated compressed helmet at the base of the upper mandible; head, sides of face and neck naked, except for umber-brown lines of feathers down the centre of the head, over the eyes, on the lores and under the eyes; feathers of the upper-parts, including the wing-coverts, light ash-colour, each feather bordered at the extremity with white, a few old tawny-brown feathers scattered over the body; scapulars similar to the upper-parts, but lacking the white edges; primaries uniform brownish-ash; tail-feathers light ash-colour, broadly tipped with greyish-white on the inner web at the tip; middle of the throat whitish tipped with brown; sides of the throat and base of the fore-neck deep umber-brown; upper chest white with brownish shaft-streaks, and tipped with pale yellow; chest, sides and flanks greyish-ash, remainder of the under-surface, including the under wing-coverts, whitish. Collected in New South Wales on the 11th of March, 1909.

Eggs. Two to four eggs form the clutch, usually three. A clutch of three eggs taken at Cambo, Cambo Station, on the Moonie River, North-western New South Wales, on the 8th of November, 1911, is of a pinkish-buff ground-colour, spotted with cloudy markings of chestnut and dull purplish-grey. Swollen ovals in shape. Surface of shell fine, smooth, and rather glossy. 30–31 by 22–23 mm.

FRIAR-BIRD.

Nest. A very deep, open, cup-shaped structure, composed of strips of bark and grasses, well matted together with spiders' webs and silky cocoons, and often sheeps' wool is used over the outside of the nest. A very firm and compact structure, and often very beautiful. When built near a homestead, a great quantity of twine, cotton-thread, portions of old rope and bagging, etc., are often used in the construction of the nest, and in securely fastening it to the forked limb in which it is built. Lined inside with a good layer of dried grasses, which are very neatly placed into position. Suspended by the rim in the fork of a limb, and near the extremity, and often near or hanging over water. Altitude of nest varies from 15 to 50 feet up from the ground, and is usually placed in a tree. Dimensions over all, 6 to nearly 7 inches across by 4 to 5½ inches in depth. The egg cavity measures 4 to 4½ inches across by 2½ to 3½ inches deep.

Breeding-months. August to December, and sometimes as late as January.

UNDER the name Knob-fronted Bee-eater this extraordinary-looking bird was first figured in *White's Journal* without a Latin name, which was given by Latham in his *Index Ornithologicus* simultaneously published. In his Second Supplement to his *General Synopsis of Birds* Latham gave an English translation of his Latin account and added "This was first brought into England by Sir Joseph Banks."

At the same time from the Lambert drawings he added as a new species the Cowled B(ee) E(ater), writing: "This is found about *Port Jackson*, in *New Holland* in *January*. The hind-head projecting, and being of a black downy texture, giving the resemblance of a cowl or hood, has occasioned it to be called a *Friar*. The natives call it *Wergan*."

This note is given in connection with Watling's drawing No. 88, where it reads: "Native name *Wergan*, or a *Friar*. *January*. Two-thirds the natural size; it is supposed to be a young bird. It varies from the Knob-fronted (Bee-eater) in sex or size."

When Sharpe discussed the Watling drawings (*Hist. Coll. Nat. Hist. Brit. Mus.*, Vol. II., p. 124, 1906), he reproduced this note without comment, identifying the No. 88 as "Cowled Bee-eater, juv.," but in connection with No. 87 he wrote:

"Cowled Bee-eater, Lath: *Gen. Syn.*, *Suppl. II.*, p. 155.

Merops monachus Lath.: *Ind. Orn. Suppl.*, p. xxxiv.

Philemon corniculatus Lath.: *Gadow, Cat. B.*, IX., p. 271."

In his list of Watling's plates, Latham identifies this figure (87) as the Knob-fronted Bee-eater (= *Merops corniculatus* Lath., *Ind. Orn.*, I., p. 276), but in his note on the plate, he seems to think that the two birds are the same, and this view is no doubt correct.

Watling's note is as follows: "About one-third of the natural size. This bird is generally found perching upon the topmost boughs of the tall trees. Its food is insects and honey, which it extracts from plants and flowering shrubs.

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The Paroquets hold it in enmity, nor do they ever part before a severe combat. It varies from the Knob-fronted [Bee-eater] in the sex or age." Obviously plate 88 was the basis of the Cowled Bee-eater, not plate 87.

For this group Vigors and Horsfield introduced the genus *Tropidorhynchus*, and in connection with the species *T. corniculatus* recorded Caley's observations: "*Friar*. A very common bird about Paramatta, called by the natives *Coldong*!—It repeats the words 'poor soldier' and 'four o'clock' very distinctly—I have frequently seen three or four of them flying after a hawk, which they seemed desirous of attacking. It is a strong and sharp-clawed bird. I have never shot a specimen of the species which had white on the head, as figured in *White's Journal*."

Mr. Thos. P. Austin has written me from Cobbara, New South Wales: "Always numerous in the spring, but more so some years than others, especially if the native apple-trees are in bloom. They do not all remain here to breed, but still almost every year nests are to be found, yet mostly only in certain localities, and about such spots several nests will often be found in close proximity. They generally place their nests near the end of a long, thin, horizontal branch, and though I have examined a great number of them have only found two which I could climb out to, and handle in its natural position. To secure the eggs of this species it is usually necessary to use a mirror and scoop with a long rod. They usually lay three eggs for a sitting and are rather late breeders, the earliest record I have of taking eggs being September 28th, and the latest December 16th. In this district I have never known them to be any trouble in the orchard. These birds have very loud peculiar notes, and sound very extraordinary coming from a number of birds, but a single bird calling sounds very much as if it were trying to say 'Don't forget your coat.'"

Gould's notes read: "There are few birds more familiarly known in the colony of New South Wales than this remarkable species of Honey-eater; it is generally dispersed over the face of the country, both in the thick brushes near the coast and in the more open forests of the interior. My own observations induce me to consider it as a summer visitant only to New South Wales; but as a lengthened residence in the country would be necessary to determine this point, my limited stay may have led me into error. It does not visit Tasmania, neither have I traced it so far to the westward as South Australia. The Friar-Bird, selecting the topmost dead branch of the most lofty trees whereon to perch and pour forth its garrulous and singular notes, attracts attention more by its loud and extraordinary call than by its appearance. From the fancied resemblance of its notes to those words, it has obtained from the colonists the various names of 'Poor Soldier,' 'Pimlico,' 'Four o'clock,' etc. Its bare

FRIAR-BIRD.

head and neck have also suggested the names of 'Friar Bird,' 'Monk,' 'Leather Head,' etc. Its flight is undulating and powerful, and it may frequently be seen passing over the tops of the trees from one part of the forest to another. While among the branches it displays a more than ordinary number of singular positions, its curved and powerful claws enabling it to cling in every variety of attitude, frequently hanging by one foot with its head downwards, etc. If seized when only wounded, it inflicts with its sharp claws severe and deep wounds on the hands of its captor. Its food consists of the pollen of the *Eucalypti* and insects, to which are added wild figs and berries. It commences breeding in November, when it becomes animated and fierce, readily attacking hawks, crows, magpies (*Gymnorhinæ*), or other large birds that may venture within the precincts of its nest, never desisting from the attack until they are driven to a considerable distance."

Mr. J. W. Mellor has written me: "I noted these birds in southern Queensland in October and November, 1910, from Brisbane to Gladstone; they were very noisy and animated in their actions, seeking their food in the flowering trees; they eat honey, and also catch many flies and other insects that are attracted to the flowering trees and shrubs which they haunt."

Mr. E. J. Christian has written: "This bird, commonly called the 'Leather head' from its peculiar bare, leathery-looking head, is found from Queensland to South Australia. The bird seems to prefer to sit at the very top of a tree and call out its peculiar notes. It has tremendous claws on it which are very sharp, and when wounded it will try to retaliate with them. These birds seem to live on insects and honey in the blossoms, berries, and now and then some fruit. It is a bit of a nuisance in the summer just about Xmas-time."

Mr. A. G. Campbell writes: "Common in northern Victoria, frequenting mainly the timber along the Murray and its tributaries. It is very severe on soft fruit orchards near the water-courses. In southern Victoria the nest of a solitary pair was taken at the foot of the Dandenong Ranges in 1901."

Mr. F. E. Howe's notes read: "The Leather-head is occasionally met with in small families of from four to eight feeding in the tall gums. They possess a strange, song-like medley of notes that are indeed laughable. They evidently breed in this district and have been noted from October to January."

Berney has recorded: "The common Friar-Bird is only occasionally met with along the Flinders River, but about the heads of the creeks that issue from the basalt ranges their chattering cries are always to be heard."

Campbell and Barnard wrote from the Rockingham Bay district: "This common bird was observed, and specimens secured, on the table-land. They are smaller birds (half an inch shorter on the wing), otherwise there is no

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appreciable difference of colouring, save perhaps a paler tint than the familiar southern Friar-Bird."

Maegillivray concluded: "The Friar-Bird common on the Archer River is quite distinct from Victorian and New South Wales specimens; it is a well-marked subspecies."

In his census of the Birds of the Pilliga Scrub, New South Wales, Cleland reported: "Twenty-eight were counted, mostly distributed throughout the journey. The estimated population (1,848) is probably much too low, as it is certain that a number of these birds were seen, but not close enough for identification."

No subspecies were distinguished until I prepared my "Reference List" in 1912, when I separated

Philemon corniculatus corniculatus (Latham).

New South Wales.

Philemon corniculatus ellioti Mathews.

"Differs from *P. c. corniculatus* in its smaller size and paler coloration. Mount Elliot (Townsville), North Queensland."

North Queensland.

In my 1913 "List" these were retained with the reference to the genus *Tropidorhynchus*, the range of the former being correctly enlarged by the addition of South Queensland, to which Victoria must now be added.

It will be noted that the distinction of the northern form has been confirmed by Campbell and Maegillivray.

GENUS MICROPHILEMON.

MICROPHILEMON Mathews, Austral
Avian Record, Vol. I., pt. 5, p. 117,
Dec. 24th, 1912. Type (by
original designation) *Buphaga orientalis* Latham =
Tropidorhynchus citreogularis Gould.

At the introduction of this genus I wrote: "Differs from *Philemon* in its shorter, weaker bill and weaker legs and feet, and shorter wings and tail."

This little form is almost a mimic of true *Philemon*, with a bill long and curved, longer than the head, the culmen only semi-keeled and bearing no protuberance whatever. The head is feathered with only a bare eye space and no elongation of the breast feathers.

The wing has the first primary short but more than half the length of the second, which is longer than the eighth and the primaries; the third, fourth, fifth and sixth primaries subequal and longest, the seventh very little shorter. The tail is long and square as usual, and the legs and feet are of similar structure to those of the preceding, but are much more delicately formed.

MICROPHILEMON CITREOGULARIS.

YELLOW-THROATED FRIAR-BIRD.

(PLATE 556.)

TROPIDORHYNCHUS CITREOGULARIS Gould, Synops. Birds Austr., pt. I., pl. 13, Jan. 1st, 1837: Interior New Wales.

Tropidorhynchus citreogularis Gould, Synops. Birds Austr., pt. I., pl. 13, Jan. 1st, 1837; *id.*, Proc. Zool. Soc. (Lond.), 1836, p. 143, April 1837; *id.*, Birds Austr., pt. XXIX. (Vol. IV., pl. 60), Dec. 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 549, 1865; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 597 (Q.); Mathews, Austral Av. Rec., Vol. V., p. 39, 1923.

Philemon citreogularis Gray, Handl. Gen. Sp. Birds B.M., Vol. I., p. 160, 1869; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190, 1878; Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 277, 1884; Ramsay, Tab. List Austr. Birds, p. 13, 1888; Hall, Key Birds Austr., p. 45, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I, p. 435, 1901; Hall, Emu, Vol. I., p. 103, 1902 (N.W.A.); Berney, *ib.*, Vol. V., p. 76, 1905 (N.Q.); North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 173, 1907; Mathews, Handl. Birds Austral., p. 100, 1908; Hall and Rogers, Emu, Vol. VII., p. 139, 1908 (N.W.A.); Cleland, *ib.*, Vol. XII., p. 17, 1912 (Food); S. A. White, *ib.*, Vol. XIII., p. 129, 1914 (S.A.); Campbell and Barnard, *ib.*, Vol. XVII., p. 35, 1917 (N.Q.); Kersey, *ib.*, Vol. XIX., p. 52, 1919 (Q.).

Tropidorhynchus sordidus Gould, Birds Austr., Introd., 8vo ed., p. 64, Aug. 1st, 1848: Cobourg Peninsula, N.T.; *id.*, *ib.*, Introd., folio ed., p. lviii., Dec. 1st, 1848; *id.*, Handb. Birds Austr., Vol. I., p. 550, 1865.

Philemon sordidus Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 190, 1878; *id.*, Tab. List Austr. Birds, p. 13, 1888; Hall, Key Birds Austr., p. 45, 1899; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 175, 1907; Mathews, Handl. Birds Austral., p. 100, 1908; Hill, Emu, Vol. X., p. 288, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 28, 1911 (N.Q.); Hill, *ib.*, Vol. XII., p. 260, 1913 (N.T.); Campbell and Kershaw, *ib.*, p. 276; Macgillivray, *ib.*, Vol. XIII., p. 180, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 49 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 228, 1917 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 207, 1918 (N.Q.); Campbell, *ib.*, Vol. XVIII., p. 186, 1919 (N.T.).

Philemon citreogularis subsp. *sordidus* Gadow, Cat. Birds Brit. Mus., Vol. IX., p. 277, 1884; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 436, 1901; Berney, Emu, Vol. VII., p. 80, 1907 (Food).

YELLOW-THROATED FRIAR-BIRD.

- Philemon occidentalis* Ramsay, Proc. Linn. Soc. N.S.W. Ser. II., Vol. II., p. 676, March 21st, 1888 : Derby, North-west Australia. ; *id.*, Tab. List Austr. Birds, opp. p. 13, 1888.
- Philemon orientalis orientalis* Mathews, Nov. Zool., Vol. XVIII., p. 423, Jan. 31st, 1912.
- Philemon orientalis didimus* Mathews, *ib.* : South Australia.
- Philemon orientalis johnstoni* Mathews, *ib.* : Johnston River, North Queensland.
- Philemon orientalis occidentalis* Mathews, Nov. Zool., Vol. XVIII., p. 423, 1912 ; *id.*, Austral Av. Rec., Vol. I, p. 63, 1912 (Eggs).
- Philemon orientalis sordidus* Mathews, *ib.*
- Philemon orientalis breda* Mathews, Austral Avian Record, Vol. I, pt. 2, p. 51, April 2nd, 1912 : Melville Island.
- Microphilemon orientalis orientalis* Mathews, List Birds Austr., p. 293, 1913.
- Microphilemon orientalis didimus* Mathews, *ib.*
- Microphilemon orientalis johnstoni* Mathews, *ib.*
- Microphilemon orientalis sordidus* Mathews, *ib.*
- Microphilemon orientalis breda* Mathews, *ib.*
- Microphilemon orientalis occidentalis* Mathews, *ib.* ; *id.*, South Austr. Orn., Vol. 3, p. 226, 1918.
- Microphilemon citreogularis* Mathews, Austral Av. Rec., Vol. V., p. 39, 1923.
- Microphilemon citreogularis citreogularis* Mathews, *ib.*,
- Microphilemon citreogularis didimus* Mathews, *ib.*
- Microphilemon citreogularis johnstoni* Mathews, *ib.*
- Microphilemon citreogularis sordidus* Mathews, *ib.*
- Microphilemon citreogularis breda* Mathews, *ib.*
- Microphilemon citreogularis occidentalis* Mathews, *ib.*

DISTRIBUTION. Australia, but not South-west Australia. Not Tasmania.

Adult male. General colour of the upper-surface earth-brown including the top of the head, nape, hinder face, back, upper tail-coverts, wings and tail ; hind-neck and sides of neck grey ; flight-quills and tail-feathers rather darker than the back ; upper tail-coverts slightly tinged with white ; chin and throat whitish-grey with hair-like tips to the feathers, becoming darker on the lower throat ; fore-neck, breast, abdomen, sides of body, thighs, under tail-coverts, axillaries, and under-wing-coverts drab-grey ; under-surface of flight-quills hair-brown with white shafts ; lower aspect of tail greyish-brown with white shafts to the feathers. Eyes brown, feet and tarsus leaden-blue, bill black, cheeks leaden-blue, remainder of naked skin of the head black. Total length 282 mm. ; culmen 30, wing 130, tail 117, tarsus 33. Figured. Collected on Melville Island, Northern Territory, on the 6th of December, 1911, and is the type of *P. o. breda*.

Adult female similar to the adult male.

Almost adult female. Head greyish-ash, each feather edged with whitish ; upper parts including the wings and tail greyish-ash, the latter with brownish shafts to the feathers ; a naked space above and behind the eye ; chin and upper throat densely covered with hair-like white feathers ; lower throat and chest light ash-grey, each feather with a small silvery-white tip ; remainder of the under-parts greyish-ash with dark centres to the feathers. Eyes brown, feet and tarsi black, bill black,

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cheeks leaden-blue, balance of naked skin on head, black. Collected on Melville Island, Northern Territory, on the 8th of March, 1912. Wing 123 mm.

“*Young birds* resemble the adults, but the feathers are downy ; the crown of the head, rump, upper tail-coverts and margins of upper wing-coverts and tips of the tail-feathers are a pale buffy-brown ; the outer webs of some of the secondaries are margined with greenish-yellow ; the feathers on the hind-neck are grey with small brownish tips ; all the under-surface very pale brown, slightly darker on the chest, some of the feathers on the sides of which are broadly tipped with yellow ; throat yellow, crossed on the centre with an indistinct blackish-grey band.” (North.)

Immature. Head reddish-brown ; mantle, scapulars, wing-coverts, rump and upper tail-coverts ash-brown, slightly paler on the rump ; wings ash-brown, fringed on the outer web with olive, and on the inner web with pale buff ; tail-feathers ash-brown, darkest on the outer web and towards the tip ; a naked space over each eye, as well as below and behind the eye ; a narrow ring of brown-black feathers surrounding the eye ; chin and throat covered with very long and pointed feathers, white at the base, golden-olive at the extremity ; upper neck whitish-ash, washed with golden-olive ; chest, breast, sides of the body, abdomen and under tail-coverts whitish-ash, paler on the abdomen. Collected in Queensland.

Immature. Top of the head brownish-ash, becoming paler on the back of the head and neck ; back of the neck, rump, upper tail-coverts isabelline-buff ; mantle and wing-coverts ash-brown, margined at the extremity with white ; secondaries, wings and tail ash-brown, margined on the outer web with greenish-yellow and on the inner web with buff ; a bare space over each eye as well as below and behind the eye ; sides of the neck whitish ; throat densely covered with white hair-like feathers, brown along the malar region and washed with yellow on the lower throat ; neck and chest ashy-white washed with yellow ; a large patch of chrome-yellow feathers on each side of the chest ; breast-feathers dusky, margined with white, producing a slightly scaled appearance ; remainder of the under-surface whitish-ash ; under-surface of wings and tail ashy-grey, margined on the inner web with fulvous-white. Eyes brown, legs and bill black. Collected on the South Alligator River, Northern Territory, on the 27th of March, 1903.

Nestling. Head olive-brown, with still a few filo-plumes adhering to the sides ; a broad collar of whitish feathers round the hind-neck ; mantle, wing-coverts and scapulars ash-brown ; secondaries and primaries dark ash-brown, the secondaries and innermost primaries margined on their outer web with yellowish-olive and all fringed at the extremity with buff ; lower back, rump and upper tail-coverts light ash-grey ; base of the tail dark ash, widely margined at the extremity with isabelline-buff ; a large bare space below the eye ; chin and middle of throat covered with yellowish feathers with long hair-like extremities ; sides of the throat naked ; an indistinct patch of light ash-brown feathers on the sides of the chest, remainder of the under-parts greyish-white ; flanks, thighs and under tail-coverts tinged with buff. Bill and eyes black, feet grey-blue. Palate rich yellow. Collected at Normanton, Gulf of Carpentaria, North Queensland, on the 23rd of January, 1914.

Eggs. Two to three eggs form the clutch, usually three, rarely four. A clutch of three eggs, taken at Coomoooolaroo, Duaringa, Queensland, on the 10th of November, 1898, is of a pinkish-buff ground-colour, spotted and blotched with chestnut and purplish-brown, becoming more numerous at the larger end. Ovals in shape. Surface of shell fine and slightly glossy. 26-28 by 18-19 mm.

Nest is very deep and cup-shaped, but rather loosely made ; composed chiefly of thin dried grasses, bound together with thin strips of bark, spiders' webs, etc. Lined with very thin dried grasses. Often the nest is so thin that the eggs can be seen

YELLOW-THROATED FRIAR-BIRD.

through it from the ground. Dimensions over all : 5 inches across by 4 to $5\frac{1}{2}$ inches in depth. Egg cavity, 3 to $3\frac{1}{2}$ inches across by $2\frac{1}{2}$ to nearly 3 inches deep. The nest is built in a tree in the forest, and more often at the very extremity of a long limb, and sometimes hanging over water.

The following are from Melville Island :—

Three eggs in full set. Tree white gum. Height from ground 6 feet. Nest was suspended in a bunch of pendant leaves and was loosely fastened to the twigs with cobwebs and some tow. Materials, coarse stems of annuals and grasses, a few fine twigs, and some horsehair lined with a little fine stems of grass. From below the eggs could be seen through the nest. November. Dimensions : Outside $5\frac{1}{4}$ by $6\frac{1}{8}$ by 4 in. deep. Inside $3\frac{1}{8}$ by $3\frac{1}{8}$ by $2\frac{1}{2}$ in. deep.

Three eggs in full clutch. Tree Bloodwood. Height from ground 5 feet. Nest was suspended from a few twigs growing from the side of a horizontal limb. Was built of stems of annuals and some creeper tendrils, was held together with cobwebs and silk-like cocoons, and fastened to the branches with the same materials and was lined with fine grasses. November. Dimensions : Outside, $6\frac{1}{8}$ by $4\frac{1}{8}$ by $3\frac{1}{8}$ in. deep. Inside $3\frac{1}{8}$ by $2\frac{1}{8}$ by $2\frac{1}{8}$ in. deep.

Three eggs in full clutch. Tree Bauhinia. Height from ground 6 feet. Nest was placed between two horizontal twigs. Was built of stems of annuals, fine twigs, tendrils of creepers, grass stems and horsehair, and was lined with fine grass stems ; was fastened to the main branch and twigs with cobwebs. Dimensions : Outside, $4\frac{1}{8}$ by $3\frac{1}{8}$ by $3\frac{1}{2}$ in. deep. Inside, $3\frac{1}{8}$ by $2\frac{7}{8}$ by $2\frac{7}{8}$ in. deep.

Two eggs in full clutch. Tree Bahunia. Height from ground 6 feet, the nest was suspended between two horizontal twigs, and was constructed with fine twigs, stems of annuals and lined with grass, and was fastened together with unravelled cotton and woollen cloth and string, and was secured to the tree with the same material. Dimensions : Outside, $5\frac{1}{2}$ by 5 by $3\frac{1}{8}$ in. deep. Inside, $3\frac{1}{8}$ by $3\frac{1}{4}$ by 2 in. deep.

Breeding-months. August to end December to February.

GOULD described this species before he went to Australia and afterwards wrote : “ This is strictly a bird of the interior of the south-eastern portion of Australia, and is never, so far as I am aware, found on the seaside of the mountain ranges. I observed it in tolerable abundance during my tour to the Namoi ; first meeting with it in the neighbourhood of Brezi, whence as I descended the river to the northward it gradually became more numerous. I killed both adult and young birds in December, the latter of which had just left the nest, consequently the breeding-season must have been about a month previous. The yellow colouring of the throat peculiar to the period of immaturity is entirely wanting in the adult, and the bird is one of the plainest-coloured species of the Australian Fauna. Its habits and manners are very similar to those of the *Tropidorhynchus corniculatus* ; like that bird it feeds on insects, berries, fruits and the flowers of the *Eucalypti*, among the smaller branches of which it may constantly be seen hanging and clinging in every possible variety of attitude.”

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Capt. S. A. White says: "The young of this bird only has the yellow on the throat, and like the Blue-faced Honey-eater has only of late years come down the Murray to the lower part. They are fairly numerous now from Mannum up-stream. They are a pugnacious and noisy bird and are often to be seen chasing other birds. They nest along the river in overhanging boughs of the red gums. Nearly always over the water, the nest is a suspended one built of dry grass and twigs. Nesting time September to October."

Mr. Thos. P. Austin has written me from Cobbara, New South Wales: "Rather a common species here during the spring and summer months, but none are to be seen during the winter; mostly arriving in September and October, they are nomadic in habit. Seldom are they to be met with far away from water, and I have never found them breeding away from water, their nests being usually placed in drooping branches in river oaks and native apple-trees over water. I know of no bird the nests of which differ so greatly; some are rather frail structures, loosely constructed, composed of dry grasses, while others are great bulky structures, almost entirely composed of wool from sheep. Three eggs is the usual clutch; I have only once found four. They are late breeders, mostly laying during November, but I have taken eggs as early as September 30th, and as late as January 12th. I have never found this species in flocks or in anything like such great numbers as *T. corniculatus*; they are always met with singly or in pairs, and they have the most extraordinary notes, which are quite impossible to describe."

From Rockingham Bay, North Queensland, Ramsay wrote: "Equally plentiful with the last mentioned, but confined to the more inland parts and open forest country"; and forty years later from the same locality Campbell and Barnard wrote: "As in the case of the former Friar-Bird, this was smaller in size and slightly lightly coloured in appearance; was observed only on the tableland, feeding on the flowers of the poplar gum trees."

Berney wrote from the Richmond district, North Queensland: "Unlike the larger *corniculatus*, this Friar-Bird is plentiful along the river, but quite absent about the basalt country. It, too, is a noisy bird. A nest of this species contained three eggs on 8th January."

Captain S. A. White, reporting about the birds met with on the Lower Murray, noted: "Numbers of these birds were seen. They fly high at times, passing over the tree-tops. Large young were flying about with the adult birds, the bird being called the Yellow-throated, because the immature bird has yellow feathers on the throat, while the matured bird shows no trace of any yellow."

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Maegillivray recorded this species under the name *Philemon sordidus* as: "Common in Gulf country and at Cape York in the more open country. One nest found on the Cloneurry River contained young birds in February; another, which had two eggs in it, was vigorously defended by the parent birds when Mr. McLennan attempted to examine it. . . . Common at Cooktown and also on the Areher River.

Gould described the northern form as a distinct species, writing "inhabits the Cobourg Peninsula, and is very similar to *T. citreogularis*, but is smaller in all its admeasurements except in the bill, which is more developed. Gilbert informed me that its habits and manners are precisely similar to those of *T. argenticeps*, but that it is less abundant, less active, and has not so deep a voice as that species."

Mr. J. P. Rogers wrote me from North-west Australia: "At Marngle Creek in a belt of flowering paper-bark trees there were great numbers of these birds, many in immature plumage. At Mungi in the patches of flowering gums I occasionally saw a few of these birds. They are partial migrants, as some always remain in localities frequented by this bird, while they are usually very numerous when trees carry a large number of blossoms. Is widely distributed through the Kimberley district." From Melville Island Rogers wrote: "Cooper's Camp, Nov. 20, 1911. This species is not so numerous as *P. argenticeps*, in fact is rather rare in the parts I have visited. Is found in the forests and on the heavily timbered creeks. Jan. 14, 1912. None were seen on the north side of the Island."

Roger's previous notes from Derby, published by Hall, read: "In the early morning (July) a large number of this species gather in a huge 'boat' tree in front of the house I am staying at and hold a 'corroboree.' One seems to lead, and the rest join in the chorus. After the song they fly to a second tree and repeat the performance, keeping it going for about an hour. After this they leave for their feeding grounds, at present in the blossoming *banhinia* trees. On 31st January I found a nest with three eggs instead of two, the usual clutch, as well as I know."

Hill has written: "This species was fairly plentiful on the eastern side of Napier Broome Bay where it is resident. The nesting season appears to extend from December to March. The food is chiefly honey, insects and fruits."

Barnard found it fairly numerous at Borroloola.

After Gould had named the Port Essington form, Ramsay recorded the Derby bird as agreeing well with Gould's *sordidus*, but added: "*Philemon occidentalis*, sp. nov., similar to *P. sordidus* juv., but having the sides of neck and chest tinged with citron-yellow," from Derby.

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When I drew up my "Reference List" in 1912 I concluded that both *sordidus* and *occidentalis* were only subspecies of *citreogularis* and added two others, but used as the species name *orientalis*, which I will discuss below; thus

Philemon orientalis orientalis (Latham).

New South Wales.

Of this I made Gould's *T. citreogularis* a synonym:

Philemon orientalis didimus Mathews.

"Differs from *P. o. orientalis* in its larger size and darker coloration. South Australia."

South Australia, Victoria.

Philemon orientalis johnstoni Mathews.

"Differs from *P. o. orientalis* in its smaller size and lighter coloration. Johnston River, North Queensland."

North Queensland.

Philemon orientalis occidentalis Ramsay.

North-west Australia.

Philemon orientalis sordidus Gould.

Northern Territory.

With the addition of the Melville Island form and usage of the genus name *Microphilemon* these were given in my 1913 "List." The Melville Island bird I had named

Philemon orientalis breda.

"Differs from *P. o. sordidus* in its darker coloration and larger bill."

The Check List Committee of the Royal Australasian Ornithologists' Union drew my attention to the determination of Latham's *Buceros orientalis*, suggesting it was not well defined and therefore unacceptable. I will agree and drop that name, but here give Latham's description for future reference as it undoubtedly is a description of a Friar-Bird, and I believe of the Helmeted Friar-Bird probably got at Cooktown on Captain Cook's trip, and may be the one mentioned by Latham under the Knob-fronted Bee-eater. The description reads: "New Holland H(ornbill). Size less than the *Jay*. Bill convex, carinated, very gibbous at the base, and covered with a naked skin; nostrils small, pervious, placed one-third from the base, about which are several short bristles; region of the eyes naked, wrinkled, cinereous; colour of the plumage in general dusky on the upper-parts; shafts of the wings and tail dusky above, white beneath; toes divided to their origin. Inhabits *New Holland*. The ends of the quills and tail had been clipped by a pair of scissors, therefore it could not be ascertained whether those parts differed from the rest of the plumage. Mr. *Pennant*."

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The names will now read :

Microphilemon citreogularis citreogularis (Gould).

Microphilemon citreogularis didimus (Mathews).

Microphilemon citreogularis johnstoni (Mathews).

Microphilemon citreogularis sordidus (Gould).

Microphilemon eitreogularis breda (Mathews).

Microphilemon citreogularis occidentalis (Ramsay).

GENUS—B U D Y T E S.

BUDYTES Cuvier, Le Règne Animal, Vol. I.,
p. 371, 1817=Dec. 1816. Type (by mono-
typy) *Motacilla flava* Linné.

Also spelt—

Budytes Jarocki, Zoologia, Vol. II., p. 115, 1821.

Pecula C. T. Wood, Analyst, Vol. IV., No. XVI.,
July 1836, pp. 299–300. Type (by monotypy) *Budytes neglectus* Gould.

SMALL birds of slender build, longish thin bill, long wings, long tail, and long slender legs with long toes, hind-toe lengthened.

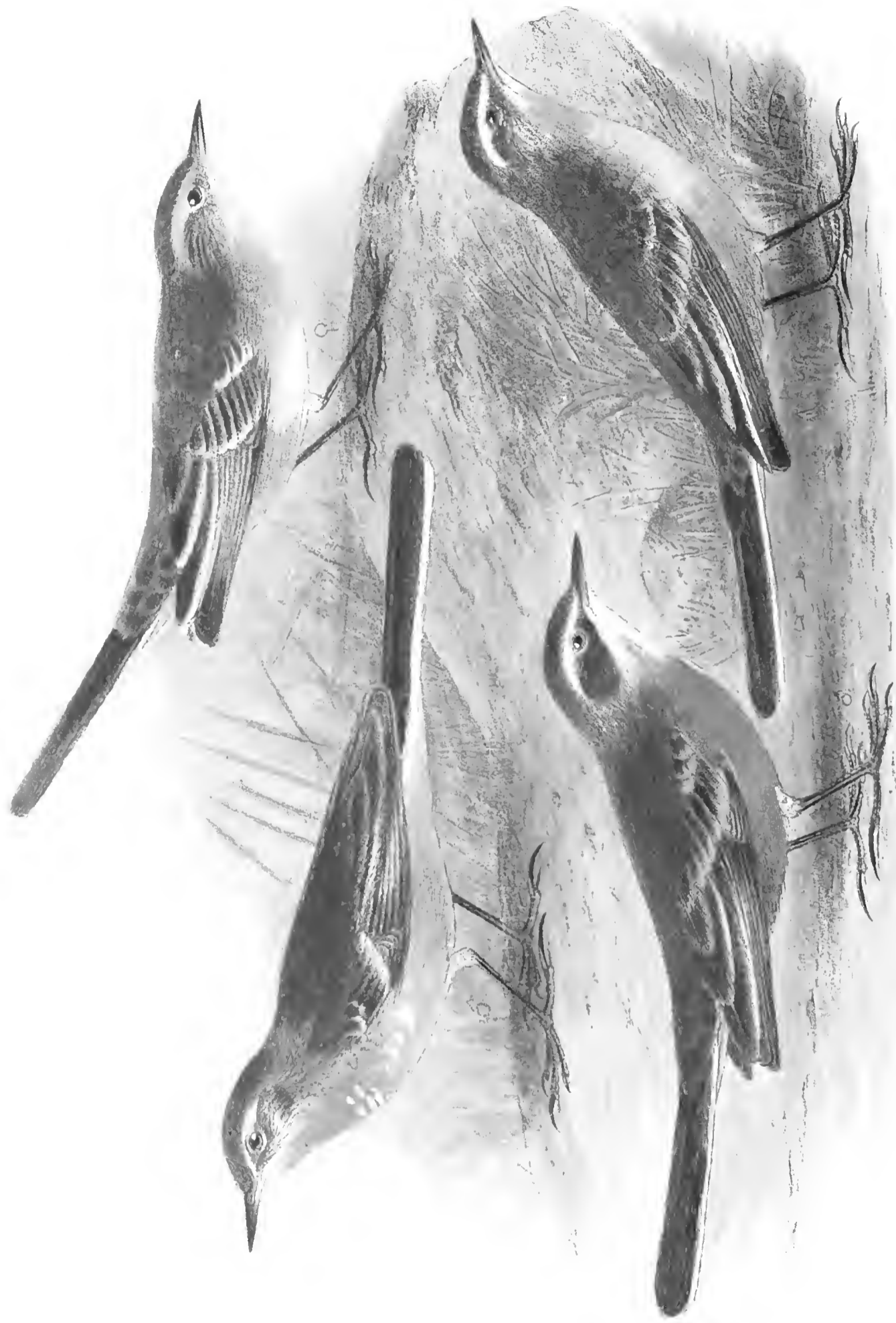
The bill is long and thin, more than half the length of the head, straight, tip notched, anteriorly compressed, basally a little expanded, nasal groove small, the nostrils open, basal, culmen rounded; no nasal bristles, but a few rictal bristles present; lower mandible slender, straight; interramal space small and feathered; gonys nearly straight, a little ascending anteriorly.

The wing has a very minute first primary, the apparent first longest, though second, and third little shorter; outer secondaries short and broad; inner secondaries long and pointed, as long as primaries.

The tail is very long and square, nearly as long as the wing.

The legs are long and slender, anteriorly showing six delicate scutes, posteriorly bilaminate. The toes are long and thin, the claws long and little curved; the outer and inner toes subequal and with claw about equal to middle toe without claw; hind-toe stouter but shorter than inner toe, but with long claw longer than middle toe and claw.

NATIONAL MUSEUM WASHINGTON



Wittherby & C^o

BUDYTES FLAVA
(YELLOW WAGTAIL)

H. Grönvold. del.

Order PASSERIFORMES.

Family MOTACILLIDÆ.

No. 702.

BUDYTES FLAVA.

YELLOW WAGTAIL.

(PLATE 557.)

[MOTACILLA FLAVA Linné, Syst. Nat., X. ed., p. 185, (Jau. 1st) 1758 : Sweden, Europe.
Extra-limital.]

Refer to "Practical Handbook of British Birds," Vol. I., p. 192, June 18th, 1919, for further information.

Motacilla flava simillima Hartert, Vögel der Palaärk. Fauna, Vol. I., p. 289, June 1905 :
Kamtschatka.

Motacilla barnardi North, Proc. Linn. Soc. N.S.W., Vol. XXX., p. 579, April 12th, 1906 :
Dawson River, Queensland ; Anon., Emu, Vol. V., p. 203, 1906.

DISTRIBUTION : Europe to Australia.

Adult female in summer plumage. Head and neck light leaden-grey ; back, scapulars, mantle, rump and upper tail-coverts dark yellowish-olive, washed with yellow on the rump and upper tail-coverts ; secondaries dark olive, margined all round with yellowish-white ; primaries brownish-ash, slightly paler on the inner web ; two outer pairs of tail-feathers pure white with the greater part of the outer web brownish-ash ; remainder of the tail blackish-brown, slightly margined with yellowish-olive ; a narrow white eyebrow ; sides of the face blackish ; chin and upper throat white ; sides of the breast dark olive-green ; remainder of the under-surface, including the sides and under tail-coverts, golden yellow ; thighs whitish. Bill blackish, lower base light, eyes brown, feet slate-black. Total length 152 mm. ; culmen 11, wing 83, tail 70, tarsus 25. Figured. Collected on Sula Island on the 1st of May, 1883, and is the type of *Motacilla flava simillima* Hartert.

Adult female in winter plumage. Top of the head dull olive ; neck olive, slightly washed with grey ; back and scapulars greenish-olive ; rump and upper tail-coverts olive, slightly washed with greenish-yellow ; scapulars brownish-ash, margined on the outer web with yellowish-white ; primaries uniform brownish-ash, slightly margined on the inner web with whitish ; two outer pairs of tail-feathers pure white, with the basal two-thirds of the margin of the inner web brownish-ash ; remainder of the tail brownish-ash ; a narrow yellowish-white eyebrow ; sides of the face brownish-olive ; chin white ; remainder of the under-parts yellow, brightest on the throat ; middle of the belly and under tail-coverts blackish ; eyes dark dull coffee, feet black, bill black with lower base dark grey. Culmen 11 mm., wing 82. Figured. Collected on Tomia Island on the 20th of December, 1901.

THE BIRDS OF AUSTRALIA.

Immature male. Head dark grey, very slightly tinged with olivo, back dark olive; rump olive, washed with grey; innermost secondaries blackish-brown; primaries and outer secondaries brownish-ash, slightly margined on the outer web with whitish and on the inner web with whitish-grey; two outer pairs of tail-feathers pure white, with a wedge-shaped margin of blackish-brown on the inner web towards the base; remainder of the tail blackish-brown; a narrow white eyebrow; chin white; throat and the whole of the under-parts yellow, mixed with a few white feathers; sides of the chest and sides of the body greenish-olive. Eyes brown, bill and feet blackish. Figured. Collected at Port Blair in January, 1898.

Immature female. Head brownish-olive; back of the neck and rest of the upper-surface dark olive, slightly washed with yellowish-olive on the scapulars and middle of the back; secondaries blackish-brown, margined on the outer web with yellowish-white; primaries greyish-ash, blackish towards the tips and very slightly margined at the extreme tip with white; a narrow yellowish-white supercilium; sides of the face brownish-olive; throat soiled white; chest brownish-buff with an indistinct narrow band; remainder of the under-parts white, tinged with yellow, especially on the sides and flanks. Collected at Palawan in 1887.

Nestling. "Down buff, fairly long and plentiful; distribution, outer and inner supra orbital, occipital, spinal, humeral and ulnar. Mouth, inside orange, two brown spots at base of tongue; externally gape-flanges pale yellow." ("Practical Handbook.")

Eggs. "Five to six or seven, so finely speckled with ochreous as to be almost uniform, but sometimes with distinct mottling and generally a dark hair-streak. 18.7 by 13.9 mm." (*ib.*)

Nest. "Generally well concealed. Built of bents and roots, sometimes moss in foundation, with thick lining of hair." (*ib.*)

Breeding-season. May to June or July (Europe).

THIS bird was exhibited by North at the Ordinary Monthly Meeting of the Linnean Society of New South Wales, held on Wednesday, November 29th, 1905, when he recorded: "It was obtained on the 10th June, 1905, at Bimbi, on the Dawson River, Queensland, by the well known collector Mr. H. G. Barnard. The addition of the Genus *Motacilla* to the Australian avifauna is of considerable interest. It is somewhat remarkable, however, that this single representative is not allied to *M. flava*, whose range extends to Java and Timor, but to species of more restricted habitats. The specimen under consideration is an adult male in perfect plumage. It has a well pronounced white superciliary stripe, as is shown in Dr. R. B. Sharpe's fig. 6 of the head of *M. cinerei capilla* (*Cat. Birds Brit. Mus.*, Vol. X., pl. vii), but the throat is yellow, not white; the lores and feathers below the eye are black, and a blackish wash extends over the anterior portion of the ear-coverts, and the chin is white. On the under-parts it resembles fig. 1 on the same plate, *M. borealis*, in having the throat yellow, and a blackish narrow band across the

YELLOW WAGTAIL.

fore-neck. The total length 6·15 inches, wing 3·08, tail 2·9, bill 0·5, tarsus 0·9. . . . Mr. Barnard thus refers to the above specimen: 'I send you a small bird I shot at Bimbi on the 10th June, 1905, which is new to me. When first seen it was on the ground and ran along like the Australian Pipit (*Anthus australis*). During flight the white feathers on each side of the tail were very conspicuous. It is the only one I have ever seen and my attention was first attracted to it by its sharp whistling note.' "

The above constitutes the only record of this wanderer from the north, and it is interesting to note that the Grey Wagtail has been found in New Guinea, but not this form previously.

GENUS—AUSTRANTHUS.

AUSTRANTHUS Mathews, Austral Avian Record,
Vol. II., pt. 7, p. 123, Jan. 28th, 1915. Type
(by original designation) *Anthus australis* Vieillot.

MEDIUM Pipits with medium bills, long wing, long tail, and long stout legs and large delicate feet.

The bill is more than half the length of the head, slender, straight, a little depressed anteriorly, point sharp, posteriorly notched, laterally compressed, the basal expansion small, width at the base about equal to the depth; the nostrils linear slits in a small nasal groove upon which the frontal feathers approach but do not obscure the apertures; the lower mandible about as stout as the upper, the interramal space feathered and narrow, less than half the length of the bill; there are no nasal bristles and the rectal bristles are very small.

The wing is long, the first three primaries longest and subequal, the succeeding ones a little shorter respectively, the secondaries long and pointed and equal to the sixth primary.

The tail is long and square, about two-thirds the length of the wing.

The legs are long and stoutish, the anterior face of the tarsus scutate, but sometimes scutes obscure, the hinder portion bilaminate; the anterior toes are long, the outer longer than the inner, the outer toe and claw equal to the middle toe alone; claws rather long and straight; the hind-toe longer than the inner toe and much stouter; the hind-claw long and little curved, longer than the hind-toe; the hind-toe and claw longer than the middle toe and claw.





H. Grönvold. del.

AUSTRANTHIUS AUSTRALIS
(PIPIT)

Witherby & Co

AUSTRANTHUS AUSTRALIS.

PIPIT.

(PLATE 558.)

ANTHUS AUSTRALIS Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXVI., p. 501, Dec. 26th, 1818 : New South Wales.

Anthus australis Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XXVI., p. 501, 1818.

Anthus australis Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 229, Feb. 17th, 1827 : New South Wales ; Gould, Birds Austr., p. xxvii. (Vol. III., pl. 73), June 1st, 1847 ; *id.*, Handb. Birds Austr., Vol. I., p. 392, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. X., p. 615, 1885 ; Legge, Papers Proc. Roy. Soc. Tasm., 1886, p. 241, 1887 ; Ramsay, Tab. List Austr. Birds, p. 10, 1888 ; Hall, Key Birds Austr., p. 47, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 459, 1901 ; Hall, Emu, Vol. I., p. 107, 1902 (N.W.A.) ; Milligan, *ib.*, Vol. II., p. 74, 1903 (W.A.) ; Hill, *ib.*, p. 163 (Vic.) ; Littler, *ib.*, p. 170 (Tas.) ; Dean, *ib.*, p. 174 (Tas.) ; Milligan, *ib.*, Vol. III., pp. 19-22, 1903 (W.A.) ; Carter, *ib.*, p. 94 (W.A.) ; Littler, *ib.*, pp. 213-6, 1904 (Tas.) ; Berney, *ib.*, Vol. IV., p. 45, 1904 (Q.) ; Lawson, *ib.*, pp. 131-5, 1905 (W.A.) ; Berney, *ib.*, Vol. V., p. 77, 1905 (N.Q.) ; Dove, *ib.*, p. 87 (Tas.) ; Batey, *ib.*, Vol. VII., p. 10, 1907 (Vic.) ; Fletcher, *ib.*, Vol. VII., p. 23, 1907 (Tas.) ; Berney, *ib.*, p. 81 (Food) ; Mathews, Handl. Birds Austral., p. 100, 1908 ; Dove, Emu, Vol. VIII., p. 68, 1908 (Vic.) ; Whitlock, *ib.*, p. 186, 1909 (W.A.) ; Crossman, *ib.*, Vol. IX., p. 90, 1909 (W.A.) ; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 303, 1909 ; Hall, Emu, Vol. VIII., p. 130, 1910 (S.A.) ; Dove, *ib.*, p. 172 (Tas.) ; Whitlock, *ib.*, p. 212 (W.A.) ; Howe, *ib.*, p. 234 (Vic.) ; Littler, Handb. Birds Tas., p. 71, 1910 (Tas.) ; Gubanyi, Emu, Vol. X., p. 119, 1910 (N.S.W.) ; Broadbent, *ib.*, p. 237, 1910 (N.Q.) ; Cleland, *ib.*, Vol. XI., p. 93, 1911 (Food) ; Mellor and White, *ib.*, Vol. XII., p. 163, 1913 (Flinders I.) ; S. A. White, *ib.*, Vol. XIII., p. 32, 1913 (S.A.) ; Chandler, *ib.*, p. 44 (Vic.) ; Agnew, *ib.*, p. 97 (Q.) ; S. A. White, *ib.*, p. 129, 1914 (S.A.) ; Macgillivray, *ib.*, p. 181, 1914 (N.Q.) ; Cheney, *ib.*, Vol. XIV., p. 212, 1915 (Vic.) ; Croll, *ib.*, Vol. XVI., p. 56, 1916 (Vic.) ; Dove, *ib.*, p. 58 ; H. L. White, *ib.*, p. 229, 1917 (N.T.) ; Dove, *ib.*, Vol. XVII., p. 226, 1918 (Tas.) ; S. A. White, *ib.*, Vol. XVIII., p. 25, 1918 (S.A.) ; Fletcher, *ib.*, p. 99, 1918 (Tas.) :



THE BIRDS OF AUSTRALIA.

- S. A. White, *ib.*, p. 198, 1919 (S.A.); Whitlock, *ib.*, p. 248 (W.A.); Campbell, *ib.*, p. 264 (W.A.); Cleland, *ib.*, p. 283 (N.S.W.); Harvey Bros., *ib.*, Vol. XIX., p. 40, 1919 (Q.); S. A. White, *ib.*, Vol. XX., p. 129, 1921 (W.A.); Mellor, *ib.*, p. 139 (W.A.); Alexander, *ib.*, p. 168 (W.A.); Whitlock, *ib.*, Vol. XXIII., p. 278.
- Anthus pallescens* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 229, Feb. 17th, 1827: No locality, juvenile=New South Wales.
- Agrodroma bistriata* Swainson, Anim. in Menag., p. 316, Dec. 1837: Tasmania.
- Agrodroma australis* Swainson, *ib.*: "Australia or Tasmania (?)"=New South Wales.
- Anthus australis australis* Mathews, Nov. Zool., Vol. XVIII., p. 424, 1912; *id.*, List Birds Austr., p. 294, 1913; Belcher, Birds Geelong, p. 355, 1914; S. A. White, Emu, Vol. XIV., p. 191, 1915 (S.A.).
- Anthus australis bistriatus* Mathews, Nov. Zool., Vol. XVIII., p. 424, 1912; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs); *id.*, List Birds Austr., p. 294, 1913.
- Anthus australis adelaidensis* Mathews, Nov. Zool., Vol. XVIII., p. 424, Jan. 31st, 1912: Adelaide, South Australia; *id.*, List Birds Austr., p. 294, 1913; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912; S. A. White, Emu, Vol. XV., p. 162, 1916 (S.A.); *id.*, *ib.*, Vol. XVI., pp. 15-76 (S.A.).
- Anthus australis bilbali* Mathews, Nov. Zool., Vol. XVIII., p. 424, Jan. 31st, 1912: Wilson's Inlet, South-west Australia; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912; *id.*, List Birds Austr., p. 295, 1913.
- Anthus australis subaustralis* Mathews, Nov. Zool., Vol. XVIII., p. 425, Jan. 31st, 1912: Lake Way, West Australia; *id.*, List Birds Austr., p. 295, 1913.
- Anthus australis subrufus* Mathews, Nov. Zool., Vol. XVIII., p. 425, Jan. 31st, 1912: Onslow, West Australia; *id.*, List Birds Austr., p. 295, 1913.
- Anthus australis tribulationis* Mathews, Nov. Zool., Vol. XVIII., p. 425, Jan. 31st, 1912: Point Torment, North-west Australia; *id.*, List Birds Austr., p. 295, 1913.
- Anthus australis queenslandica* Mathews, Austral Avian Record, Vol. I., pt. 5, p. 120, Dec. 24th, 1912: (Gracemere) North Queensland; *id.*, List Birds Austr., p. 295, 1913.
- Anthus australis montebelli* Montague, Austral Avian Rec., Vol. I., pt. 8, p. 181, March 20th, 1913: Hermite Island, Monte Bello Group; Mathews, List Birds Austr., p. 295, 1913.
- Anthus australis rogersi* Mathews, Austral Avian Rec., Vol. I., pt. 8, p. 193, March 20th, 1913: Melville Island; List Birds Austr., p. 295, 1913.
- Anthus australis hartogi* Mathews, Ibis, 1917, p. 610, Oct. 10th: Dirk Hartog Island; H. L. White, Emu, Vol. XX., p. 189, 1921 (Eggs).
- Austranthus australis flindersi* Mathews, Austral Avian Rec., Vol. V., pts. 2-3, p. 40, Feb. 21st, 1923: Flinders Island, Bass Straits.
- Austranthus australis australis* Mathews, *ib.*
- Anthus pallidus* Mathews, Bull. Brit. Orn. Club, Vol. XLIV., p. 15, Nov. 5th, 1923, as synonym of *Anthus australis*, ex. Cotton, Tasm. Journ. Nat. Sci., Vol. III., p. 363, 1848, n.n.

DISTRIBUTION. Throughout Australia and Tasmania.

PIBIT.

Adult male. The whole of the upper-surface of the body rich rufous-brown, each feather mesially streaked or marked with brownish-ash, lightest on the rump and upper tail-coverts; wing-coverts brownish-ash, widely margined with rufous-buff; innermost secondaries brownish-ash margined with rufous-buff; primaries and outer secondaries ashy-grey, margined on the outer web with sandy-buff and on the inner webs with buffish-white; outer pair of tail-feathers pure white with the margin of the inner web ash-brown; penultimate tail-feathers white, with the shaft and a margin on the inner web ash-brown; remainder of the tail blackish-brown, the centre pair bordered with rufous-buff; sides of the throat bordered with dusky, throat white; chest rufous-buff, with small streaks and spots of blackish-brown; sides of the body and flanks rich tawny-rufous; middle of the belly buffish-white; under tail-coverts whitish-buff with a mesial streak of blackish-brown. Eyes dark brown, legs yellowish, bill dark horn, lower mandible light horn. Total length 160 mm.; culmen 12, wing 92, tail 63, tarsus 25. Figured. Collected on the Sand Hill at Onslow, North-west Australia, on the 11th of January, 1907, and is the type of *A. a. subrufus*.

The sexes are alike.

Adult male. Head olive-brown, each feather with blackish-brown down the shaft, producing a heavily streaked appearance; neck and mantle rufous-buff with dusky-brown centres to the feathers; rump and upper tail-coverts smoky-brown, with indistinct dusky centres; wing-coverts blackish-brown, margined with rich buff; secondaries blackish-brown, margined on the outer web with whitish-brown; primaries blackish-brown slightly fringed with whitish-brown; outer tail-feather white, margined on the inner web with dusky-brown; penultimate pair white, with the shaft black and with the inner web almost entirely black except the portion next the shaft; remainder of the tail-feathers blackish-brown, the central pair slightly margined with buff; a narrow line of blackish feathers down the sides of the throat, which is white; chest and flanks rufous-buff, streaked and spotted with blackish-brown; lower belly and abdomen white; under tail-coverts rich buff. Eyes brown, feet pale brown, tarsus pale yellowish-brown. Bill, tomium and lower mandible fleshy-white, remainder brown. Total length 173 mm.; culmen 12, wing 87, tail 65, tarsus 27. Figured. Collected at Point Torment, North-West Australia, on the 7th of January, 1911.

Adult female. Entire upper-parts olive-brown with blackish-brown centres to the feathers, lower back and rump more dusky; wing-coverts blackish-brown, widely margined with buff; secondaries blackish-brown, slightly fringed with greyish-buff; primaries dusky-grey, bordered on the inner web with dirty white; outer tail-feather white; penultimate pair white, blackish along the inner web; remainder of tail blackish-brown; throat white, with a line of black feathers down the side; chest and flanks rufous-buff, heavily spotted and streaked with blackish-brown; middle of the belly whitish. Eyes brown, feet and tarsus pale brown, lower mandible greyish-white. Total length 150 mm.; culmen 12, wing 77, tail 55, tarsus 26. Figured. Collected in Van Diemen's Gulf, Northern Territory, on the 23rd of August, 1912.

Adult. Head, back of neck and mantle olive-brown, each feather with dusky-brown centres; rump olive-brown, slightly tinged with rufous; secondaries brownish-ash, widely margined on the outer web with tawny-rufous; primaries brownish, slightly fringed on the outer web with whitish-buff; outer tail-feathers pure white, with the greater part of the outer web brownish-ash; penultimate pair white, with the shaft and almost the whole of the inner web black; remainder of the tail brownish-black, the middle pair fringed with whitish; a line of blackish feathers bordering the throat, which is white; chest, sides of the body and flanks rufous-buff, streaked

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and spotted with black or blackish-brown, belly and abdomen white. Total length 175 mm.; culmen 12, wing 87, tail 62, tarsus 25. Figured. Collected on North Beach, Perth, West Australia, on the 11th of May, 1907.

Immature. Head blackish-brown, each feather bordered with whitish-buff; remainder of the upper-parts blackish-brown, slightly fringed with whitish-buff; wing-coverts, scapulars, secondaries and primaries dark brownish-ash, widely bordered with whitish-brown; outermost tail-feather white with a blackish margin on the outer web at the middle; remainder of the tail blackish-brown, slightly fringed with pale buff; a broad white eyebrow; a line of blackish feathers down the sides of the throat; chin and throat white; chest whitish-buff, very heavily spotted with black; sides and flanks and upper belly with streaks and drops of blackish-brown; middle of the belly, abdomen and under tail-coverts white. Eyes brown, feet and tarsi pale brown, bill brown, basal three-quarters of lower mandible white; corners of mouth yellow. Collected on Melville Island, Northern Territory, on the 11th of August, 1912.

Immature male. Head, neck, mantle, scapulars and tail greyish-brown, each feather margined with whitish-buff, producing a streaked appearance; feathers of the mantle edged with buff; primaries ash-grey, margined on the outer web with pale buff and fringed at the extremity with white; innermost secondaries dark brownish-olive, widely margined all round with buffish-white; outermost tail-feather white, with the basal part of the inner web margined with ash-brown; penultimate pair of feathers white, with the shafts and the whole of the inner web margined with ash-brown, remainder of the tail dark ash-brown, margined on the outer web with whitish; chin, throat and sides of the neck white; a line of blackish feathers down the sides of the neck; remainder of under-surface white; the feathers of the chest, sides of the body and flanks spotted and streaked with blackish-brown; under-surface of wings ash-grey. Collected at Laverton, West Australia, on the 25th of December, 1895.

Immature male. General colour of the upper-surface, including the top of the head, sides of face, sides of neck, entire back, wings and tail, black or blackish-brown with dull tawny margins to the feathers, edges of primary-quills inclining to white at the tips, the two outer tail-feathers on each side for the greater part white with dark shafts; throat cream-white with a dark line on each side; breast bright tawny with dark shaft-lines to the feathers; abdomen and flanks buffy-white, becoming deeper in colour and inclining to pale tawny on the thighs, under tail-coverts, and under wing-coverts; under-surface of flight-quills hair-brown; lower aspect of tail similar to its upper-surface. Bill light horn, eyes dark brown, feet dull buff. Collected at Day Dawn, West Australia, on the 23rd of July, 1903.

Immature male (with remains of down still adhering to some of the feathers on the crown of the head). General colour of the upper-surface, including the top of the head, sides of the neck, hind-neck, back, wings and tail, blackish with tawny margins to the feathers, the tawny margins being much broader on the wing-feathers; flight-quills hair-brown, slightly edged with whitish; the two outermost tail-feathers on each side cream-white with dark shafts; sides of face blackish with pale bases to the feathers; cheeks, chin, and throat cream-white, divided by a blackish moustacial streak, which extends on to the sides of the neck where it forms a patch; breast, abdomen, sides of body, thighs, and under tail-coverts cream-white with dark elongated centres and pale tawny margins to the feathers on the breast and sides of body; under wing-coverts cream-white; under-surface of flight-quills similar to their upper-surface but paler; lower aspect of tail similar to its upper-surface. Eyes grey, feet yellow, bill canary-brown. Collected at Auburn, Victoria, on the 10th of November, 1910.

PIPIT.

Nestling. Upper-parts blackish-brown, all the feathers margined and bordered with rich buff; wings brownish-black, narrowly bordered with white towards their extremity; secondaries brownish-black, widely margined with rich buff; outer pair of tail-feathers pure white; penultimate pair white with a broad mesial streak of black; remainder of tail blackish-brown bordered on the outer web with rich buff; chin and throat yellowish-white, a well marked line of blackish feathers down the sides of the throat; chest and sides of the body pale buff, each feather with a central drop of blackish-brown; middle of the breast, belly and under tail-coverts whitish. Eyes grey, feet yellow, bill creamy-brown. Collected at Auburn, Victoria, on the 10th of November, 1910.

Nestling. Upper-parts, including the cheeks, reddish-buff, all the feathers centred with brownish-black; secondaries blackish-brown, narrowly margined all round with white; secondaries slightly darker and widely margined with reddish-buff; outer pair of tail-feathers pure white; penultimate pair with the shaft blackish-brown and a narrow fringe on the inner web of black; remainder of tail blackish-brown, bordered on the outer web with reddish-brown; a broad eyebrow of reddish-buff feathers; chin and throat whitish; a line of blackish feathers down the sides of the throat; remainder of the under-parts light reddish-buff; feathers of the chest, sides of the body and flanks streaked and spotted with blackish-brown. Eyes hazel, feet and legs dull yellow, bill bright purple with yellow edges. Collected on Dirk Hartog Island, West Australia, on the 7th of October, 1916.

Eggs. Three to four eggs form the clutch, rarely five. A clutch of three eggs taken at Belltrees, Upper Hunter River, New South Wales, on the 29th of September, 1909, is of a greyish-white ground-colour, spotted and very minutely marked all over with pale amber and dull slaty-grey, the markings becoming more concentrated at the larger end. Ovals in shape. Surface of shell fine and smooth, and rather glossy. 23 by 15-16 mm.

Nest. A rather deep cup-shaped structure, composed of dead, soft, and well-bleached grass, and built in a hollow or hole in the ground; the rim of the nest is level with the ground surrounding it. It is generally placed under the side of a leaning clump of grass, or sometimes a small bush or stone, etc. Dimensions of nest inside are $2\frac{1}{2}$ inches across by $1\frac{1}{2}$ to nearly $1\frac{3}{4}$ inches in depth.

Breeding-months. August to January.

THOUGH this species was represented among the Watling drawings, Latham did not give it a scientific name. According to Sharpe's account, Nos. 192 and 193 represent the "New Holland Lark" of Latham's MS. Of the former Watling wrote "The New South Wales Lark" and to the latter added "Only seen in the winter."

Then Vigors and Horsfield, dealing with the collection of Australian Birds in the Linnean Society's Museum, named *Anthus australis*, observing "Mr. Caley says that 'this Lark is very common. It may frequently be seen both in the trees and on the ground. Having met with it in the height of summer and the depth of winter, and indeed I may almost say at all times, I consider it not migratory.' A specimen in the collection presented by Mr. Brown was obtained on the South Coast." They also added as a distinct species *Anthus pallescens*.

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A curious coincidence has since been noted that Vieillot had previously named a specimen collected by the French travellers from New South Wales *Anthus australis*. Gould's field-notes read "The *Anthus australis* has all the habits and actions of its European prototypes; its note is also very similar; when flushed from the ground it rarely flies to any great distance before it descends again, rather abruptly, to the earth, to the branch of a tree, or a small bush. The breeding-season commences in the early part of September and continues until January, during which season two or three broods are reared. The stomach is very muscular, and the food consists of insects of various kinds and small seeds."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "A very common species throughout the whole district in suitable situations, in fact they are so common I must admit I have never taken the trouble to make any particular study of their habits. No matter where I go in the open country and cultivated paddocks it is to be seen, usually attracting attention running rapidly over the ground, or by taking flight for a short distance, then alighting upon the ground again, or a stump, fence, or a dead tree. During bright, clear days in the spring it often soars into the air in a series of short, undulating flights uttering its song; this it repeats until some hundreds of feet in the air, when suddenly it will take a downward flight to earth. Magpies appear to have a great dislike to this bird, as they are frequently to be seen chasing them, often high in the air, but the Larks appear to have no difficulty in dodging them. They breed here in great numbers, sometimes placing their nests in old rusty jam tins. They evidently rear several broods in a season, because I have seen nests containing eggs from August 25th till as late as November 12th. The clutch is usually three, but often four."

Mr. E. J. Christian has written: "These little birds are very common here and can be seen along any fence. They have at times a very pretty note, and early on a dark winter's morning I have often heard them showing they are by far the earliest risers here. When disturbed it scarcely ever uses its wings, but runs along in front of you; if pursued it will then fly, but regains its feet four or five yards away. If still followed it will fly further, but never keeps in the air long. The nest is extremely hard to find, and is one of the neatest made by ground birds. It is generally placed in a small depression or hole, cup-shaped and neatly woven of dried grasses. Sometimes it is placed underneath the shelter of a tussock. I have found nests with young which look like white, hairy caterpillars, and unless the parent was present fully exposed to the hot rays of the sun. I often wonder how it is possible that these tender chicks survive, as in such heat the old birds appear to feel it enough, let alone the young."

PIPIT.

Dr. Cleland has thus described the nestlings: "Length $1\frac{1}{2}$ inches. Gape orange-yellow. Head covered with hair-like feathers, yellowish ash, $\frac{1}{2}$ in. long. Skin below dark slate. The same 'hairs' on back, shoulders and sides. Secondaries, primaries and belly bare. General appearance that of a fluffy hair ball, much the colour of the grass around the nest."

Capt. S. A. White writes: "A widely distributed bird, in fact, one can say that it is found all over Australia. A most engaging bird and most useful. It certainly prefers the open plain country, yet it is to be found in the ranges and timbered country too. Its habit of running a yard or so, then swinging its body up and down, produces a strange and captivating effect. The writer has met with it right through Australia from sea to sea; the interior bird is much lighter in coloration than those near to the coast. Breeds August, September, October and November. Places its nest in a depression of the ground and the usual clutch of eggs is three."

Mr. F. E. Howe has written: "In the grassy paddocks the Pipit is a common and peculiar form. We have noticed this bird, when flushed, rise with a graceful undulating flight, and uttering its warble-like note with every upward plunge, until it attains a fair height, then the wings are folded and it drops like a stone to within a few feet of the earth and skimming it for about six or seven yards before alighting. Here it usually selects an eminence and standing erect the tail is spasmodically raised and lowered. Nests were noticed at Ringwood containing eggs in September, and old birds were evidently feeding young as late as January."

Mr. Frank Littler has written me: "This bird is plentiful in Tasmania, and appears to be a partial migrant, disappearing for some months and returning to the open and cultivated tracts it prefers. Its food is obtained wholly on the ground, insects of all kinds during the year, but in the winter eats grass seed, etc. It is a fairly fast runner, often preferring to use its legs to get out of one's way. If forced to fly it does not go far except when escaping from some danger, or when moving from one locality to another. The breeding-season is from September to January, after which it congregates in small flocks."

Mr. H. S. Dove's notes read: "This Pipit left Table Cape in April and arrived again the first week in September; the bulk of them appear to leave Devonport about the same time, although numbers stay in the paddocks through the winter, and keep in good condition. On November 28th nest found with four eggs which seemed well incubated. On December 8th four young were hatched, blind, thickly covered with long, dark, grey down; on 12th the eyes were opening; on 16th still downy, wings sprouting, tinted brown and black."

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On 19th they had plumage much streaked light brown and dark grey ; bills dark grey with yellow gape ; on 20th they flew from nest, giving twelve days from hatching to flying."

Mr. J. W. Mellor has written : " These birds are extremely widespread, being found in all the States ; they live in the more open parts of the country, running over the ground with great rapidity, rising when flushed and descending again a short distance away. They are extremely useful birds in eating up insects such as small caterpillars and beetles that do great damage to the grass crops. I have noted them extremely plentiful at the Reedbeds near Adelaide on the open grassland where the ground is damp and swampy, and where insect life is therefore abundant. They seem to depart in the winter time and return as the spring opens up."

Dean wrote from Stirling, Tasmania : " I have watched the movements of Ground-Larks (*Anthus australis*) for two successive seasons, and find they arrived here on 25th August of the year 1901, and 20th August, 1902, respectively, and generally commence to breed about the beginning of October. They leave this locality again about the first week in April the following autumn. Is this movement only local, or do these birds migrate to the mainland of Australia ? "

Little has noted : " While young are in the nest the parent birds feed them almost the whole night. The state of the weather makes no difference. At this season of the year they are very cheerful ; their call notes can be heard continually, especially during the night. They appear to move about a great deal under the cover of darkness. On 26th September flocks of a dozen or more birds were common. No trace of a nest was found. The very fact of them still moving in flocks seemed to indicate that they had not yet commenced breeding. Their running powers are really great ; and the habit they have of flicking their tails is very curious. When flying, the white margins of the primaries and the white outer tail-feathers are very conspicuously displayed."

Dove also gave several notes regarding the movements and also pointed out that many stayed during the winter in Tasmania.

Berney wrote from North Queensland : " There is a migratory movement among these Larks, but I have not so far given them sufficient attention or collected the requisite data to say what its extent is. During the past summer, 1903-4, it has been totally absent, but one showed up on 22nd May this year, since when they have been constantly in the district. As to whether subsequent notes will confirm or upset this remains to be seen."

Macgillivray recorded : " Not noted at Cape York, but common throughout the Gulf country."

PIPIT.

Croll reported the finding of a nest on the top of Mount Bogong (6,508 feet), the highest mountain in Victoria.

Mellor and White noted at Flinders Island: "Thinly distributed over the island. Specimens were secured, as expected, much darker on the back and darker marked on the breast in comparison with those from Australian specimens or more open localities."

Mr. Tom Carter's notes read: "The Rufous (?) Pipit is generally distributed in *open* country through the Gaseoyne and North-west Cape districts. They are scattered about, *in pairs*, everywhere, and are not gregarious, nor do they seem to be affected by droughts, but keep to their accustomed haunts. The birds have a pleasant little song, uttered as the male (?) flutters upwards, but for some reason it is not very often heard. They frequently perch on bushes. The breeding-season appears to be any time after good rains have fallen. The nests are built in a small hollow on the ground, as in the depression caused by a horse's foot. The nesting material is almost entirely grass. Three eggs appear to be the full clutch. At Point Cloates May 2nd, 1896, three eggs; May 22nd, 1900, two eggs; August 21st, 1894, three eggs; August 13th, 1911, nest in horse's foot print, two eggs, bare ground all round it, absolutely no vegetation within many yards. September 2nd, 1913, three fresh eggs at Carnarvon. On my 1913 trip I shot some very rufous birds near Yardie Creek and I also procured some about Carnarvon.

"The Western Pipit is common in *open* country through the south-west of West Australia. It is not seen in heavy timber country in its natural state, but as soon as a homestead is formed and some land around it cleared, a pair or two of the birds make their appearance. This I noticed on my own land at Broome Hill. Soon after my house was built, and the timber close round it thinned out, some Pipits appeared in the immediate vicinity, and in the paddocks where no Pipits were seen when the timber was growing they soon came after the trees were killed by ring barking. These birds frequent high roads a good deal, and a pair of birds may be seen at the same place all the year. The nests are built on the ground, in a tuft of grass or rushes, and the breeding-season lasts from August till January. Three eggs are usual and the full clutch. Dates at Broome Hill, August 21st, September 4th, October 9th, November 25th, December 23rd, each three fresh eggs. January 20th, 1910. Small young birds in nest at Albany."

Hall, recording birds from the Fitzroy River, North-west Australia, collected by Rogers, observed: "Two specimens of the brown variety are to hand. . . . In writing of these as the brown variety, I do so as a distinguishing mark, because of the intensely rufous phase (of which I have skins) in a more southern

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part of Western Australia. The 'brown' may reproduce a brown or a parti-coloured bird, as in Victoria. Judging by specimens collected in Western Australia by the writer, the rufous bird may reproduce a much paler and greyer-brown bird than itself. Still one meets many rufous birds, parents and young, and many greyish-brown birds, parents and young, and they may be broadly spoken of as the 'Rufous' and the 'Brown' varieties. Naturally the former is more a desert form."

Whitlock wrote: "This species was sparingly distributed over all those parts of Barrow Island I visited. It appears to be a lighter-coloured form of the mainland species, the dark centres to the feathers being ill-defined and paler. It is probably identical with a variety recently described by Mr. G. M. Mathews [error, should be Montague] from the Montebello Group. I found two nests, each containing three eggs. They were both constructed outwardly of grasses and lined with a little wallaby fur. One was in a cavity of the rocky flooring of an islet, the other in a patch of heath-like plants growing just above high-tide line."

Campbell reported upon this as follows: "On account of the variable colour of its plumage, the *Anthus* is always puzzling. Whitlock collected three specimens (1♂, 2♀♀), each from both Dirk Hartog and Barrow Islands. Carter believed there was a subspecific difference in the former birds, and named them *hartogi*; but a pair from Kow Plains, Victoria, can hardly be separated from *hartogi*, and with the same wing (82 mm.). Ogilvie-Grant did not recognise any difference in the Bernier Island bird to the common *Anthus*. The Barrow (Island) birds are, however, redder in colour, more like the tone of *Mirafra woodwardi* from Cossack and contiguous mainland—and most resemble *subrufus* (Mathews). *A. montebelli* (Mathews, i.e. Montague) from Montabello Islands, near Barrow, is, no doubt, similar to the Barrow bird, and consequently also to *subrufus*."

As regards the various subspecies of this form, Gould long ago wrote: "Whether this Old World form (the genus *Anthus*) is represented in Australia by more than a single species is a point I have not satisfactorily determined; every part of its extra-tropical regions, including Tasmania, is inhabited by Pipits which differ somewhat in size in almost every colony; still their difference is so slight that I have hitherto regarded and still consider them to be mere varieties or local races of one and the same species."

Campbell also noted: "The Ground Larks from Tasmania and islands in Bass Strait are larger than the mainland bird, so much so that they may almost be considered a local variety, the eggs, too, being larger."

Notwithstanding these statements no subspecies were recognised when I prepared my "Reference List" in 1912, but upon examining my collection

PIPIT.

Gould's words were seen to be quite correct and I easily separated seven subspecies as follows :

Anthus australis australis Vieillot.

New South Wales, Victoria.

Anthus australis bistriatus (Swainson)

Tasmania.

Anthus australis adelaidensis Mathews.

"Differs from *A. a. australis* in being more rufous above. Adelaide, South Australia."

South Australia.

Anthus australis bilbali Mathews.

"Differs from *A. a. australis* in its very much darker coloration, the striping on the upper-breast being very pronounced. Wilson's Inlet, South-west Australia."

South-west Australia.

Anthus australis subaustralis Mathews.

"Differs from *A. a. australis* in its paler coloration above and rufous under-surface. Lake Way, West Australia."

Mid Westralia.

Anthus australis subrufus Mathews.

"A deep rufous phase agreeing in coloration with *Mirafra javanica woodwardi* Milligan, from the same locality, and not comparable with any other subspecies of *Anthus australis*. Onslow, West Australia."

North-west Australia.

Anthus australis tribulationis Mathews.

"Paler than *A. a. subaustralis*, and with an almost white under-surface, the black throat-striping being thus pronounced. Point Torment, North-west Australia."

North-west Australia.

Shortly afterward I added

Anthus australis queenslandica.

"Differs from *A. a. australis* in being darker above, with less white on the second and third tail-feathers. The shaft of the second tail-feather is black, not brown."

North Queensland.

When Montague compared his Monte Bello collection he named

Anthus australis montebelli.

"Differs from *A. a. tribulationis* Mathews in its smaller size and its very much paler coloration, as the dark centres of the feathers on the upper-surface are much reduced ; the spotting on the breast is almost obsolete. Wing 82-88 mm.



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Hermite Island; occurs throughout the (Monte Bello) group," and through the comparison I added

Anthus australis rogersi.

"Differs from *A. a. tribulationis*, and every other Australian subspecies, in being very dark, the feathers on the upper-surface and on the breast being very dark blackish-brown."

Melville Island.

In my 1913 "List" these ten subspecies were listed, but since then I have named

Anthus australis hartogi.

"Ground Pipits were fairly plentiful both on Dirk Hartog Island and the Peron peninsula, but as those occurring on Dirk Hartog persistently differ from the others in being generally much paler in colour, and having broader ochreous-yellow margins to the feathers of the mantle, as well as having smaller stripes on the breast, we describe the Dirk Hartog bird under the above name as a new subspecies."

Consequently I allow twelve subspecies, classing them under *Austranthus* as follows:—

Austranthus australis australis (Vieillot).

Austranthus australis bistriatus (Swainson).

Austranthus australis adelaidensis (Mathews).

Austranthus australis bilbali (Mathews).

Austranthus australis subaustralis (Mathews).

Austranthus australis hartogi (Carter).

Austranthus australis montebelli (Montague).

Austranthus australis subrufus (Mathews).

Austranthus australis tribulationis (Mathews).

Austranthus australis rogersi (Mathews).

Austranthus australis queenslandicus (Mathews).

Austranthus australis flindersi (Mathews).

Differs from *A. australis* in being darker above and more heavily marked below.

Flinders Island.

Probably many more will be separated, as the above show great differences if such forms as *rogersi* and *subrufus* be compared, and Rogers noted that different forms of *Mirafra* were discernible in the North West where at present I have only allowed one form of *Anthus*, and this group seems almost as susceptible to colour variation as that one.

GENUS—MIRAFRA.

MIRAFRA Horsfield, Trans. Linn. Soc. (Lond.),
Vol. XIII., pt. 1., p. 159, May 1821. Type
(by monotypy) *M. javanica* Horsfield.

Also spelt—

Myrafra Gray, List Genera Birds, p. 48, 1840.

Geocoraphus Cabanis, Archiv. fur Naturg.,
Vol. XIII., p. 328, 1847
New name for *Mirafra* Horsfield.

Etoimus Gistel, Naturg. Thierr. Schul., p. x.,
(pref. Easter 1847) 1848
New name for *Mirafra* Horsfield.

Plocealauda Hodgson in Gray's Zool. Miscell.,
p. 84, 1844; *nom. nud.* (*P. typica*).
Bonaparte Consp. Gen. Avium, Vol. I.,
p. 243, 1850 (before June 24th), as
synonym of *Mirafra assamica* MacClell.
Type (by original designation and mono-
typy) *Mirafra assamica* MacClelland.

SMALL Larks with short stout bills, medium wings and tail, thin legs with medium feet. Larks are characterized among the small Passeriform birds by having the tarsus scutellate behind as well as in front.

The bill is shorter than the head, stout and conical, the culmen arched, the tip sharp, with the edge of the upper mandible sinuate from the tip and expanding basally to overlap the under mandible; the tip anteriorly a little compressed, basally expanding into a triangular form; culmen ridge rounded, nostrils circular in small nasal groove almost hidden by feathers advancing and with two to five strong nasal bristles showing, but no rictal bristles; the lower mandible nearly as stout as upper, the depth of the bill at the base more than its width; interramal space triangular and feathered, rami divergent, more than half the length of the bill, the gonys a little ascending, not angulate.

The wing rounded, the first primary short, less than half the length of the second which is very little less than the third, fourth and fifth, while the sixth is little less and equalled in length by the secondaries; the third, fourth

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and fifth primaries have the outer webs anteriorly incised for about half their length.

The tail is slightly emarginate.

The legs are thin, seven scutes being counted in front and six behind; the anterior toes are long, the hind-toe short, the hind-claw long and straight, longer than the toe; the hind-toe and claw longer than the middle toe and claw; the outer toe shorter than the inner, the outer toe and claw equal to middle toe alone, anterior claws short and straight.





H. Gronvold. del

MIRAFRA JAVANICA
(BOSSH LARK)

Witherby & Co

MIRAFRA JAVANICA.

BUSH LARK.

(PLATES 559-560.)

[MIRAFRA JAVANICA Horsfield, Trans. Linn. Soc. (Lond.), Vol. XIII., pt. 1., p. 159, May 1821: Java, Extra-limital.]

Mirafra horsfieldii Gould, Proc. Zool. Soc. (Lond.), March 29th, 1847, p. 1: Interior of New South Wales.

Mirafra horsfieldii Gould, Proc. Zool. Soc. (Lond.), 1847, p. 1, March 29th; *id.*, Birds Austr., pt. xxvii. (Vol. III., pl. 77), June 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 404, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 604, 1890; Hall, Key Birds Austr., p. 52, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 501, 1901; Lawson, Emu, Vol. IV., p. 136, 1905 (W.A.); Berney, *ib.*, Vol. VI., p. 42, 1906 (N.Q.); Batey, *ib.*, Vol. VII., p. 10, 1907 (Vic.); Mathews, Handl. Birds Austral., p. 100, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 305, 1909; Stone, Emu, Vol. XII., p. 117, 1912 (Vic.); Campbell and Kershaw, *ib.*, p. 277, 1913 (N.T.); Kersey, *ib.*, Vol. XIX., p. 52, 1919 (Q.); Le Souëf, *ib.*, Vol. XX., p. 144, 1921 (W.A.).

Mirafra secunda Sharpe, Cat. Birds Brit. Mus., Vol. XIII., pp. 595-603, (prof. May 14th) 1890: South Australia; Hall, Key Birds Austr., p. 52, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 503, 1901; Hall, Emu, Vol. I., pp. 88-107, 1902 (N.W.A.); Le Souëf, *ib.*, Vol. II., p. 92, 1902 (N.T.); Berney, *ib.*, Vol. IV., p. 45, 1904 (N.Q.); Mathews, Handl. Birds Austral., p. 101, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 307, 1909; Whitlock, Emu, Vol. VIII., p. 189, 1909 (W.A.); Mathews, *ib.*, Vol. IX., p. 63, 1909 (N.W.A.); Mellor, *ib.*, Vol. XII., p. 187, 1913 (S.A.); Hill, *ib.*, p. 260 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 181, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 49, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 229, 1917 (N.T.).

Mirafra woodwardi Milligan, Victorian Naturalist, Vol. XVIII., p. 26, June 6th, 1901: Onslow, West Australia; Hall, Emu, Vol. I., p. 27, 1902 (N.W.A.); Carter, *ib.*, p. 56 (M.W.A.); *id.*, *ib.*, Vol. II., p. 104 (M.W.A.); *id.*, *ib.*, Vol. III., p. 95, 1903 (M.W.A.); *id.*, *ib.*, Vol. IV., p. 184, pl. XIII., 1905; Whitlock, *ib.*, Vol. VIII., p. 172, 1909 (W.A.).

Mirafra horsfieldi pallidus Hall, Emu, Vol. III., pt. 4, p. 232, April 2nd, 1904: Roebuck Bay Plains, North-west Australia.

Not *Mirafra pallida* Gray, Handl. Gen. Spec. Birds, pt. ii., p. 121, Nov. 23rd, 1870.

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- Mirafra javanica pallida* Hartert, Nov. Zool., Vol. XII., p. 237, 1905.
- Mirafra rufescens* Ingram, Bull. Brit. Ornith. Club, Vol. XVI., p. 116, July 10th, 1906: Alexandra, Northern Territory; *id.*, Ibis, 1907, p. 414; H. L. White, Emu, Vol. XIII., p. 48, 1913 (Eggs); Barnard, *ib.*, p. 210, 1914 (N.T.): Mathews, Handl. Birds Austral., p. 101, 1908.
- Mirafra horsfieldi halli* Bianchi, Bull. Acad. Imp. Sci. St. Petersburg., Ser. V., Vol. XXV., Nos. 1 and 2, 1906, p. 81, 1907: new name for "*M. horsfieldi pallidus* Hall."
- Mirafra milligani* Mathews, Emu, Vol. VII., Suppl. (Handl. Birds Austral.), p. 101, Jan. 1908: new name for "*M. horsfieldi pallidus* Hall"; *id.*, Emu, Vol. IX., p. 15, 1909 (N.W.A.); Crossman, *ib.*, Vol. X., p. 112, 1910 (N.W.A.).
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- Mirafra javanica queenslandica* Mathews, Nov. Zool., Vol. XVIII., p. 425, Jan. 31st, 1912: Inkerman, Queensland; *id.*, List Birds Austr., p. 296, 1913.
- Mirafra javanica secunda* Hartert, Nov. Zool., Vol. XII., p. 236, 1905; Mathews, *ib.*, Vol. XVIII., p. 425, 1912; *id.*, List Birds Austr., p. 296, 1913; Ashby, Emu, Vol. XVI., p. 231, 1917 (S.A); *id.*, *ib.*, Vol. XIX., p. 299, 1920 (S.A.).
- Mirafra javanica woodwardi* Mathews, Nov. Zool., Vol. XVIII., p. 426, 1912; *id.*, List Birds Austr., p. 297, 1913.
- Mirafra javanica milligani* Hartert, Nov. Zool., Vol. XII., p. 237, 1905; *id.*, *ib.*, p. 755, 1906; Mathews, *ib.*, Vol. XVIII., p. 426, 1912.
- Mirafra javanica subrufescens* Mathews, *ib.*, Jan. 31st, 1912: Tabba Tabba, North-west Australia; *id.*, List Birds Austr., p. 296, 1913; *id.*, South Austr. Orn., Vol. 3, p. 226, 1918.
- Mirafra javanica rufescens* Mathews, Nov. Zool., Vol. XVIII., p. 426, 1912; *id.*, List Birds Austr., p. 296, 1913.
- Mirafra javanica nigrescens* Mathews, Nov. Zool., Vol. XVIII., p. 426, Jan. 31st, 1912: Eureka, Northern Territory; *id.*, List Birds Austr., p. 296, 1913.
- Mirafra javanica melvillensis* Mathews, Austral Avian Record, Vol. I., pt. 4, p. 102, Sept. 18th, 1912: Melville Island; *id.*, List Birds Austr., p. 296, 1913.
- Mirafra javanica halli* Mathews, List Birds Austr., p. 296, 1913.
- Mirafra javanica söderbergi* Mathews, Austral Avian Record, Vol. IV., pt. 6, p. 137, Aug. 1st, 1921: new name for *M. j. nigrescens* Mathews; not *Mirafra nigrescens* Reichenow, Ornith. Monatsb., 1900, p. 39 (March).
- Anthus invidens* (= *insidens*) Mathews, Bull. Brit. Orn. Club, Vol. XLIV., p. 15, Nov. 5th, 1923, as synonym of *Mirafra horsfieldii* ex., Cotton Tasm. Journ. Nat. Sci., Vol. III., p. 368, 1848. n.n.

DISTRIBUTION. Throughout Australia. Not Tasmania.

Adult male. General colour of the upper-surface foxy-red; feathers of the top of the head with the shafts dull black, an indistinct collar of paler red feathers round the hind-neck; secondaries bronzy-black, very widely margined all round with chestnut; innermost primaries mostly chestnut, and blackish along the shafts;

BUSH LARK.

and the inner web light chestnut, becoming more extended inwardly; outer tail white, tinged with chestnut, penultimate pair whitish-chestnut on the outer web and at the tip and brownish-ash on the inner web; remainder of the tail blackish-brown, slightly margined with chestnut; cheeks light chestnut; throat and fore-neck isabelline; remainder of the under-parts reddish-isabelline, darkest on the chest and sides. Eyes dark brown, feet grey, bill dark horn, lower mandible light horn. Total length 154 mm.; culmen 11, wing 77, tail 49, tarsus 22. Figured. Collected at Onslow, West Australia, on the 12th of January, 1901, and is *M. woodwardi*.

Adult female. Similar to the adult male.

Adult female. Head and mantle brownish-red with darker middle to the feathers; lower back, rump, and upper tail-coverts darker, wing-coverts like the back; outermost primaries ashy-brown, margined at the base of the inner and outer webs with pale chestnut; innermost primaries mostly chestnut, and blackish along the shafts; secondaries similar but with more black along the middle of the feather; outermost pair of tail-feathers white, slightly tinged with pink; penultimate pair more strongly tinged with pinkish-chestnut and with the inner web slightly bordered with dusky; remainder of tail deep ash-brown, bordered and tipped with pale chestnut-buff; throat soiled white; chest and sides of the body reddish-isabelline, belly slightly darker. Eyes hazel, bill fleshy-pink, legs and feet pink. Total length 150 mm.; culmen 11, wing 74, tail 50, tarsus 22. Figured. Collected at Point Cloates, Mid-west Australia, on the 6th of February, 1902.

Adult male. Similar to the adult female.

Adult male. Head brownish-buff, margined with deep reddish-brown, an indistinct collar round the hind-neck composed of lighter feathers than those of the head; back and wing-coverts brownish-black, very widely margined on the inner web with brownish-chestnut; lower back and rump darker; primaries deep ash-brown, margined on the base of the outer and inner web with deep chestnut; secondaries bronze-black, margined with reddish-chestnut; outermost tail-feather pinkish-white, widely margined on the inner web with blackish-brown; remainder of tail brownish-black, margined on both webs with deep chestnut; a short white eyebrow of chestnut feathers; sides of face brownish, streaked with reddish; throat soiled white; chest and remainder of the under-parts chestnut-buff, the former with dull black spots at the extremity. Eyes brown, feet and tarsi pale fleshy-brown, bill brown with lower mandible greyish-white. Total length 145 mm.; culmen 11, wing 76, tail 50, tarsus 22. Figured. Collected on Melville Island, Northern Territory, on the 3rd of June, 1912, and is the type of *M. j. melvillensis*.

Adult female. Similar to the adult male.

Adult male. Head and upper mantle tawny-rufous with a broad black-brown streak down the middle of the feathers, an indistinct collar of lighter feathers round the hind-neck; lower back, rump and upper tail-coverts smoky-brown, indistinctly streaked with blackish-brown down the shafts; secondaries bronze-black widely margined on both webs with buffish-white on the innermost, and with pale chestnut on the outermost; primaries deep ash-brown, margined towards the base of both webs with pale chestnut; outer tail-feathers white, margined on the inner web with blackish; penultimate pair white on the outer web and brownish-black on the inner web; remainder of the tail blackish-brown, the middle pair bordered down both webs with pale chestnut; a broad reddish-fawn coloured eyebrow; chin and throat soiled white; remainder of the under-surface tawny-buff; feathers of the chest spotted with blackish-brown. Eyes brown, feet and tarsus fleshy-grey, bill brown, with basal half of cutting edge of upper and all

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lower mandible dirty white. Total length 143 mm.; culmen 10, wing 80, tail 52, tarsus 22. Figured. Collected at Derby, North-west Australia, on the 7th of November, 1910.

Adult male. Top of the head and back of the neck greyish-ash, each feather with a distinct mesial streak of brownish-black, upper back less distinctly streaked; mantle dark ash, with a greyish-white margin to the inner web; lower back and rump ashy-brown with indistinct streaks of darker brown; secondaries bronze-black, widely margined all round the outer web with white; primaries dark-ash, margined towards the base of the inner web with pale rufous and on the inner web with whitish-brown; outer pair of tail-feathers white, with a blackish-brown margin along the base of the inner web; penultimate pair white on the outer web, blackish-brown on the inner web; remainder of the tail blackish-brown, the middle pair margined on both webs with white; eyebrow whitish; chin and throat white; remainder of the under-surface of the body whitish with brownish-black spots and streaks on the chest. Eyes brown, feet and legs grey, upper mandible brown, lower yellowish. Total length 143 mm.; culmen 10, wing 75, tail 48, tarsus 22. Figured. Collected at Broome, North-west Australia, on the 1st of November, 1902.

Adult male. Head and back of the neck brownish-black bordered with ash-grey, producing a streaked appearance; back brownish-black, bordered on the inner webs with pale chestnut; lower back and rump dusky-black, fringed with buff; wing-coverts brownish-black very widely margined with pale chestnut; secondaries deep bronze-black, widely bordered all round with pale reddish-chestnut; primaries ash-brown, margined towards the base on both webs with chestnut; outermost tail-feathers white, slightly tinged with pink and with the inner margin blackish-brown; penultimate pair whitish on the outer web and brownish-black on the inner web; remainder of the tail blackish-brown, the middle pair bordered on both webs with pale chestnut; a broad reddish-fawn coloured eyebrow; chin and throat white; remainder of the under-parts tawny-buff with spots and markings of dusky-black on the chest; middle of the belly white; legs and eyes brown, bill brown, lower mandible light horn. Total length 145 mm.; culmen 10, wing 77, tail 50, tarsus 22. Figured. Collected at Glencoe, Northern Territory, on the 6th of September, 1902.

Adult female. Similar to the adult male.

Adult female. General colour of the upper-parts tawny-olive with blackish-brown middles to the feathers; secondaries ashy-brown, bordered on both webs with pale chestnut; primaries ashy-brown, margined on both webs towards the base with pale chestnut; outer tail-feather white, bordered on the inner web with ash-brown, the penultimate pair of feathers white on the outer web and blackish-brown on the inner web; remainder of the tail blackish-brown, palest on the middle pair; lores whitish; throat white; remainder of the under-surface tawny-white with a few indistinct spots of ash-colour across the chest. Total length 135 mm.; culmen 12, wing 78, tail 47, tarsus 23. Figured. Collected on Alexander, Northern Territory (East), in 1905, and is the type of *M. j. rufescens*.

Adult male. Similar to the adult female.

Immature. Head deep brownish-black, fringed at the extremity with white; back of the neck brownish-ash with the smoky-grey bases of the feathers showing through; mantle brownish-black, fringed and tipped with whitish-brown; innermost scapulars bronze-brown widely margined with brownish-buff; outermost secondaries ash-brown widely bordered on both webs with light chestnut; primaries mostly light chestnut with blackish-grey along the shafts and towards the tip, becoming darker



H. Grönvold, del.

MIRAFRA JAVANICA
BUSH LARK

Witherby & Co



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towards the outermost primary, which is almost uniform blackish-grey; a broad brownish-white eyebrow; cheeks blackish, fringed with whitish; chin and throat white; chest buff, very heavily spotted with blackish-brown, especially on the sides; flanks buff, middle of belly and under tail-coverts white; outermost tail-feather white, penultimate pair also white, but with the inner web blackish; remainder of tail brownish-black, the central feathers widely bordered with light chestnut. Collected at Essendon, Victoria, on the 2nd of January, 1897.

Immature. Head blackish-brown, bordered at the extremity with reddish-olive; back of the neck brownish-grey; mantle, rump and upper tail-coverts blackish-brown, widely margined all round with reddish-buff; wing-coverts and secondaries bronze-brown, widely margined on both webs with reddish-brown; primaries light chestnut, blackish along the shaft and towards the tip; outer tail-feathers white; penultimate pair white on the outer web, blackish-brown on the inner web; chin and throat white; chest and remainder of the under-parts rich buff. Collected at Derby, North-west Australia, on the 7th of February, 1902.

Nestling. Head blackish-brown, barred with equidistant bars of olive-buff and still covered with filoplumes; back of the neck brownish-grey; mantle and wing-coverts brownish-ash, widely margined with bright olive-buff; feathers of the lower back and rump brownish-ash, widely fringed at the extremity with rich buff; wings (still in quill) brownish-ash, margined on the outer and inner webs with rich reddish-buff; secondaries bronze-brown widely margined with reddish-buff; tail blackish-brown fringed with reddish-buff; under-parts rich isabelline, spotted on the chest with brownish-black. Collected at Derby, North-west Australia, on the 7th of March, 1902.

Eggs. Three to four eggs form the clutch, often four. A clutch of four taken at Belltrees, Upper Hunter River, New South Wales, on the 9th of December, 1917, is of a greyish-white ground-colour, minutely spotted all over with olive and dull slaty-grey, becoming more closely set together at the larger end. Ovals in shape. Surface of shell fine and smooth, and exceedingly glossy. 19-20 by 15 mm.

Nest. The nest was out on an open plain. Was placed between two small bunches of grass and was built of the stems and blades of old dead grass and lined with fine grass blades. In shape the nest was hooded, with a large opening in the side. Dimensions: outside, $4\frac{1}{2}$ by 4 by 4 in. high; inside, 2 by 2 by $2\frac{3}{8}$ high. Size of entrance, $1\frac{3}{4}$ wide by 2 in. high. Nest was built into a small neatly made hole in the ground. (Point Torment.) Three eggs in nest.

Eggs. Three to four eggs form the clutch, four usually. A clutch of four eggs taken at the De Grey Plains, North-western Australia, on the 13th of October, 1908, is of a greyish-white ground-colour, minutely speckled and spotted all over with olive and dull slaty-grey, becoming slightly more massed together at the larger end. Swollen ovals in shape. Surface of shell fine, smooth, and very glossy. 19-20 by 14 mm. (*woodwardi*).

Nest. A small, open, cup-shaped structure, built entirely of dead grasses, and placed in a hole or hollow in the ground, generally under the shelter of a tuft of grass or small bush. Sometimes the back of the nest is drawn forward a little, acting as a kind of dome or protection over the eggs. Dimensions over all, 4 to $4\frac{1}{2}$ inches by $2\frac{1}{2}$ to nearly 3 inches in depth. Inside, or egg cavity, is 2 inches across by $1\frac{1}{4}$ inches deep.

Nest. Of Mid-west Australian birds similar to that of *Mirafra horsfieldi*.

Breeding-months. August to December, and even February or March.

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GOULD'S field-notes from New South Wales: "where I found it more abundant on the Liverpool Plains than elsewhere; I also met with solitary individuals in the district of the Upper Hunter. In its habits it is more terrestrial than arboreal, and will frequently allow itself to be almost trodden upon before it will rise, and then it merely flies to a short distance and descends again; it may often be seen perched upon the strong blades of grass and occasionally on the trees; it frequently mounts high in the air after the manner of the Skylark of Europe, singing all the time very melodiously, but with a weaker strain than that favourite bird; it also occasionally utters its pleasing song while perched on the branches of the trees."

Mr. Thos. P. Austin's notes from Cobbora, New South Wales: "One of the rare visitors here, apparently only appearing sparingly in a good spring; still the nature of the bird may make it appear much more scarce than it really is, for sometimes it will allow itself to be almost trodden on before taking wing, when it rises with an undulating jerky flight for a short distance, then suddenly dropping into cover. Sometimes it will be seen flying high in the air on a bright sunny morning uttering its pleasing song. I have never found a nest, but I know they do breed here at times, because I once caught a young bird, which had only just left the nest."

Mr. Edwin Ashby, some years ago, wrote: "I shot *M. horsfieldi* at Ballarat in Victoria, but *M. secunda*, which is smaller than that, is numerous in the cornfields near Adelaide, and numerous seventy miles north at Saddleworth, but I have not met with it in the Hill country. The sweet song of this bird as it sings as it rises on the wing reminds me of that of the English Skylark. On warm spring nights I have heard this bird singing most lustily in the darkness of the night. I was of course unable to ascertain whether it was settled, or singing in its flight."

Mr. J. W. Mellor also sent a note: "*M. horsfieldi* is mostly to be seen in the open country, and especially where large areas of wheat and other cereal crops are grown. I have noted this in Victoria and New South Wales. *M. secunda* I have seen all over South Australia, on Eyre's Peninsula, Yorke's Peninsula, and on the Adelaide Plains. Where I live at the Reedbeds they are to be seen fairly plentiful in the season, for they are migratory, coming to us in September, and leaving about April. They prefer the open cropland where the wheat and oats are grown, here they run over the ground nimbly, rising now and again with a quick motion, their wings being worked sharply and with a hovering movement prior to alighting again a short distance further on. In the matter of hovering they have no equal amongst Australian birds, and for this they are often known as the Hovering Lark; they will ascend into the heavens to a great height until they are almost lost to view, hovering for

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the most part, and all the time uttering a peculiarly sweet carolling song, somewhat like that of the English Skylark, for which they are often mistaken, but the notes have a peculiar silvery ring of their own, and it is wonderful that such a small bird can cause such a volume of liquid melody to pour forth."

Capt. S. A. White writes: "Is a fairly common bird in the middle north of S.A. and can be seen in dozens hovering over the crops or sitting on posts and wire fences. Its beautiful song is often heard as it seems suspended over some grass-land or crops, then all at once it drops out of sight. Although the birds are so numerous it is seldom one finds their nests. In some localities they are much more ruddy in coloration than others. The nest is often formed in a cattle track and the nesting season is Sept., Oct."

Mr. L. G. Chandler states: "This is a common bird in the crops at Frankston. I have seen them at Bayswater, but they are rare there. I think it probable that the male only soars and sings, but this is only surmise at present. The bird begins to sing on rising from the ground, and sings without a pause till it settles again. They often remain in the air for lengthy periods and the descent is made in a number of parachute-like drops of six feet or more and finally they drop like a stone for a considerable distance, gliding off at an angle to settle in the crop. They sing sometimes on moonlight nights, and it is splendid to listen to their glorious notes on a calm evening. The English Skylark is well acclimatised here and is plentiful in parts along the coast. In comparison I prefer the *Mirafra*."

Berney recorded from the Richmond District, North Queensland: "*Mirafra secunda*. Is with us all the year round, but much more numerous in summer than in winter, and I expect there is a double movement with these as with the Swallows and Black-breasted Larks, the summer residents leaving us during April. Nests with eggs found through January and February, my latest date being 26th of the latter month. Has this species been previously recorded for Queensland?"

Kersey has noted from Dolomite, six miles west of Cloncurry, Western Queensland: "A very common bird in the West, and could be heard almost every night. On a still night the flitting of their wings could be heard distinctly. It was interesting to notice how closely these birds and the Pipits crouched on the ground whenever a large bird flew overhead. Having taken one's eyes off them for a moment, it is a most difficult matter to locate them again when they are crouching or squatting thus."

Macgillivray, under the name *Mirafra secunda*, has written: "Mr. McLennan first met with this bird at Sedan in February, 1910. He notes:— 'It has a louder and more varied song than *M. horsfieldi*, and it is a pleasure to listen to it.' They were evidently breeding, as he saw them carrying



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building material, and dissection of specimens confirmed this opinion. Although he spent many hours on several occasions in searching for the nest he did not succeed in finding it. They were very numerous in some places on plains or grassy flats. Stomach contents, grasshoppers and beetles, seeds."

Barnard wrote from Borroloola, Northern Territory: "A very common bird on the table-land, and fairly common on the black-soil flats on the MeArthur." (Obviously these would not be *secunda*, which is a pale bird, nor *rufescens*, which is red, but no further account is given of them.) Then from Brunette Downs were later recorded by Barnard as "*Mirafra rufescens*. Very common on the plains. A number of nests were found, both with eggs and young."

Mr. J. P. Rogers' notes from North-west Australia read: "The Bush Lark only sings after the first rains have fallen and continues to sing right through the wet season. They seem to sing all night. Sept. 29. Not begun to sing yet. Oct. 15. Are becoming more animated; they are flying round and rising in the air in the same manner as a Skylark, but their song is still broken and subdued. Oct. 30. Are singing well this morning, there was $\frac{3}{4}$ inch of rain yesterday. Nov. 7. Not singing as well as on Oct. 30. Nov. 29. Flying high and singing well and through till Jan. 26 still singing well; heard them singing on various nights from 8 to 10 p.m., sometimes on moonlight nights and sometimes on very dark nights. Never seen singing while perched or on the ground, only when flying or hovering. Point Torment. March 23, 1911. These birds were very numerous about one month ago, then a dry spell set in and all the surface water dried up and now they are very rare. These birds drink regularly in hot weather and are usually found near water. At Marngle Creek this was a rare species. I saw a few on the edges of the plains. At Mungi this bird was very rare. At Marngle Creek the soil where I got these birds was red and at Mungi it was a very red sand, and the birds were very rufous. Those sent you from Derby, Point Torment and Meda river were all from soil that did not vary much, and the Marngle Creek soil in colour is about halfway between Meda soil and that of Mungi. The Roebuck down and Jegurra creek skins were also from red soil but not nearly so bright in colouring as that of Mungi. This is a very common species on the plains of Kimberley, particularly in the vicinity of water. This bird breeds during the wet season, *i.e.* from December to March, and the nesting seems to depend on the rain; no rain, no nests, or very few. The young of this species leave the nest before they can fly, the legs are well developed and the young ones can run well, while the wings are only slightly developed when they leave the nest. All the nests I found had a hood of grass built over them."

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Mr. Tom Carter's notes read: "The Onslow Bush Lark was first observed by me on Oct. 30, 1900, while driving from Point Cloates to Wimming Pool telegraph station (60 miles south-east of Onslow). When about 15 miles west of Wimming my attention was attracted by some very rufous Larks dusting themselves in the dark-red sandy ground close to the road. I left the buggy, and shot three of them. The birds were tame, running on the ground in front of me. One or two were seen to perch on the tops of some bushes. Writing to Mr. A. J. Campbell some time afterwards I mentioned these birds, but did not send him any skins. I had intended washing a skin to see if some of the rufous colouring was caused by fine dust in the plumage, but did not, as I was very busy, and the skins were put on one side. In the following year Mr. Milligan's description of the new subspecies appeared, and I sent two of my skins to Perth Museum for comparison, and was told that they were identical. On subsequent occasions some of the birds were seen and obtained about the same place, on reddish sandy ground (protective coloration). On February 5, 1902, after very heavy thunder rains, I camped on the road, with my native boy, near where the first specimens were obtained, and while we were eating our supper by light of the camp fire, we noticed one of these Larks creeping about on the ground, actually between us. Feeling sure that we were close to its nest, we kept quiet, and in a few minutes saw the bird settle down in it, only a few feet distant. The nest was built below the level of the ground, in a hollow, as of a horse's foot print, out of which grew a tuft of green grass, in which the nest was well concealed. It was made almost entirely of grass, and contained four fresh eggs, the first obtained. Since that date I have been able to verify the extension of the range of the birds by seeing many of them on open flats of reddish sand on the south of Minilya River and nearly two hundred miles south of Onslow, where the type specimens were obtained, and in the same month (Sept. 1911) I saw several of them close to the coast at Maud's Landing. None of these birds have, as yet, been observed on the Gascoyne River, as far as I know."

Kearland's notes read: "On the grassy flats which extend for some distance on each side of the Fitzroy River, these birds are so numerous as to convey the idea that the headquarters of the species is in that locality. When we arrived at the lagoon near the river mentioned on November 6th, I was surprised at their numbers. As we passed along, a constant succession of birds kept rising from the ground and flying to the right and left of our line, but seldom more than twenty yards before they again settled. It was impossible to throw a stick in any direction without disturbing several. Around the lagoon they were found in such numbers as to remind one of Sparrows in a dry thistle field. They were very plentiful near the Fitzroy River

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Telegraph Station and at Mount Campbell, where they were found breeding in February ”

From the Pilbarra Goldfield, Mid-west Australia, Whitlock wrote: “The de Grey flows in a rather deep bed, with vast level plains on either side, almost treeless, and with only small patches of scrub. Here the *Mirafra* was to be found in scattered pairs, or even in little colonies of three or four pairs, throughout the plains as far as I was able to explore them. But they were most abundant in the neighbourhood of a large claypan, which in average seasons always contains water, situate some ten or twelve miles from the main river. Herbage round this claypan was quite luxuriant, and the closely-growing tufts of grass reached almost to my knees. In the early morning, whilst the atmosphere was fresh and comparatively cool, the song of the male resounded from all parts of the neighbourhood. I was much reminded of the rich English river valleys on a warm spring morning, when the air is filled with the song of the Skylark, for *Mirafra* is a Lark in its habits and song, though in some other respects it shows an affinity with the Pipits (*Anthus*). It has the habit of ascending to a considerable height, and there remaining suspended in mid-air, from whence it pours forth its pleasing song. The latter resembles that of the Skylark, but is neither so melodious nor so loud, but is equally well sustained. Certain notes resemble those of *Cinchorhamphus cruralis*, other those of a Plover or Sandpiper, and other again those of *Emberiza miliaria* (the European Bunting). It is quite possible the Sandpiper-like notes may have been imitative in this particular locality, for I learned that Plovers and Sandpipers were often abundant at this claypan in the rainy months of the year. Like the Skylark, too, *Mirafra* will sing at night or long before daybreak, and on bright moonlight nights I fancied more than once, when guided by the sound, I could detect the little songster soaring overhead. In the field *Mirafra* may readily be distinguished from *Anthus*, both by its appearance and by its general behaviour. In colour it is of a richer brown, and its shorter tail gives it a less slender appearance than that of a Pipit. Its flight, too, is less undulatory, though it often puts me in mind of the jerky flight of *Anthus pratensis* (the European Meadow Pipit). Moreover, *Mirafra* usually alights behind cover, from which it frequently runs out to take a peep at an intruder. Again, it has not the habit, like *Anthus australis*, of wagging its tail up and down. It runs nimbly, but not so quickly as the latter species.

“The foregoing remarks refer for the most part to the male, for, according to my observations, the female must be a skulker. I had the greatest difficulty in obtaining a pair of females for specimens, but, on the other hand, the males were easy to shoot. This may be true only during the breeding season. . . .

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In the great heat of midday, *Mirafra*, in common with most birds in the north-west of this State, seeks the shade, and my hopes were often raised at flushing individuals from my very feet, but always to be disappointed by finding nothing more than a few bird droppings. Probably each male has its favourite tuft for shade purposes."

Gould indicated the separation of subspecies when he wrote: "This species, which I have named *horsfieldii* after the founder of the genus, is sparingly dispersed over all the plains and open districts of New South Wales; I have also a specimen procured during Dr. Leichardt's overland expedition from Moreton Bay, and one from the neighbourhood of Port Essington; both of these, although possessing characters common to each other, differ from specimens obtained in New South Wales in being larger, redder in colour, and in having a stouter bill—features which will probably hereafter prove them to be distinct, and which exhibit a new alliance to the *Mirafra javanica*."

Nothing was done until Sharpe prepared the *Catalogue of the Birds in the British Museum*, Vol. XIII., dealing with this group, when he added a second species for Australia under the name *Mirafra secunda*, diagnosing it as:

"First small primary not 0.5 inch in length. Eyebrow isabelline or tawny-buff; shoulder of wing almost entirely rufous, the medium and greater coverts showing scarcely any black bases to the feathers."

This comparison was with *M. javanica*, and Sharpe's description of his *Mirafra secunda* reads "Very similar to *M. javanica*, but smaller, and not so streaked on the chest; the wing more rufous on the shoulder, the coverts being almost all uniform rufous and not so mottled with black bases as in the Java species. Wing 2.8." Of *Mirafra horsfieldi*, also ranked as a distinct species, Sharpe wrote: "Similar to *M. javanica*, but grey instead of rufous, the whole aspect of the bird being blacker. Wing 2.9." To the former Sharpe allotted four specimens, one from "South Australia, Gould Coll.," which is here designated as the type-specimen, two from "South Australia (J. T. Cockerell)," which may have come from any place in Australia, and one unlocalised skin. Birds from New South Wales, Richmond River, Port Essington and North-west Australia (Bowyer Bower) were classed as *M. horsfieldi*. The few birds Sharpe had under view certainly differed, and they differed more from each other than they did from *M. javanica*. Moreover, at the same time Sharpe recognised the close relationship of the forms, as he classed a form from Flores as a subspecies only of the Australian *M. horsfieldi*, as he also ranked the *Mirafra* of the Philippine Islands.

On the authority of the *British Museum Catalogue* two species were included in the Australian fauna, writers differentiating the South Australian bird from the Victorian as a distinct species.

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The next step was the proposal of a distinct red form as a new species, *Mirafra woodwardi*, from Onslow, West Australia. This very striking aberration was figured also as a third species of *Mirafra* in Australia.

The correct valuation of these forms was recognised by Hall, who discussed eight specimens from Broome, N.W.A., and wrote: "There is no rufous colouring, with only the palest isabelline over portions of them. Consequently these birds appeal to me as representing a subspecies. It is a well-known fact that certain desert birds distinctly guard themselves in the matter of coloration by agreement with their surroundings. My correspondent, Mr. J. P. Rogers, has collected these particular eight birds on ground that has the birds assimilating in colour with it. He further states to me that on a part of the Fitzroy River, N.W.A., where the ground is greyish, the birds are greyish, but that the majority on the Fitzroy are chocolate, because the ground is of that colour. On the Robinson and Meda Rivers, Mr. Rogers further states, the birds are brown in agreement with the brown soil. On the Ashburton River, near Onslow, from where Mr. A. W. Milligan received his type (*M. woodwardi*), the ground is very rufous, and so red and friable that Mr. Rogers has seen a cloud of it above the river when he was fifty miles away from it. As the colour of the ground so is the colour of the *Mirafra*. Accordingly, a knowledge of the large areas of varying soils and the *Mirafra* associating upon them should, in my opinion, give us a complete and proper list of this genus, with all but the type ranking subspecifically. (The italics are mine.) The light-coloured specimens which I shall refer to as *M. horsfieldi pallidus*. . . ." The name selected had been previously used so I renamed it *M. milligani*, but about the same time, but published a little earlier, Bianchi had altered it to *M. horsfieldi halli*.

When Ingram examined the collection made at Alexandra he noted these were rufescent, not pallid, so named this form binomially *M. rufescens*.

Hall was quite correct in antiepatating the reduction of all the forms to subspecific rank, but as Gould and Sharpe indicated, without acting, they all appear to rank with the first-named species of *Mirafra javanica*.

Hartert in *Nov. Zool.*, Vol. XII., p. 237, 1905, gives the forms of this species.

In 1912 I criticised a good series of birds, and I could not specifically separate the Australian specimens from *M. javanica*. There are slight differences in the strength of the bill, the shorter minute first primary, the slightly more rounded wing and the shorter claws, but all these features vary *inter se* that no good separative character has yet been noted by me. I ranked eight subspecies in 1912 thus:

✓ *Mirafra javanica horsfieldii* Gould.

See also, New South Wales, Victoria.

• *Mirafra javanica queenslandica* Mathews.)

= *M. rufescens* Ingram

inc. n. rufescens Hartert
antopus invidens Hartert

Handwritten notes at the bottom of the page, including "List of the" and "931".

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“Differs from *M. j. horsfieldii* in being much darker above. Inkerman, Queensland.”

Queensland.

✓ *Mirafra javanica secunda* Sharpe.

South Australia.

✓ *Mirafra javanica woodwardi* Milligan.

West Australia (Onslow).

✓ *Mirafra javanica milligani* Mathews.

North-west Australia.

Mirafra javanica subrufescens Mathews.

“A rufescent form only comparable with *M. j. rufescens*, from which it is easily separable by its superior size. Tabba Tabba.”

North-west Australia (Tabba Tabba.)

✓ *Mirafra javanica rufescens* Ingram

Northern Territory (Interior).

Mirafra javanica nigrescens Mathews.

“Differs from *M. h. horsfieldii* in its much darker coloration above and much deeper rufous below. Eureka, Northern Territory.”

Northern Territory (West).

I later added

✓ *Mirafra javanica melvillensis*.

“Differs from *M. j. nigrescens* in being much lighter on the back, the feathers having rufous edges; the under-surface being more like that part of *woodwardi* but not so red.”

Melville Island.

These were admitted without any alteration save the recognition of Bianchi's name, *M. h. halli*, for *M. j. milligani* in my 1913 “List,” and I have since noted that *M. j. nigrescens* has also been anticipated by Reichenow's proposal, so I renamed this

✓ *Mirafra javanica söderbergi*.

Although it is certain that many more subspecies must be named when this group is studied, as Hall suggests, nothing has yet been done.

GENUS—TAVISTOCKA.

- TAVISTOCKA Mathews, Birds Austr., Vol. VII., pt. 5,
p. 434, July 10th, 1919. Type (by monotypy) *Loxia guttata* Shaw.
- (?) *Stagonopleura* Reichenbach, Av. Syst. Nat., pl.
LXXV., 1850. Indeterminable.
- Stagonopleura* "Reichenbach" Cabanis, Mus. Heine.,
Vol. I., p. 172, (after Oct. 23rd) 1851. Type (by
original designation) *Loxia guttata* Shaw.

Not—

Steganopleura (sic.) Bonaparte, Consp. Gen. Av., Vol. I., p. 456, 1850.

SMALL Finches with short, stout, conical bills, medium wings, short square tail and small legs and feet.

The bill is short and stout, a little more than half the length of the head, triangular in shape, no culmen ridge, tip sharp, the lateral edges of the mandible sinuate, culmen rounded, flattened basally where nostrils appear as minute circular apertures almost entirely hidden by feathers, the culmen rounded between them; the depth of the upper mandible at the base is more than half its width and about half the length; the lower mandible nearly as stout but overhung all round by the upper; shallow, broad, feathered interramal space, gonys ascending but scarcely angulate; no nasal or rictal bristles apparent.

The wing has a minute first primary, the next three subequal and longest, secondaries long but shorter than shortest primary.

The tail is short and square, all feathers broad, upper tail-coverts reaching more than half the length of the tail, lower a little longer.

The legs are short, scutellate in front, bilaminatc behind; the toes medium, the anterior middle toe very long, longer without the claw than the inner with claw, which is subequal with the outer; all claws short and curved; hind-toe a little stouter and claw a little larger, but hind-toe and claw shorter than middle toe and claw.

Coloration, grey above, scarlet rump and upper tail-coverts, dark tail; white below with broad black chest band and flank feathers black with white spots.

TAVISTOCKA.

The history of the name *Stagonopleura* must be here given. Reichenbach published a book containing figures only, the figures usually showing, in line drawings only, the bill and head, tip of wing, section of tail and foot, and to these was attached simply a generic name. Upon the receipt of this book the recipient might *guess* from the name and location what bird was intended, but could not verify these by actual comparison as the figures rarely accurately agreed, and in many instances of well-known genera the figures had been prepared from some obscure atypical species. Many of the names given in this book were novel, and I maintain these are at this place indeterminable and cannot be used as of Reichenbach at the date he gives for publication, viz., June 1st, 1850. Moreover, two other workers in the same year attempted to use these names, ascribing them to Reichenbach and often in a different manner. Consequently, if the names are to be used at all, they must be utilised from the first recognisable user, and in this case this is Bonaparte, who in the *Consp. Gen. Av.* used "*Stagonopleura*" for a series of species. He, however, spelt it *Steganopleura* and this spelling must be maintained. The next year Cabanis used *Stagonopleura*, pointing out Bonaparte's usage as incorrect for a different Finch. Reichenbach had probably told Cabanis, as apparently they were in correspondence, and since then *Stagonopleura* has been used in Cabanis' sense. As, however, Bonaparte's introduction of *Steganopleura* was earlier, and was intended for *Stagonopleura*, I conclude Bonaparte's name must be used, while I cannot use the later *Stagonopleura*, simply an alternative spelling, for another closely allied group.

TAVISTOCKA GUTTATA.

SPOTTED-SIDED FINCH.

(PLATE 561.)

LOXIA GUTTATA Shaw, Mus. Lever., pt. II. (6), p. 47, pl. 24 (dated Feb. 1st) 1796: New South Wales (Sydney).

Loxia guttata Shaw, Mus. Lever., pt. II. (6), p. 47, pl. 24, 1796.

Fringilla leucocephala Latham, Index Ornith. Suppl., p. XLVIII., (after May 30th) 1801: New South Wales (Sydney).

White-headed Finch Latham, Gen. Synops. Birds, Suppl. II., p. 210, 1801.

Fringilla lathamii Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 256, Feb. 17th, 1827: New South Wales (Sydney).

Amadina lathamii Gould, Birds Austr., pt. XIII. (Vol. III., pl. 86), Dec. 1st, 1843.

Amadina guttata Gray, Genera Birds, Vol. II., p. 370, 1846.

Sporothlastes guttata Bonaparte, Consp. Gen. Av., Vol. I., p. 455, 1850.

Stagonopleura guttata Cabanis, Mus. Heine., Vol. I., p. 172, 1851; Gould, Handb. Birds Austr., Vol. I., p. 417, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 292, 1890; Hall, Key Birds Austr., p. 49, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 478, 1901; Smedley, Emu, Vol. IV., p. 68, 1904 (Q.); Batey, *ib.*, Vol. VII., p. 10, 1907 (Vic.); Hill, *ib.*, p. 20 (Vic.); Mathews, Handl. Birds Austral., p. 101, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 263, 1909; S. A. White, Emu, Vol. XIII., p. 129, 1914 (S.A.); *id.*, *ib.*, Vol. XIV., p. 144, 1915 (Mallacoota); Campbell and Barnard, *ib.*, Vol. XVII., p. 35, 1917 (N.Q.); Cleland, *ib.*, Vol. XVIII., p. 283, 1919 (N.S.W.); Le Souëf and Macpherson, *ib.*, Vol. XX., p. 91, 1920 (N.S.W.); Norton, *ib.*, p. 228, 1921 (N.S.W.).

Estrilda guttata Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Zonæginthus guttatus guttatus Mathews, Nov. Zool., Vol. XVIII., p. 427, Jan. 31st, 1912.

Zonæginthus guttatus philordi Mathews, *ib.*: Frankston, Victoria.

Stagonopleura guttata guttata Mathews, List Birds Austr., p. 297, 1913.

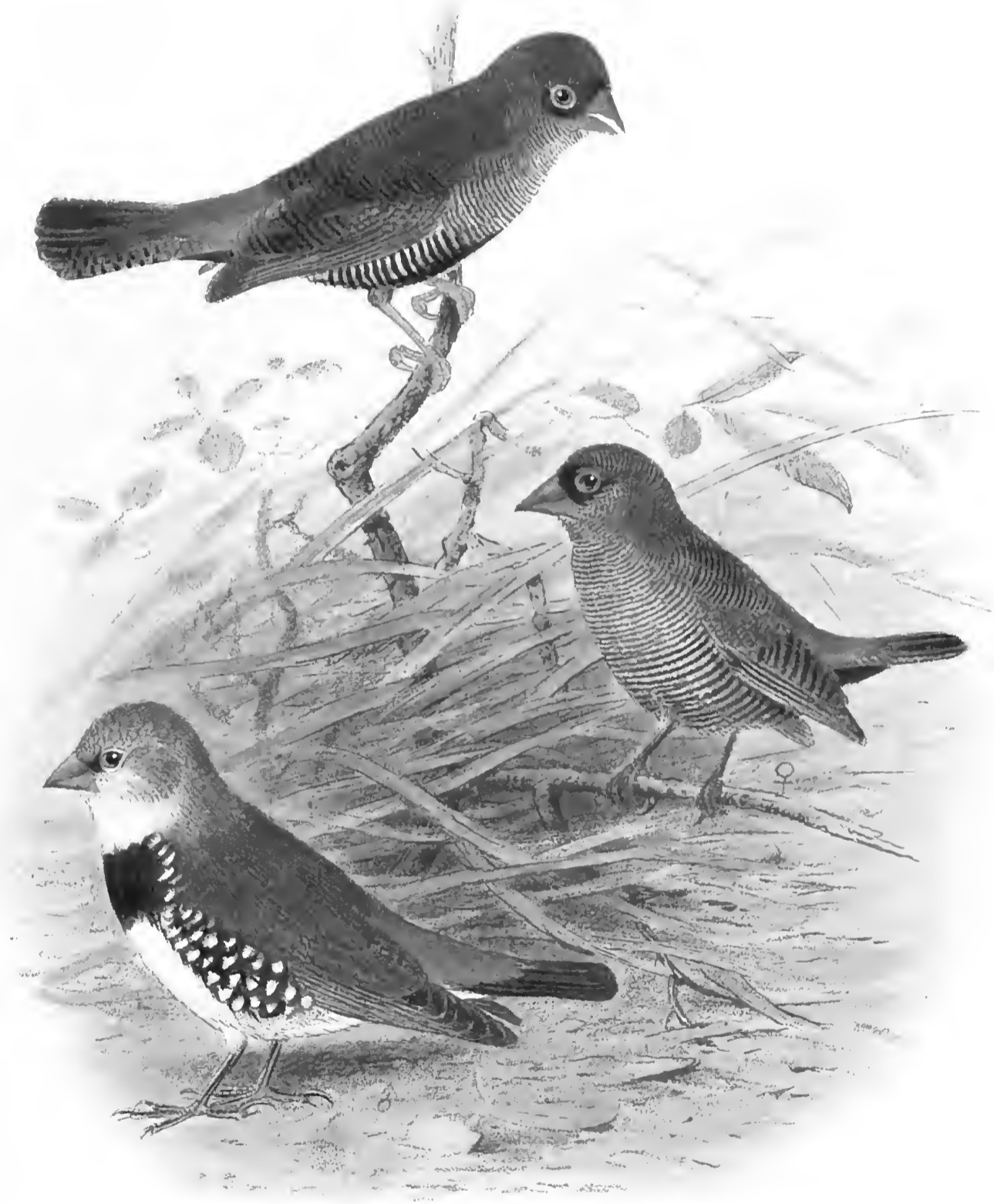
Stagonopleura guttata philordi Mathews, *ib.*; Belcher, Birds Geelong, p. 359, 1914.

Tavistocka guttata guttata Mathews, Birds Austr., Vol. VII., pt. 5, p. 434, 1919.

Tavistocka guttata philordi Mathews, *ib.*

Tavistocka guttata Mathews, *ib.*

DISTRIBUTION. Queensland, New South Wales, Victoria, South Australia.



H. Grönvold, del

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ZONÆGINTHUS BELLUS
 (FIRE-TAILED FINCH)
 TAVISTOCKA GUTTATA
 (SPOTTED-SIDED FINCH)



SPOTTED-SIDED FINCH.

Adult male. Top of the head grey, indistinctly barred with olive; scapulars, secondaries, mantle and lower back olive, suffused with grey and indistinctly barred with darker olive; rump and upper tail-coverts bright crimson; tail glossy black; quills uniform olive-brown; lores black; under-surface of body white with a broad band across the entire chest glossy black; sides of the body glossy black, each feather having a white spot at its extremity; under wing and under tail-coverts white; under aspect of quills brownish-grey. Eyes coral-red, feet slaty-brown; bill dark red, the upper mandible with blue tinge. Total length 120 mm.; culmen 9, wing 73, tail 43, tarsus 20. Figured. Collected 50 miles N.E. of Adelaide (Low-ranges), South Australia, on the 4th of April, 1912.

Adult female. Similar to the adult male.

Immature. Head greyish-olive; mantle, wing-coverts and scapulars olive-brown; lower back, rump and upper tail-coverts glossy crimson; tail-feathers deep blackish-brown with black shafts to the feathers; cheeks and ear-coverts similar to the head; chin, throat, breast and belly white, separated by a broad band of brownish-grey feathers across the chest; sides and flanks greyish-olive with equidistant bars of brownish-black and white; flight-feathers above and below brownish-grey with black shafts. Eyes grey, feet slate, bill black. Collected at Stansburg, York Peninsula, South Australia, on the 16th of April, 1911.

Immature. Top of the head and hind-neck olive-grey; mantle, scapulars and wing-coverts greyish-olive; lower back, rump and upper tail-coverts bright glossy crimson; tail-feathers brownish-black; flight-feathers brownish-olive, narrowly margined on the outer web with olive; cheeks and ear-coverts olive-grey; chin and throat white; band across the chest brownish-grey with a few minute spots of white at the extremity of the feathers; sides of the chest and sides of the body olive-brown with wide bars of greyish-white, and with a few blackish-brown feathers with an oval spot of pure white; remainder of under-parts, including the under tail-coverts, white; under aspect of quills brownish-grey. Collected in New South Wales.

Eggs. Four to seven eggs form the clutch, but usually five. A clutch of five eggs taken at Clarenza, South Grafton, Clarence River, New South Wales, on the 30th of January, 1898, is of a pure white. Long swollen ovals in shape. Surface of shell fine, smooth, and slightly glossy. 17-18 by 12-13 mm.

Nest. A long bottle-shaped structure, placed on its side; composed of a mass of thin dried grasses, and lined inside with finer grass. Generally placed in a bush or small tree, where the branches and foliage are growing closely together, and forming a suitable shelter. Dimensions of nest: 10 to 13 inches long, by 20 inches or more in circumference.

Breeding-months. August to end of December or January.

AMONG the Watling and Lambert drawings are several of Finches and some of these Latham named. One he called the Whiteheaded Finch because it was a poor painting, but no field-notes were attached. Vigors and Horsfield recognised this species among the birds in the collection of the Linnean Society but stated that every specimen "out of the numberless birds of this species" they had seen had greyish-brown heads and therefore proposed for it a new name, *Fringilla lathamii*. They added: "Mr. Caley calls this species *Red*

THE BIRDS OF AUSTRALIA.

Diamond Bird—the colonial name; he met with it occasionally, but not in abundance. He is not aware of its habits.”

Gould's field-notes read: “I found this species plentiful in South Australia and in every part of New South Wales that I visited; and it was equally numerous on the Liverpool Plains, the sides of the River Mokai, Namoi, etc. It is a showy, attractive species and passes most of its time on the ground, where it procures its food, which consists of the seeds of various kinds of grasses, etc. The nest is frequently built among the large sticks forming the under-surface of the nest of the smaller species of Eagles, and that too during the time the Eagle is incubating, both species hatching and rearing their progeny in harmony.”

Capt. S. A. White says: “A fairly common bird in South Australia, frequenting plains and hilly country alike. They take much of their food on the ground, being grass and weed seeds. The nest is of dry grass and is a large and bulky construction. Nesting season, September to October and sometimes November. Call is a long-drawn note, very mournful.

Mr. Thos. P. Austin's notes from Cobbora, New South Wales, read: “During the spring and summer months it is rather a common species here, but a few are to be seen at any time of the year, and it is to be met with in all classes of country. Excepting in the breeding-season it goes about in small flocks, from six to ten feeding upon the ground. It often breeds in small colonies, but places its nest in a great variety of situations, often favouring dwellings, at times in the topmost branches of large trees, such as red gums. I have often seen their nests here singly placed in the fruit trees of my orchard, also great numbers of them in a creeper growing on a verandah, but what appears to be their favourite nesting-place is in the same tree as a nest of a Brown Hawk (*H. orientalis*) and as many as possible build into the underneath part of the nest of the larger bird. I once climbed to a Brown Hawk's nest containing three eggs, beneath which were three of these Finches' nests, and eighteen others in the same tree, placed in the branches around the larger nest. It also does the same with Whistling Eagle's nests. Another time I counted twenty-two of their nests in a single native apple-tree, some of which I could reach from the ground. From the amount of dirt often found in their old nests it would appear that they often use them for roosting in long after breeding is finished. They build the outer portion of their nests of long pieces of dry grass, and I have often watched them carrying these to the topmost branches of long trees, sometimes they seem to have the greatest difficulty in doing so, more especially if there is any wind. Considering the length of the pieces of grass (often quite a foot long) they carry, it has always seemed wonderful how they manage to fly with them; they always seem to carry the material by one end in their

SPOTTED-SIDED FINCH.

strong bill, with the other end streaming away far behind them over their back. Their call-note is a long-drawn-out mournful whistle, which is very difficult to distinguish from one note of the female *Petroica bicolor*."

Mr. F. E. Howe wrote; "The sweet crescendo 'kweet' of this Finch is heard throughout the district, but always in the open and grassy country that has a good covering of saplings. There their bulky nests are found, young as early as October, and eggs as late as January, two broods being reared. At Parwon have noticed them in the winter months roosting in old nests of *Pomatorhinus*."

Mr. A. G. Campbell's note states that "in Victoria found throughout the more lightly-timbered areas. It is fond of searching among horse-droppings on country roads for food."

Mr. J. W. Mellor has written: "The 'Diamond Sparrow,' as it is commonly called, is very widely distributed. I have seen it in Queensland, New South Wales and Victoria. Throughout South Australia it is found in both plain and hilly country, but generally where trees and vegetation occur, with plenty of grass and water. It has a peculiarly plaintive and long-drawn note which it utters with its little head erect and neck outstretched, the bill being slightly opened; the note is repeated at intervals. It feeds on grass seeds and small grain, which it procures from the verdant places it loves to inhabit. I have watched them hopping about the ground, securing seed from the short prostrate weeds, so they do good in eating up the seeds of various weeds, and thus preventing them from spreading. The nesting-season starts about August and ends in January, sometimes two broods being reared in the one season. They sometimes fly in small coveys of six to eight, but often only in pairs."

Le Souëf and Macpherson have written about Sydney, the original locality whence this bird was described: "The Diamond-Sparrow or Spotted-sided Finch is often numerous in the comparatively open country of some of the outlying suburbs."

Mrs. Norton has given a full account of the breeding-habits which is too long to reproduce here, but which should be referred to by everyone interested in these birds. She recorded "that they built a nest in which they did not lay any eggs in the autumn, but used the half-finished nest as a roosting and sleeping place till about mid-winter, when the rigours of the winter in such an exposed place, or the shortage of food, sent them away. They reappeared in the spring, finished their old, half-built nest and reared a family of four. . . . During the cold months (which are very cold here—New England district, N.S.W.) they all retire to the more sheltered bush. At any rate, they all leave the garden, but isolated pairs can always be found out in the bush all through the winter."

THE BIRDS OF AUSTRALIA.

In 1912 I separated the southern form, placing the species under the genus name *Zonæginthus*, thus

Zonæginthus guttatus guttatus (Shaw).

Queensland, New South Wales.

Zonæginthus guttatus philordi Mathews.

“Differs from *Z. g. gutturalis* (slip for *guttatus*) in having a narrower black band on the throat, and the head not so light. (Frankston) Victoria.”

Victoria, South Australia.

Nothing has since been added, but in 1913 the genus name *Stagonopleura* was used, and since I have recognised its invalidity and proposed the name *Tavistocka*, the two races being still maintained as

Tavistocka guttata guttata (Shaw).

Tavistocka guttata philordi (Mathews).

GENUS—ZONÆGINTHUS.

ZONÆGINTHUS Cabanis, Mus. Heine., Vol. I., p. 171,
 (after Oct. 23rd) 1851. Type (by subsequent
 designation) Gray, 1855, p. 76 *Z. nitidus*
 = *Loxia bella* Latham.

COLORATION different from the preceding, bill more pointed and a little more attenuate, but still short and conical. The wings are similarly formed, but the tail is a little longer and rounded, the feet similarly formed.

These genera of Finches are chiefly based on different coloration, and this was accepted by Sharpe in the *Catalogue of Birds in the British Museum*, where he gave differential structural features to avoid the use of coloration, and thus wrote for this and the preceding genus :

“ Inner secondaries not elongated, all of this series of quills being about equal in length ; bill pointed, both culmen and gonys being nearly straight.

“ Tail short : the wings falling short of the end of the tail by less than the length of the tarsus.. *Steganopleura.*

“ Tail longer : the wings falling short of the end of the tail by much more than the length of the tarsus *Zonæginthus.*”

As a matter of fact the differences in structure are slight, so that the tail is about three-fifths the length of the wings in the first named and about four-fifths the length in the second. Nevertheless, judging from colour values, as will be shown hereafter in connection with *Pæphila* and *Erythura*, the present form is correctly regarded as a distinct genus.

Key to the Species.

No red behind the eye, under-surface “ hooped ” *bellus.*
 Red behind the eye, under-surface spotted *oculatus.*

ZONÆGINTHUS BELLUS.

FIRE-TAILED FINCH.

(PLATE 561.)

LOXIA BELLA Latham, Index Ornith. Suppl., p. XLVI., (after May 30th) 1801 : New South Wales.

Loxia bella Latham, Index Ornith. Suppl., p. XLVI., 1801.

Loxia nitida Latham, *ib.*, p. XLVII. : New South Wales.

Black-lined Grosbeak Latham, Gen. Synops. Birds, Suppl. II., p. 198, 1801.

Nitid Grosbeak Latham, *ib.*, pl. CXXXI.

Fringilla bella Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 257, 1827.

Estrelida bella* Gould, Birds Austr., pt. xviii. (Vol. III., pl. 78), March 1st, 1845 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Amadina nitida Gray, Genera Birds, Vol. II., p. 370, 1847.

Sporothlastes nitida Bonaparte, Consp. Gen. Av., Vol. I., p. 455, 1850.

Amadina bella, *id.*, *ib.*

Zonæginthus nitidus Cabanis, Mus. Heine., Vol. I., p. 171, 1851.

Zonæginthus bellus Gould, Handb. Birds Austr., Vol. I., p. 406, 1865 ; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 293, 1890 ; Hall, Key Birds Austr., p. 49, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 479, 1901 ; Littler, Emu, Vol. II., p. 170, 1903 (Tas.) ; *id.*, Vol. III., p. 216, 1904 (Tas.) ; Fletcher, *ib.*, Vol. IV., p. 16 (Tas.) ; McClymont, *ib.*, p. 176, 1905 (Tas.) ; A. G. Campbell, *ib.*, Vol. V., p. 144, 1906 (Kangaroo I.) ; Dove, *ib.*, Vol. VI., p. 19, 1906 (Tas.) ; Mellor, *ib.*, pp. 163-166, 1907 (Tas.) ; Mathews, Handl. Birds Austral., p. 101, 1908 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 271, 1909 ; Littler, Handb. Birds Tasm., p. 74, 1910 ; Mathews, Nov. Zool., Vol. XVIII., p. 427, 1912 ; Mellor and White, Emu, Vol. XII., p. 163, 1913 (Flinders I.) ; Cheney, *ib.*, Vol. XIV., p. 212, 1915 (Vic.) ; Fletcher, *ib.*, Vol. XVIII., p. 100, 1918 (Tas.).

Zonæginthus bellus samueli Mathews, Austral Avian Record, Vol. I., pt. 4, p. 102, Sept. 18th, 1912 : Kangaroo Island ; *id.*, List Birds Austr., p. 297, 1913.

Zonæginthus bellus bellus Mathews, *ib.* ; Belcher, Birds Geelong, p. 361, 1914.

Zonæginthus samueli S. A. White, Emu, Vol. XII., p. 267, 1913.

* Also spelt *Estrilda*.

FIRE-TAILED FINCH.

Zonæginthus bellus flindersi Mathews, Austral. Av. Rec., Vol. V., pts. 2-3, p. 40, Feb. 21st, 1923; Flinders Island, Bass Straits.

Zonæginthus bellus tasmanicus Mathews, *ib.*: Tasmania.

Zonæginthus bellus rosinae Mathews, *ib.*: South Australia.

DISTRIBUTION. New South Wales, Victoria, South Australia, Tasmania, Kangaroo Island.

Adult male. General colour of the upper-surface including the cheeks greyish-olive, closely barred with black, the barring on the head closer and less defined; rump and upper tail-coverts bright crimson; flight-feathers greyish-brown, uniform on the inner web, and barred on the outer webs with black; middle tail-feathers brownish-black, basally margined on their outer webs with crimson for about two-thirds of the feathers; remainder of tail dark olive, barred with black; a band across the fore-head, lores and feathers surrounding the eye black; throat and chest greyish-black, very closely barred with white; feathers of the sides of the body and back closely barred with black and white; middle of the belly, abdomen and under tail-coverts black; under wing-coverts and axillaries similar to the throat; quills below greyish-brown. Eyes hazel, skin round eye opal-blue, feet fleshy-cream, bill red. Total length 130 mm.; culmen 9, wing 58, tail 47, tarsus 18. Figured. Collected at Aura, Victoria, on the 8th of June, 1913.

Adult female. General colour of the upper-parts grey, suffused with olive and very closely barred all over with black; the feathers on the head and neck more closely barred; rump and upper tail-coverts bright crimson; quills greyish-brown, uniform on the inner web and barred on the outer web with greyish-olive; middle tail-feathers black, indistinctly barred with greyish-olive and fringed with dull crimson for about the basal two-thirds of their length; remainder of tail black with equidistant bands of greyish-olive; a band across the fore-head including the lores and feathers surrounding the eye black; whole of the under-parts barred with black and white suffused with olive on the chin and throat; under tail-coverts black; under wing-coverts and axillaries similar to the throat; quills below uniform greyish-brown. Bill crimson, eyes marone, skin round eye beautiful light blue, feet dull yellow, legs lighter. Total length 115 mm.; culmen 9, wing 60, tail 44, tarsus 18. Figured. Collected at Frankstow, Victoria, on the 3rd of October, 1908. The female differs chiefly in lacking the black on the belly.

Immature. Top of the head, cheeks, neck, back, wing-coverts and secondaries greenish-olive, closely barred all over with narrow bars of blackish-brown; rump and upper tail-coverts bright crimson; middle tail-feathers brownish-black, bordered on the outer web with bright crimson for about the basal two-thirds; outer pairs of tail-feathers olive, barred across both webs with blackish-brown; penultimate tail-feathers black-brown on the inner web and olive barred with brownish-black on the outer web; a narrow line of black feathers over the base of the upper mandible, continued on to the lores and surrounding the eyes; chin, throat and upper-breast grey, suffused with olive, closely and narrowly barred with blackish-brown; remainder of under-parts grey with narrow bars of blackish-brown; under-surface of wings greyish-brown. Eyes rich brownish-red, feet yellowish-brown, bill scarlet. Collected on Kangaroo Island, South Australia, on the 13th of April, 1912.

Eggs. Five to eight eggs form the clutch, usually five. A clutch of six eggs taken at Gembrook, Victoria, on the 2nd of October, 1893, is of a pure white colour. Ovals in shape. Surface of shell fine and smooth, and almost devoid of gloss. 17-18 by 12 mm.

THE BIRDS OF AUSTRALIA.

Nest. A bottle-shaped structure, placed on its side, composed of thin dried grasses, and lined with fine grass, feathers, fur, etc. Generally placed in a thick cluster of foliage in a bush or tree. Dimensions over all: 10 to 12 inches long by 18 inches or more in circumference at widest portion.

Breeding-months. September to January.

ALTHOUGH described twice from the Lambert and Watling drawings, the only note given by Watling is "Native name *Wee-bong*. Natural size, the only one yet seen. May."

Gould's field-notes are the first published, and these read: "Tasmania may be considered the principal habitat of this species, for it is universally and numerously dispersed over all parts of that island suited to its habits and economy. It also inhabits New South Wales, but is there far less abundant. I generally observed it in small communities varying from six to a dozen in number, searching on the ground for the seeds of grasses and other small plants which grow on the plains and open parts of the forest. It also frequents the gardens and pleasure grounds of the settlers, with whom it is a favourite, few birds being more tame or more beautifully coloured than this little Finch; the brilliant scarlet of the rump and the base of the tail-feathers strongly contrasting with the more sombre hue of the body. Its flight is extremely rapid and arrow-like, particularly when crossing a plain or passing down a gully. It is a stationary species in Tasmania and probably also in New South Wales. In the former country I constantly found it breeding in communities. . . . It breeds from September to January, during which period two or three broods are reared. Its note is a single mournful sound emitted while perched on the low branches of the trees in the neighbourhood of its feeding-places."

Captain S. A. White writes: "Is not a common bird; small parties are met with in the southern part of South Australia, and of course the subspecies on Kangaroo Island, but they are not common there. This bird loves the low-lying swampy ground and will be found in the thick cutting grass and the swamp-loving *Leptospernum* much after the tea-tree in habit. Like so many other Finches, this one builds a large nest of dry grass. The breeding-season is September and October, and the note is low and mournful."

Mr. Frank E. Howe has written: "During the season of 1907-1908 and in the months of October to January, this beautiful Finch was noticed in the scrubs at Ferntree Gully. It was always seen close to the water and appeared to be feeding in the Mimosa and Wiregrass and was never flushed from the ground."

Mr. A. G. Campbell has written: "Is a rare bird to meet about the foothills of the Dandenong Ranges."

Mr. J. W. Mellor's notes read: "I have seen this bird in Victoria, also in the south-east of South Australia. I noted it sparsely while visiting the

FIRE-TAILED FINCH.

Coorong and Lakes Alexandrina and Albert, S.A., in September and October, 1897, when I found several nests, but in every instance the young were hatched and some were fully fledged, showing that they breed earlier than in Tasmania; the birds were somewhat different in appearance than the Tasmanian birds, being finer in the freckled appearance of the feathers and not so dark in coloration; they were found in the tea-tree country and where the scrub and bushes were thick. I have observed this species all over Tasmania, which seems to be its principal habitat, where it is found in numerous situations both in open country and thickly bushed hills and ravines, where it lives on small grass seeds, the breeding-season being from November to February and March."

Mr. Frank Littler has written me: "This is the only Finch found in Tasmania, where it frequents dense scrubby country and the undergrowth near springs, the food being seeds and small snails. When flushed it rises with a loud whirring noise like a small Quail, the flight being rapid, though not long sustained. When on the wing the scarlet rump is always conspicuously displayed. Its note is a low, plaintive whistle, which sounds very mournful when all else is still. This Finch generally associates in small flocks of from twelve to thirty, but in the breeding-season, which lasts from November to January, pairs only are seen together."

A. G. Campbell, reporting upon the birds of Kangaroo Island, wrote: "Of all species noted this was, perhaps, the one least expected. Several pairs were seen, both among the white gums flanking the inland lagoons, and among the sugar-gums on the river flat near its mouth. In company with *Zonægintha emporalis* it was nesting in the underscrub. A specimen procured, in comparison with one from Victoria, shows the upper-surface not olive, but grey, like the under-surface. The length of wing is 2.3 in."

Of this species, the type of *Zonæginthus*, and hence the genus name has remained unchanged, no subspecies was named until I separated the Kangaroo Island form, and in my 1913 "List" I admitted:

Zonæginthus bellus bellus (Latham)

New South Wales, Victoria, Tasmania,
South Australia.

Zonæginthus bellus samueli Mathews.

"Differs from *Z. b. bellus* in its very much lighter colour and in wanting the black patch on the belly."

Kangaroo Island.

However, as Mellor and Captain S. A. White have pointed out, there are other subspecies:

Zonæginthus bellus tasmanica (Mathews).

THE BIRDS OF AUSTRALIA.

“ Differs from *Z. b. bellus* in its more brownish upper-coloration.”

Tasmania.

Zonæginthus bellus flindersi (Mathews).

“ Differs from *Z. b. bellus* in its paler coloration, and the rump coloration is paler than that of *Z. b. samueli*.”

Flinders Island.

Zonæginthus bellus rosinae (Mathews).

“ Differs from *Z. b. tasmanica* from Tasmania in its lighter coloration and much finer freckling on the upper-surface.”

South Australia.





H. Harcourt del

Witherby & Co

TENIOPYGIA CASTANOTIS
 (CHESTNUT-EARED FINCH)
 ZONÆGINTHUS OCLATUS
 (RED-EARED FINCH)

ZONÆGINTHUS OCULATUS.

RED-EARED FINCH.

(PLATE 562.)

FRINGILLA OCULATA Quoy et Gaimard, Voy. de l'Astrol., Zool., Vol. I., p. 211, (pref. June 29th) 1830 : King George Sound, South-west Australia.

Fringilla oculata Quoy et Gaimard, Voy. de l'Astrol., Zool., Vol. I., p. 211, 1830.

Estrela oculoa Gould, Birds Austr., pt. xviii. (Vol. III., pl. 79), March 1st, 1845 : error for "*oculata*," Q. et G. ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Sporothlastes oculoa Bonaparte, Consp. Gen. Av., Vol. I., p. 455, 1850.

Zonæginthus oculoa Cabanis, Mus. Heine., Vol. I., p. 171, note, 1851 ; Gould, Handb. Birds Austr., Vol. I., p. 407, 1865.

Amadina oculoa Gray, Handl. Gen. Species Birds Brit. Mus., Vol. II., p. 57, 1870.

Zonæginthus oculatus Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 294, 1890 ; Hall, Key Birds Austr., p. 49, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 480, 1901 ; Milligan, Emu, Vol. II., p. 74, 1902 (W.A.) ; Carter, *ib.*, Vol. III., p. 40, 1903 (W.A.) ; Mathews, Handl. Birds Austral., p. 101, 1908 ; *id.*, Nov. Zool., Vol. XVIII., p. 427, 1912 ; *id.*, List Birds Austr., p. 298, 1913 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. IV., p. 437, 1914 ; Alexander, Emu, Vol. XVI., p. 33, 1916 ; S. A. White, *ib.*, Vol. XX., p. 129, 1921.

Zonæginthus oculatus gaimardi Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 40, Feb. 21st, 1923 : Perth, West Australia.

Zonæginthus oculatus oculatus Mathews, *ib.*

DISTRIBUTION. South-west Australia only.

Adult male. Top of the head, back, scapulars and upper wing-coverts greenish-olive, closely barred with black, the barring becoming closer towards the head ; rump and upper tail-coverts bright crimson ; middle tail-feathers greyish-olivo, margined on the outer webs with dull crimson and barred with narrow lines of black ; remainder of tail-feathers lighter olive, more widely barred with blackish-brown ; a very narrow margin at the base of the culmen and the lores black ; behind the eye a patch of crimson feathers ; chin, throat and upper-breast closely barred with black and yellowish-olive ; remainder of under-parts including the under tail-coverts black, each feather barred with white and with a white spot at the extremity ; under-surface of quills greyish-brown. Eyes deep brown, orbits bluish, feet pale horn,

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bill vermilion. Total length 124 mm.; culmen 9, wing 56, tail 45, tarsus 18. Figured. Collected in Denmark Forest, South-west Australia, on the 20th of May, 1910.

Adult female. Similar to the adult male.

Immature. Entire upper-parts greenish-olive, very closely barred with narrow bars of brownish-black, the bars being narrowest on the head and neck, becoming broader over the back and mantle; tail similarly coloured and marked like the upper-parts; middle tail-feathers with a rather broad margin of crimson on the basal two-thirds of the outer web; lower rump and upper tail-coverts bright crimson; a few crimson feathers under and behind the eyes; throat, breast, flanks and abdomen greyish-olive with narrow bars of dark brown; feathers of the middle of the belly black barred with white and with a large spot of pure white at the extremity with a narrow fringe of black; under tail-coverts buffish-white with bars of black; under wing-coverts greyish-brown. Bill crimson, eyes blue, orbits light blue, feet and legs yellow-flesh. Collected at Albany, South-west Australia, on the 11th of February, 1905.

Immature. Top of the head and hind-neck uniform dark olive; back, mantle, rump, secondaries and wing-coverts greenish-olive, very closely and narrowly barred with blackish-brown; upper tail-coverts bright crimson; central tail-feathers greyish-olive, barred towards the extremity with blackish-brown and margined on the outer web with dull crimson; remainder of tail greyish-olive, barred across both webs with blackish-brown; primaries greyish-brown margined with olive and barred on the outer webs with blackish-brown; throat greyish-olive; neck yellowish-olive with indistinct bars of dark brown; remainder of under-parts brownish-olive with concentric bars of blackish-brown; lores blackish; under wing-coverts greyish-brown. Bill dark purple, eyes hazel, orbits bluish, feet purplish-flesh, soles yellow. Collected at Albany, South-west Australia, on the 6th of January, 1910.

Eggs. Four to five eggs form the clutch, sometimes six. A clutch of six eggs taken at Wilson's Inlet, South-western Australia, on the 25th of November, 1915, is of a pure white colour. Swollen ovals in shape. Surface of shell fine and smooth, and devoid of gloss. 15-17 by 12-13 mm.

Nest. A bottle-shaped structure, placed on its side, and composed of dried grasses, and lined with a little soft material. Dimensions over all, about 10 inches long by 18 inches or more in circumference at the widest part. Placed in a variety of situations: sometimes in a low dense bush, or thickly foliaged tree, or in a clump of Mistletoe (*Loranthus*).

Breeding-months. August to December, or later during certain conditions.

THOUGH this species was not first described by Gould his notes are the earliest, apparently sent him by Gilbert: thus "This species is abundant in many parts of the colony of Swan River. Like its near ally the *Zonæginthus bellus*, it inhabits open grassy glades studded with thickets, particularly in moist swampy districts and along the borders of lakes and rivers. Its food consists of small grass-seeds procured amongst the herbage. Gilbert states that 'it is a solitary species and is generally found in the most retired spots in the thickets, where its mournful, slowly drawn-out note only serves to add to the loneliness of the place. Its powers of flight, although sometimes rapid, would seem to be feeble, as they are merely employed to remove it from tree

RED-EARED FINCH.

to tree. The natives of the mountain districts of Western Australia have a tradition that the first bird of this species speared a dog and drank its blood, and thus obtained its red bill.' ”

Mr. Tom Carter has written me : “ The Red-eared Finch is given in your 1912 ‘ Reference List ’ as ranging through Western Australia. It is confined to the coastal districts of the extreme south-west, and the greatest distance at which I have obtained it from the coast is about thirty-five miles. The birds usually feed in family parties in the exceedingly dense scrub of the swamps (fresh water), and their presence can be told by the rather melancholy calls of the birds to each other, especially when the parents are attending newly-fledged young. On two occasions I shot one of these birds from the upper limbs of Karri trees on the Margaret River. Nests containing eggs were never found by me, although I have frequently searched swamps where the birds habitually occur, in September, January and February, and have seen old nests, made of grass, and long in shape, that I think could only have been built by these Finches. The breeding-season is almost certainly end of November and December, as on many occasions, early in January, I have seen recently-fledged young birds being fed by their parents.”

Milligan, reporting upon the birds of the Margaret River district, South-west Australia, stated : “ I saw a great number of these charming little Finches, as also their bottle-shaped nests. These latter, however, were old ones. They were just beginning to build on my first visit. Many of the birds could be seen carrying the stems of long, dry grass whilst flying. They appear to be a very local bird, for I only saw them at Ngoccardup Brook, and then within an area of 20 acres. Their call is a peculiar series of notes, uttered softly, and resembling ‘ kwinkee wee wee wee. . . . ’ ”

Captain S. A. White also noted it in the same district, and Alexander has recorded it as “ Frequent ” at Bremer Bay, 100 miles east of Albany, but does not include it in his *List of the Birds of the Perth District*, so Gilbert’s birds must have been secured inland.

Though no subspecies have yet been distinguished in this species, the specimens from Perth, the type locality of Gould’s birds, do not agree with those from King George’s Sound, the true type locality of Quoy and Gaimard’s species. I therefore name the former and allow two subspecies :

Zonæginthus oculatus oculatus (Quoy and Gaimard).

King George’s Sound, South-west Australia.

Zonæginthus oculatus gaimardi (Mathews).

Differs from *Z. o. oculatus* Quoy and Gaimard in its paler coloration and smaller size.

Perth, West Australia.

GENUS—TÆNIOPYGIA.

TÆNIOPYGIA Reichenbach, Die Sing. Vögel,
pp. III., 26, (prob. after July 1st) 1862.
Type (by subsequent designation) Sharpe,
Cat. Birds Brit. Mus., Vol. XIII., p. 311,
1890 *Amadina castanotis* Gould.

THE present genus is characterized by the small size and distinct coloration of its members.

The bill is small, short and stout. Sharpe calls it "pointed and triangular." The wings are similarly formed to those of the preceding groups. The tail is composed of broad feathers, a little rounded, the upper tail-coverts nearly as long as the tail, and the under tail-coverts very little shorter.

When Reichenbach proposed this genus he included two species, *Amadina castanotis* Gould and *Fringilla guttata* Vieillot. The latter name was given in the *Nouv. Dict. d'Hist. Nat.*, nouv. ed., Vol. XII., p. 233, 1817, to the Bengeli moucheté of the Oiseaux Chanteurs, pl. 3, from the Iles Moluques. The latter was cited as representing *Tæniopygia castanotis* by Sharpe in the *Cat. Birds Brit. Mus.*, Vol. XIII., p. 311, 1890, but the name based on it, *Fringilla guttata* as above given, was not included. If the identification were correct Vieillot's name would supersede Gould's, but upon comparison the figure given on plate 3 was seen accurately to depict the second species of *Tæniopygia* named *Amadina insularis* by Wallace, *Proc. Zool. Soc. (Lond.)*, 1863, p. 495, from Timor. It is noteworthy that such an obvious correlation has not previously been recorded, and *Tæniopygia guttata* (Vieillot) must be used for the species recorded as *Tæniopygia insularis* in the *Catalogue Birds Brit. Mus.*, Vol. XIII., p. 312, 1890.

TÆNIOPYGIA CASTANOTIS.

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(PLATE 562.)

AMADINA CASTANOTIS Gould, Synops. Birds Austr., pt. I., pl. 10, Jan. 1st, 1837: Interior of New South Wales.

Amadina castanotis Gould, Synops. Birds Austr., pt. I., Jan. 1837; *id.*, Proc. Zool. Soc. (Lond.) 1836, p. 105, Feb. 20th, 1837; *id.*, Birds Austr., pt. XIII. (Vol. III., pl. 87), Dec. 1st, 1843.

Sporothlastes castanotis Bonaparte, Consp. Gen. Av., Vol. I., p. 455, 1850.

Stagonopleura castanotis Cabanis, Mus. Heine., Vol. I., p. 172, 1851.

Tæniopygia castanotis Reichenbach. Die Sing. Vögel, p. 26, 1862; Gould, Handb. Birds Austr., Vol. I., p. 419, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 311, 1890; Hall, Key Birds Austr., p. 50, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 483, 1901; Lyons, Emu, Vol. I., p. 136, 1902 (Central A.); Hall, *ib.*, Vol. II., p. 55, 1902 (N.W.A.); Carter, *ib.*, Vol. III., p. 94, 1903 (M.W.A.); Kilgour, *ib.*, Vol. IV., pp. 37-40, 1904 (N.W.A.); Smedley, *ib.*, p. 68 (Q.); Berney, *ib.*, Vol. VI., p. 41, 1906 (Q.); Batey, *ib.*, Vol. VII., p. 10, 1907 (Vic.); Mathews, Handl. Birds Austr., p. 101, 1908; North. Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 275, 1909; Whitlock, Emu, Vol. VIII., p. 188, 1909 (W.A.); Gibson, *ib.*, Vol. IX., p. 75, 1909 (W.A.); Crossman, *ib.*, p. 90 (W.A.); Whitlock, *ib.*, pp. 183-212, 1910 (W.A.); Crossman, *ib.*, Vol. X., p. 113, 1910 (N.W.A.); Stone, *ib.*, Vol. XII., p. 117, 1912 (Vic.); Mellor, *ib.*, p. 187, 1913 (S.A.); Macgillivray, *ib.*, Vol. XIII., p. 181, 1914 (N.Q.); Barnard, *ib.*, p. 209 (N.T.); *id.*, *ib.*, Vol. XIV., p. 49, 1914 (N.T.); Jackson, *ib.*, Vol. XVIII., p. 169, 1919 (N.S.W.); S. A. White, *ib.*, p. 198 (S.A.); Whitlock, *ib.*, p. 248 (W.A.); Kersey, *ib.*, Vol. XIX., p. 52, 1919 (Q.).

Estrilda castanotis Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Zonæginthus castanotis castanotis Mathews, Nov. Zool., Vol. XVIII., p. 427, Jan. 31st, 1912.

Zonæginthus castanotis mouki Mathews, *ib.*: Rockhampton, Queensland.

Zonæginthus castanotis wayensis Mathews, *ib.*, p. 428: East Murchison, West Australia.

Zonæginthus castanotis mungi Mathews, *ib.*: Mungi, North-west Australia; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs).

Zonæginthus castanotis alexandræ Mathews, *ib.*: Alexandra, Northern Territory.

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- Zonæginthus castanotis roebucki* Mathews, Austral Avian Record, Vol. I., pt. 8, p. 193, March 20th, 1913: Roebuck Bay, North-west Australia; *id.*, South Austr. Orn., Vol. III., p. 226, 1918.
- Tæniopygia castanotis castanotis* Mathews, List Birds Austr., p. 298, 1913; S. A. White, Emu, Vol. XIV., p. 191, 1915.
- Tæniopygia castanotis mouki* Mathews, List Birds Austr., p. 298, 1915.
- Tæniopygia castanotis alexandrae* Mathews, *ib.*
- Tæniopygia castanotis roebucki* Mathews, *ib.*
- Tæniopygia castanotis mungi* Mathews, *ib.*
- Tæniopygia castanotis wayensis* Mathews, *ib.*
- Tæniopygia castanotis hartogi* Mathews, Bull. Brit. Ornith. Club, Vol. XL., p. 76, Jan. 30th, 1920: Dirk Hartog Island.

DISTRIBUTION. Australia generally (Carter shot them in south-west, in 1911 and 1916), not Tasmania.

Adult male. Top of the head grey with darker centres to the feathers; remainder of the upper-surface brownish-grey, tinged with olive; longer upper tail-coverts black, barred with white; shorter upper tail-coverts black tipped with white; wings and tail greyish-brown; a narrow line of black at the base of the lower mandible succeeded by a white bar, margined with black; sides of the face and ear-coverts light chestnut; throat greyish-white barred with black, separated from the white under-parts by a black band; sides of the body chestnut, each feather with an oval spot of white at the extremity; under aspect of quills brownish-grey, margined on the inner webs with whitish-buff. Eyes Indian red, bill vermilion, legs and feet orange. Total length 98 mm.; culmen 9, wing 55, tail 32, tarsus 15. Figured. Collected on Lake Way, East Murchison, West Australia, and is the type of *Z. c. wayensis*.

Adult female. Top of the head grey, with darker centres to the feathers; back of the neck darker grey gradually merging into the brownish-grey of the mantle and wings; sides of the rump black tipped with white; central upper tail-coverts creamy-white, longest upper tail-coverts glossy black, widely barred and tipped with white; a narrow line of black at the base of the lower mandible and a broader one below the eye divided by a white bar; cheeks and sides of neck ash-grey; throat lighter grey; remainder of the under-surface including the sides of the body creamy-white. Bill and eyes red, feet pale red. Total length 109 mm.; culmen 9, wing 56, tail 34, tarsus 16. Figured. Collected at Maragle Creek, North-west Australia, on the 27th of May, 1911.

Young. Head, neck, mantle and lower back dark ashy-olive; rump and upper tail-coverts white, mixed with a few black feathers; upper tail-coverts white with a broad bar of black across the middle of each feather; tail dull black, the outer pair of feathers margined on their outer web and tipped with white; sides of the face whitish; chin, throat, cheeks and fore-neck grey; upper-breast whitish-buff; middle of the belly, sides, flanks and under tail-coverts tawny-brown; middle of the belly whitish-buff; under wing-coverts and axillaries whitish-buff; under-surface of quills ash-grey; under-surface of tail brownish-black, tipped with whitish. Collected at Derby, North-west Australia, on the 24th of July, 1900.

Eggs. Four to seven eggs form the clutch, usually six, though sometimes as many as sixteen and nineteen have been found in the one nest, probably the result of the laying of two or three birds. A clutch of six eggs taken at Borrooloola, Macarthur

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River, Northern Territory, on the 2nd of June, 1913. is white, possessing a very pale bluish tinge, which is typical for this species. Ovals in shape. Surface of shell fine and smooth, and almost entirely devoid of gloss. 14 by 10 mm.

Nest. The usual bottle-shaped structure, built on its side, and composed of dried grasses and soft delicate stalks of plants, and lined with thin soft grasses and feathers. Generally placed in a bush or small tree, and frequently within hand's reach of the ground. Dimensions over all: 10 to 13 inches or more in length, by 15 inches in circumference at the widest part.

Breeding-months. (June to) August to December, though the seasons are greatly influenced by the rains.

GOULD described this pretty little Finch from the interior of New South Wales before he went to Australia, and afterwards wrote: "This bird appears to be almost peculiar to the interior of Australia; among other places it inhabits the large plains of the north of the Liverpool range and is particularly abundant about Brezi and the banks of the river Mokai; but that it sometimes occurs on the southern side of the range is proved by my having killed five specimens on the Upper Hunter. It has also been found, though very sparingly, at Swan River, and a specimen is contained in the collection formed by Mr. Bynoe at Port Essington. It passes much of its time on the ground, and feeds upon the seeds of various kinds of grasses. On the plains it congregates in small flocks and evinces a decided preference to those spots where the trees are thinly dispersed and grasses abundant. The Chestnut-eared Finch is one of the smallest of the genus (family) yet discovered in Australia; it is also one of the most beautiful, and in the chasteness of its colouring can scarcely be excelled."

Captain S. A. White says: "This is the most numerous bird in some localities in the far north and interior of Australia; the writer has seen them in thousands. During a dry summer they can be seen coming in to water in hundreds of thousands, their sharp little metallic note vibrating everywhere from thousands of throats as they take flight. This bird seems to breed almost at any time of the year, builds a grass nest, but, unlike many others of the Finch family, it is loose and small. The distribution is a very wide one, from sea coast to Central Egidun and through to the coast on the other side, inhabiting heavy rainfall country and into the desert.

Mr. Thos. P. Austin has written from Cobbara, New South Wales: "Years ago I have seen this species here in flocks of almost thousands, but usually only small flocks of six to a dozen birds are to be met with, mostly in my garden at any time of the year, but most of them disappear before they breed, in fact, very few of them breed here; those that do, build their nest in a hollow branch of a dead tree. One evening I saw a bird enter a hole in a dead tree

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about six feet from the ground; upon giving it a knock with a tomahawk, out flew about a dozen of these birds, so evidently roost in hollow branches. They are great drinkers, and are very seldom found far away from water."

Mr. Edwin Ashby's note reads: "In 1886 I do not think this species occurred near Adelaide, but they used to breed in a Kangaroo-Furze hedge at Red Creek about thirty miles distant and due east of Adelaide at the foot of the Mount Lofty Ranges; for some fifteen years now they have bred freely in the Kangaroo-Furze hedges near Adelaide and were numerous near Mannum in October (1910). This Finch has a striking wheezing note which is very distinctive when once heard."

Mr. J. W. Mellor has sent me: "This bird, called the Zebra Finch, is the commonest and most widely spread of the Australian Finches, being found in every imaginable locality from the verdant country with rich grass and flowing streams with good, fertile soil, all along the sandy coast line and shores of the sea, right into the arid interior of the Continent. They go in flocks in great numbers and I have also seen them in little coveys of eight or ten. They make a plaintive little call of 'tint-tint, tint-tint,' uttered in a sharp, short manner like striking a tightly strained wire fence with a knife. The nesting-time on the Adelaide Plains is from September to January, but in the arid interior of Australia they breed at all and various times according to the rainfall, as while travelling out from Tarcoola towards the West Australian border in June 1912 I found nests with large young almost ready to leave; these birds live on small grass seeds and thrive well in captivity."

Mr. A. G. Campbell has written me: "While recorded for 'Australia generally' is not found in Victoria south of the Dividing Range, and only very occasionally in the open country of North-east Victoria."

Mr. Sandland writes: "Very common at Burra, South Australia, where although the full clutch is six eggs, have taken one nest of eight eggs and another under nest of *Hieracidea orientalis* containing seventeen eggs, no doubt combination clutches."

Berney has written from the Richmond district, North Queensland: "During the eight or nine years previous to 1906, *T. castanotis* has been our most constant resident in the bird line, but this year, one of our best seasons on record, when grass and herbage, and therefore, of course, seed, are in abundance, it has entirely left the district, disappearing as soon as the first general rains fell in January, and so far (August) it has not shown up again. The contented manner in which it adapts itself to circumstances, together with its fecundity, will long ensure its being among the survivors in the struggle for existence. Its nesting operations are prolonged from June to January, but are carried out principally from August to November. Among 30 or 40 records

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of nests with eggs or young, I have none for the months February to May. They flock in June and July. ”

Macgillivray has written : “ Very common throughout the Gulf country, but not seen at Cape York.”

Barnard wrote of the Brunette Downs, Northern Territory : “ Common.”

Captain S. A. White has also observed in his report of his expedition to Musgrave and Everard Ranges : “ Wherever there was water these birds were found in great numbers.”

From Dolomite, Western Queensland, Kersey has written : “ This bird was found in great numbers, and the nests were to be found in any hollow limb or small bush. One pair built in the bushes which formed the roof of the school. The children were very interested to see the little birds fly down on the floor of the shed to pick up a straw or a feather they had dropped.”

Stone, from Lake Boga, Victoria, stated : “ Common sometimes, when it nests practically anywhere. I found two nests of young in April 1906. Maximum, six eggs.”

Batey also stated : “ This Finch was never indigenous in my part of Victoria, and only visited the area once during the fifties, and in that instance in large numbers. It would be in the spring season, because it bred, and we took young ones.”

Mr. Tom Carter has written me : “ The Chestnut-eared Finch is one of the commonest birds in the Gascoyne and Northern districts. The North-west Cape aboriginal name is Neamoora. In hot weather they are seldom far from water, as they seem to have an insatiable thirst, and keep drinking throughout the day. At shallow wells and the troughing attached to other wells, they are quite a nuisance, as numbers fall in the water daily and pollute it with their decaying bodies. It was usual at shallow wells on many stations to provide a sort of ladder in the corners to enable the birds that had fallen in to climb out again. I am of the opinion that these birds can *smell* water, because at my Point Clates shearing shed there were two large iron tanks with close fitting lids to collect the rainwater from the roof. The down pipes entered the tops of the tanks through holes cut to fit them, but as I noticed numbers of these Finches on the tops of the tanks, I climbed up to see where they obtained water, thinking that one of my natives might have taken off one of the manhole covers, but I found that the birds could just get the *tips* of their beaks into the water round the bottom of down pipe, if the tank was *quite full*. Flocks of thousands of these birds collect round water-holes in the summer, and a few Hawks (usually Goshawks) are always in attendance, and secure a good many of the Finches by making dashes through them. This species breed at any time after good rains, and the birds seem to keep on rearing their

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broods as long as the good season, and consequently a supply of grass-seeds, lasts. The nests are built mostly of fine, dry grass, with sometimes a few flower-stalks, as everlastings, intermingled. They are bottle-shaped, or oval domes, and I have found them in different species of bushes, in hollows on trees, or large logs, and in the under-parts of large nests, such as Eagles, Hawks, and Crows. In October, 1887, I climbed to some nests of Whistling Eagles on the Lower Murchison River, and found several nests of these Finches, built in the under-parts of the nests, containing eggs and young birds. The clutch seems to be four to six. In October, 1911, when it was an abnormally dry season about Broome Hill, and all the inland and northern areas generally, numbers of these Finches were noted in the district."

Dr. Cleland has written me: "In October, 1907, very numerous at Port Sampson, Port Hedland, Strelley River, North-west Australia. Anywhere in fact where fresh water was. Hundreds are often seen together and they resemble *Passer domesticus* in flight and build, but are smaller. They build near waterholes in prickly acacias, bushes, hollow trees, etc.; some built in gum branches put up to shelter our tent."

Mr. J. P. Rogers' notes from Point Torment, North-west Australia: 'March 21st, 1911. A few birds passed the camp to-day; are the first seen here. March 27th. Many about here now, are in small flocks. April 10th. Occasionally a few seen, appear to be travelling. April 20th. Very few seen lately. Later. These birds never settled down, all seen appear to be travelling. In Derby this is a resident species, in fact it is in all parts of Kimberley I had been in until I came to Point Torment. Until about four years ago there was no fresh water here; then the country was stocked with a few cattle and two wells sunk, so perhaps the birds have never settled down here, only pass through in the wet season. There are always birds at an old well about twenty miles away on the road into Derby. . . . Many hundreds of these birds watered at a mud spring near my camp at Marngle Creek. At Mungi they were also very common, many nests were seen in the course of construction, some in bushes, others in the spouts of trees; in some cases the spouts were forty feet from the ground, in others about three feet. No nests were seen in the branches more than ten feet from ground. No complete sets of eggs were seen. This bird is not numerous on the coast but is the common Finch of inland districts in Kimberley."

Kearland's notes from the North-west are of interest: "These little birds had a peculiar share in our interest, as their presence in numbers is a pretty good indication of the proximity of water. Wherever rock-holes and wells containing water were found immense flocks of these birds were seen. They seem to possess an insatiable thirst, and will alight in flocks to drink

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close to where men are working. When we were baling water for the camels they frequently perched on the sides of the dishes to drink."

Whitlock, from the Pilbarra Goldfield, wrote: "Fairly common, but never found far from water. In particular it haunts the neighbourhood of wells provided with automatically-fed sheep troughs. Old nests of this species are much in evidence."

Gibson, from between Kalgoorlie and Eucla, noted: "Several noted round a rock-hole near the western edge of the plains. This was the only place where they were seen, their habitat being a little further to the north, where they are found in thousands round the rock-holes."

Carter noted that these Finches were abundant both on Dirk Hartog Island and the Peron peninsula, in the vicinity of the wells and sheep-troughing.

Whitlock then wrote from Barrow Island: "I was surprised to meet with this Finch, which I had hitherto considered inseparable from fresh water. It was very uncommon, however, and I met with only two small parties. I knew two were nesting near my camp, but for a long time they baffled me. At length I found the nest accidentally by observing the female fly from a bunch of seaweed attached to the extremity of a long mangrove branch. My boatman had actually fastened a mooring rope to this limb without seeing the nest. The nest was merely an accidental cavity in the seaweed left by high tides; it was profusely lined with Doves' feathers and contained five eggs, almost hatched."

This very variable and common little species was not subdivided into races until I prepared my "Reference List" in 1912, when I characterized five races, placing them under the genus name *Zonæginthus* (a very poor location) thus:

Zonæginthus castanotis castanotis (Gould).

New South Wales, Victoria, South Australia.

Zonæginthus castanotis mouki Mathews.

"Differs from *Z. c. castanotis* in the under-surface coloration, having more black on the breast and paler on the flanks. Rockhampton, Queensland."

Queensland.

Zonæginthus castanotis wayensis Mathews.

"Paler than *Z. c. castanotis*, with the bill vermilion; in that race the bill is orange. East Murchison, West Australia."

Mid Westralia.

Zonæginthus castanotis mungi Mathews.

"Much paler throughout than any other race of *Z. castanotis*. Mungi, North-west Australia."

Interior of North-west Australia.

Zonæginthus castanotis alexandrae Mathews.

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“ Differs from *Z. c. mouki* in being grey and not brown above. Alexandra, Northern Territory.”

Northern Territory.

Later I added

Zonæginthus castanotis roebucki.

“ Differs from *Z. c. mungi* in being darker above and in having the chestnut ear-patch much darker. Roebuck Bay, North-west Australia (coast.)”

North-west Australia (Coastal districts).

These subspecies were admitted unchanged in my 1913 “ List ” with the correct reference to the genus *Tæniopygia*, and since then I have named

Tæniopygia castanotis hartogi.

“ Differs from *T. c. roebucki* Mathews in being paler and smaller. Dirk Hartog Island. West Australia.”

There are probably other subspecies to be discriminated.

GENUS—EMBLEMA.

EMBLEMA Gould, Birds Austr., pt. VII., June 1st, 1842. Type
(by monotypy) *E. picta* Gould.

A VERY distinctly coloured genus with a long, pointed, conical bill. This genus is well distinguished by the long pointed bill AND the distinct coloration, as in the super-group, *Erythura sensu lato*, some forms have long pointed bills and other short stout ones *but* with similar coloration.

The long pointed bill shows the nostrils to be placed more laterally than is the case in those with broad short bills. The wing is similarly formed, but the secondaries are longer, equalling the apparent fifth primary, the first to fourth being a little longer and subequal. The tail is long, not graduated, feathers broad, the upper and under tail-coverts short, less than half the length of the tail.

EMBLEMA PICTA.

PAINTED FINCH.

(PLATE 563.)

EMBLEMA PICTA Gould, Birds Austr., pt. VII., June 1st, 1842: "North-west Coast Australia" = Depuch's Island, off the coast.

Emblema picta Gould, Birds Austr., pt. VII. (Vol. III., pl. 97), June 1st, 1842; *id.*, Proc. Zool. Soc. (Lond.) 1842, p. 17 (Nov.); Stokes, Discov. Austr., Vol. II., p. 175, 1846 (Depuch's Island); Gould, Handb. Birds Austr., Vol. I., p. 429, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, *ib.*, Ser. 2, Vol. I., 1886, p. 1092, 1887 (N.W.A.); *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 295, 1890; North, Rep. Horn Sci. Exped. Cen. Austr., Vol. II., p. 88, 1896 (Central); Hall, Key Birds Austr., p. 49, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 481, 1901; Carter, Emu, Vol. I., p. 26, 1901 (M.W.A.); *id.*, *ib.*, Vol. II., p. 47, 1902 (M.W.A.); Hall, *ib.*, p. 55 (N.W.A.); Carter, *ib.*, p. 104 (M.W.A.); *id.*, *ib.*, Vol. III., p. 94, 1903 (M.W.A.); Campbell, *ib.*, Vol. V., p. 82, 1905 (N.Q.); Hartert, Nov. Zool., Vol. XII., p. 239, 1905 (N.W.); Mathews Handl. Birds Austral., p. 101, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 273, 1909; Cleland, Emu, Vol. VIII., p. 156, 1909 (W.A.); Whitlock, *ib.*, p. 187 (W.A.); Hill, *ib.*, Vol. XII., p. 244, 1913 (Central Australia); Campbell and Kershaw, *ib.*, p. 278; Campbell, *ib.*, Vol. XVIII., p. 6, 1918 (W.A.).

Emblema picta picta Mathews, Nov. Zool., Vol. XVIII., p. 428, Jan. 31st, 1912; *id.*, List Birds Austr., p. 299, 1913.

Emblema picta territorii Mathews, Nov. Zool., Vol. XVIII., p. 428, Jan. 31st, 1912: Alexandra, Northern Territory; *id.*, List Birds Austr., p. 299, 1913.

Emblema picta coongani Mathews, Nov. Zool., Vol. XVIII., p. 428, Jan. 31st, 1912: Coongan River, Mid-West Australia; *id.*, List Birds Austr., p. 299, 1913.

Emblema picta clelandi Mathews, Austral Avian Record, Vol. II., pt. 5, p. 102, Sept. 24th, 1914: Roebuck Bay, North-west Australia.

Emblema picta ethelæ Mathews, *ib.*, p. 103: Hermansburg, MacDonnell Ranges, Central Australia; S. A. White, Emu, Vol. XIV., p. 191, 1915: Central Australia.

DISTRIBUTION. Central and North-west Australia, ranging from MacDonnell Ranges northward to Alexandra, and westward to the Coongan River and Kimberley district.



H Gronvold.del

Witherby & C^o

EMBLEMA PICTA
(PAINTED FINCH)



PAINTED FINCH.

Adult male. Top of the head, back and wings deep brown, with a vinous tinge; rump crimson; upper tail-coverts black on their basal half, terminal half crimson; tail blackish-brown; a narrow line of feathers at the base of the upper mandible, lores and feathers surrounding the eye dark crimson; under-surface of the body deep glossy-black, all the feathers on the sides of the face, chin and throat broadly tipped with dark crimson, which is continued down the middle of the belly; feathers of the sides of the body with a subterminal spot of pearly-white; under-surface of quills brownish-grey. Eyes white, bill black with scarlet tip, lower scarlet with blue base, feet fleshy. Total length 106 mm.; culmen 11, wing 58, tail 35, tarsus 15. Figured. Collected at Roebuck Bay, North-west Australia, on the 12th of December, 1895, and is the type of *E. p. clelandi*.

Adult female. Head, back and wings deep brown, slightly washed with vinous; middle of the lower-back and rump dull crimson, upper tail-coverts bright crimson; tail blackish-brown, the central feathers margined with dull crimson; lores and feathers surrounding the eye and at the base of the lower mandible dull crimson; throat black with minute spot of white at the tips of the feathers, throat and chest black with larger spots of white; sides of the body brownish-black with a large white spot at the extremity of each feather, the white spots having a tinge of brown on the upper-part; under tail-coverts black; under-surface of quills brownish-grey. Eyes white, feet and legs fleshy, bill mandible black with scarlet tip, lower scarlet with cobalt base. Total length 98 mm.; culmen 11, wing 59, tail 34, tarsus 15. Figured. Collected at the North-west Cape, Mid-west Australia, on the 29th of July, 1916.

Immature male. General colour of the upper-surface of the body including the cheeks and sides of the neck brown, strongly washed on the head and mantle with carmine; lower back and rump crimson; upper tail-coverts black on their basal half and crimson on their terminal portion; tail brownish-black, margined on their outer web with dull crimson; throat and fore-neck black with minute spots of white; chest and sides of the body black, each feather submarginally edged with white; middle of the belly and the under tail-coverts black. Eyes dull brown, feet and tarsus brown, bill black with a tinge of red on gonys. Figured. Collected near Wyndham, North-west Australia, on the 1st of August, 1909.

Immature female. Head, including the lores, cheeks, back of the neck, mantle and wing-coverts, reddish-brown; lower back reddish-brown, washed with dull crimson; rump and upper tail-coverts glossy crimson; flight-feathers ash-brown, margined on the outer web with brownish-buff; chin and throat blackish-brown, each feather with a spot of white at the extremity; chest and sides of the body similarly coloured, but the white spots more concentric and fringed with brown; middle of the breast and belly brownish-black; under tail-coverts black with white margins; thighs reddish-brown; under wing-coverts brownish-buff, spotted with white; under-surface of quills ash-brown, margined on the inner web with brownish-buff; tail blackish-brown, fringed on the outer web with dull crimson. Eyes white, feet and tarsus pale brown, bill with basal half of upper mandible black, remainder and lower mandible red, base of lower leaden-blue. Figured. Collected on Hall's Creek, Kimberley Gold Fields, North-west Australia, on the 10th of July, 1909.

Eggs. Four to five eggs form the clutch. A clutch of four eggs taken at the Coongan River, Mid-western Australia, on the 20th of September, 1908, is pure white. Rounded ovals in shape. Surface of shell fine, smooth, and almost devoid of gloss. 13-15 by 11 mm.

Nest. A bottle-shaped structure, placed on its side, and composed of dried grasses well woven in together, and lined with feathers. Dimensions over all: about

THE BIRDS OF AUSTRALIA.

8 to 9 inches long, by 15 inches or more in circumference at the widest part. Usually placed low down in a bush, or tuft of *spinifex*.

Breeding-months. Probably August to December.

GOULD recorded: "This beautiful Finch is a native of the north-west coast of Australia, where it was procured by the late Mr. Bynoe. The single individual sent me by that gentleman was unaccompanied by any account whatever of its habits and economy. The example is, I believe, all that has ever been seen; I regret to say it no longer graces my collection, having been stolen therefrom, together with some other valuable birds, in the year 1846."

Mr. Tom Carter has written me: "The first specimen of the Painted Finch obtained (and seen) was shot off a ledge of the great cliffs of the Yardie Creek (Jacob Remessens River) near North-West Cape on April 5th, 1898. After that date small parties of the birds were seen on several occasions, and I think there is no doubt that they have extended their range, as they were seen in fresh localities, and such beautiful and boldly marked birds are likely to attract attention. In October, 1900, I shot two from a small party about 30 miles inland, S.E. of Point Cloates. From May to September in 1901, many small parties were often seen from six to ten in number, feeding on the rocky ranges of the North-West Cape Peninsula. All birds obtained had their crops containing what seemed to be small grass seeds. Dec. 10, 1902. They were numerous in the Yardie Creek and drinking at the permanent pools there. On one occasion I counted thirty perched on one of the huge boulders alongside a pool. At another place on this creek, where water drips from the roof of a large cave, Painted Finches and Keartland Honey-eaters were drinking from a little 'dub' on the floor. I was told by a friend that during a heat wave at Pardoo (Lat. 20° S.) in 1910, considerable numbers of these birds appeared, and several were caught *inside his house*, while sheltering from the heat. His natives said they did not know the birds. In September, 1913, I had good evidence that a few of these birds breed near Carnarvon (my informant made a specialty of caged Finches)."

Dr. Cleland has written that he found a nest with bird on it (caught) in a tuft of *spinifex* near bank of dry creek, Strelly River, Aug. 11, 1907; the nest contained one unfledged young and two pure white eggs.

Mr. J. P. Rogers's notes read: "A few small flocks of these Finches were seen flying up to Mungi Rock hole for water. The only places I have seen these birds resident in are rough *spinifex*-covered hills or stony plains covered with *spinifex*. On the Louisa River, one of the heads of the Fitzroy, this species is very numerous, and is also plentiful around Hall's Creek, Kimberley



PAINTED FINCH.

Goldfields. I have never seen it near the coast in West Kimberley; the nearest point I have found it resident is Mount Anderson, Fitzroy River, which is sixty miles inland. Here at certain springs one can usually see a few birds by watching the water. Stragglers have been caught in Derby by trappers."

Kearland has written from Central Australia: "These beautiful Finches were first found in the rocky gorges of McMinn's Range, and subsequently at Stokes' Pass, Glen of Palms, and Bagot's Spring. They are very timid and somewhat difficult to approach. Although there is no sexual difference in plumage, they vary with age. The scarlet patch, so conspicuous on the breasts of adults, is almost or entirely absent on the young ones, and the rich black on the under-parts of the mature birds is also replaced by a smoky black on the young. The eyes of the adults being white, give the live birds a remarkable appearance."

Hall, recording Rogers' birds from the Fitzroy River, North-west Australia, observed: "The amount of red upon the breast of the March female is almost as great in quantity as on that of the male. The April female is much paler upon the back than the other. Rogers writes: 'On 29/4/00 I found a nest of this species in a bunch of spinifex. It contained one egg. Four days later the nest was torn away and the eggs gone, which was probably the work of a Hawk or lizard. So tame is this species that two came to the camp and had a drink from the bucket. On 5th November I met it for the first time here (Livuringa). My experience so far is that it keeps near the hills.'"

Whitlock's account from the Pilbarra Goldfield reads: "Native name 'Nee-murri.' Confined to the ranges or their immediate neighbourhood. I first made its acquaintance at the crossing of Gorge Creek, where a few haunted the rocky hills adjacent to the creek. Like the other Finches, this species must have water, and comes down from the rocks with great regularity for its drink. It appears to be gregarious at all times. Even in the breeding-season I met with flocks of a dozen or more. Possibly these may have been non-breeding males, for the latter sex is more in evidence than the female in this species. I found one nest on 12th May, and a day or two later observed another pair collecting building material. The nest is invariably built in a tuft of 'buck' spinifex, and usually near the top of the tuft. They may be found near the river, amongst the ranges, or again on the big flats, provided water is near at hand. The nests are rather bulky, and loosely constructed of dead pieces of spinifex, with a lining of brown vegetable down, and often with a further bed of white vegetable down. The eggs are commonly three in number, but no doubt sometimes four are laid. They are pure white, and very small and fragile. The female is a close sitter. The plumage of the latter

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on the breast is usually dull black, with a few dirty-grey margins to the feathers, but very old females have a streak of the fiery red of the male down the centre of the breast. The males vary very much in intensity of coloration, very old birds being the most brilliantly coloured. When crouching amongst the spinifex, this Finch is very difficult to see, the brown of the upper parts harmonizing so well with the ferruginous soil."

Captain S. A. White recorded it from Central Australia as: "Very rare; only found in the deep gorges of the Musgrave Ranges."

Hill, recording a series of specimens from Central Australia, made no remarks save full measurements and details of soft parts.

This rare and well coloured species had no subspecies named until I drew up my "Reference List," when I recognised the variation as allowing easy separation into three races:

Emblema picta picta Gould.

North-west Australia (Derby).

Emblema picta territorii Mathews.

"Differs from *E. p. picta* in its darker coloration above. Alexandra, Northern Territory."

Northern Territory.

Emblema picta coongani Mathews.

"Differs from *E. p. picta* in its paler coloration. Coongan River, West Australia."

West Australia.

These were admitted without change in my 1913 "List," but a little later I wrote:

"Dr. Burton Cleland pointed out to me that Stokes in his *Discours. in Austral.*, Vol. II., 1846, p. 175, states that the type of *Emblema picta* Gould was procured on Depueh's Island, Mid-west Australia. This necessitates a re-arrangement of the subspecific names, as I arbitrarily selected Derby, North-west Australia, as a suitable locality for Gould's species. I now describe the Roebuck Bay bird as

Emblema picta clelandi.

"Differs from *E. p. picta* in being much darker above, the black on the under-surface being deeper and the red on the throat more extensive," and restrict

Emblema picta picta (Gould)

to Depueh's Island, Mid-west Australia.

I had thought of using that name for my *E. picta coongani*, but the Coongan River birds disagree too much with Gould's figure and description.

I also named

Emblema picta ethelæ.

PAINTED FINCH.

“Differs from *E. p. clelandi* in being lighter above and the tail brown not black. Hermansburg, MacDonnell Ranges.”

Central Australia.

At present then five races are named :

Emblema picta picta Gould.

Depuch's Island, Mid-west Australia.

Emblema picta clelandi Mathews.

Coastal North-west Australia.

Emblema picta coongani Mathews.

Mid-west Australia.

Emblema picta ethelæ Mathews.

Central Australia.

Emblema picta territorii Mathews.

Interior of Northern Territory.

GENUS—STEGANOPLEURA.

- STEGANOPLEURA Bonaparte, Consp.
 Gen. Av., Vol. I., pt. 2, p.
 456, 1850, before Feb. 1851
 (as of Reichenbach who gave
Stagonopleura). Type (by sub-
 sequent designation) Mathews,
 Birds Austr., Vol. VII., p. 434, 1919 *Fringilla bichenovii* Vigors & Horsfield.
- Sticteptera* Reichenbach, Die Sing.
 Vögel, pp. III., 31, (prob. after July
 1st) 1862. Type (by monotypy) *S. bichenovii* and *annulosa* =
Fringilla bichenovii Vigors & Horsfield.
- Not—
Sticteptera Guenée, Spec. Gen. Lepid., Vol. VII., p. 52, 1852.
- Stizoptera* Oberholser, Proc. Acad. Nat.
 Sci. Philad., 1899, p. 215, June 2nd.
 Type (by original designation) .. *Fringilla bichenovii* Vigors & Horsfield.
- Bichenou* Moulton, Ibis, 1923, pt. 4,
 p. 782, Oct. 1923. Type (by
 original designation) *Fringilla bichenovii* Vigors & Horsfield.

DISTINCTLY coloured Finches with small conical bills and long wedge-shaped tail.

The bill is formed much as in *Tæniopygia* but a little larger.

The wing is similarly formed, the secondaries long and equal to the fifth (apparent) primary. The tail is long and wedge-shaped, the feathers broad, about three-fourths the length of the wing; the tail-coverts, upper and under, short, less than half the length of the tail.

INTERNATIONAL INSTITUTE OF PURE AND APPLIED CHEMISTRY

1970



H. Grönvold, del

Witherby & Co.

STEGANOPLEURA BICHENOVII
 (BANDED FINCH)
 STEGANOPLEURA ANNULOSA
 (RINGED FINCH.)

STEGANOPLEURA BICHENOVII.

BANDED FINCH.

(PLATE 564.)

FRINGILLA BICHENOVII Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 258, Feb. 17th, 1827: Broad Sound, Queensland.

Fringilla bichenovii Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 258, 1827.

Amadina annulosa Gould, Proc. Zool. Soc. (Lond.), 1839, p. 143, March 1840: N.W. Coast Australia.

Estrelda bichenovii Gould, Birds Austr., pt. v. (Vol. III., pl. 80), Dec. 1st, 1841: Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Estrelda annulosa Gould, Birds Austr., pt. v. (Vol. III., pl. 81), Dec. 1st, 1841; Ramsay, *id.*, *ib.*

Amadina bichenovii Gray, Genera Birds, Vol. II., p. 370, 1847.

Steganopleura bichenovii Bonaparte, Consp. Gen. Av., Vol. I., p. 456, 1850; Mathews, Birds Austr., Vol. VII., p. 434, 1919.

Steganopleura annulosa Bonaparte, Consp. Gen. Av., Vol. I., p. 456, 1850.

Stictoptera bichenovii Reichenbach, Die Sing. Vögel, p. 31, 1862; Gould, Handb. Birds Austr., Vol. I., p. 409, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 313, 1890; Hall, Key Birds Austr., p. 50, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 485, 1901; Smedley, Emu, Vol. IV., p. 68, 1904 (Q.); Berney, *ib.*, Vol. VI., p. 41, 1906 (Q.); Mathews, Handl. Birds Austral., p. 102, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 279, 1909; Hill, Emu, Vol. XII., p. 260, 1913 (N.T.); Maegillivray, *ib.*, Vol. XIII., p. 181, 1914 (N.Q.); Black, *ib.*, Vol. XVII., p. 228, 1918 (N.Q.); C. Walker, *ib.*, Vol. XVIII., p. 132, 1918 (N.S.W.).

Stictoptera annulosa Reichenbach, Die Sing. Vögel, p. 31, 1862; Gould, Handb. Birds Austr., Vol. I., p. 410, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 314, 1890; Hall, Key Birds Austr., p. 50, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 486, 1901; Hall, Emu, Vol. II., p. 57, 1902 (N.W.A.); Le Souëf, *ib.*, p. 149, 1903 (N.T.); Mathews, Handl. Birds Austral., p. 101, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 280, 1909; Mathews, Emu, Vol. IX., pp. 15-63, 1909; Hill, *ib.*, Vol. X., p. 289, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 260, 1913 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 229, 1917 (N.T.).

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- Stizoptera bichenovii* Oberholser, Proc. Acad. Nat. Sci. Philad., 1899, p. 215; Barnard, Emu, Vol. XIV., p. 49, 1914 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 208, 1918 (N.Q.).
- Stizoptera annulosa* Oberholser, Proc. Acad. Nat. Sci. Philad., 1899, p. 215; White, Emu, Vol. XXI., p. 169, 1922 (Eggs); Campbell, *ib.*, p. 194.
- Munia bichenovii bichenovii* Mathews, Nov. Zool., Vol. XVIII., p. 429, Jan. 31st, 1912.
- Munia bichenovii pallescens* Mathews, *ib.*: (Bourke) New South Wales.
- Munia bichenovii bandi* Mathews, *ib.*: Alexandra, Northern Territory.
- Munia bichenovii annulosa* Mathews, *ib.*
- Stizoptera bichenovii bichenovii* Mathews, List Birds Austr., p. 299, 1913.
- Stizoptera bichenovii pallescens* Mathews, *ib.*
- Stizoptera bichenovii bandi* Mathews, *ib.*
- Stizoptera bichenovii annulosa* Mathews, *ib.*; *id.*, South Austr. Orn., Vol. III., p. 227, 1918.
- Steganopleura bichenovii* Mathews, Birds Austr., Vol. VII., p. 434, 1919.
- Steganopleura bichenovii pallescens* Mathews, *ib.*
- Steganopleura bichenovii bandi* Mathews, *ib.*
- Steganopleura bichenovii annulosa* Mathews, *ib.*

DISTRIBUTION. New South Wales, Queensland, Northern Territory, North-west Australia.

Adult male. Fore-head and fore-part of the head black; a broad line over the eye and across the throat black; hinder-part of the head greyish-brown, indistinctly barred with ash-grey; neck, mantle and lower back greyish-white regularly barred with greyish-brown, a bar of black across the lower back; rump, upper tail-coverts and tail intense black; innermost secondaries ash-grey, spotted on both webs with white; primaries and outermost secondaries ash-grey, spotted and marked on the outer web with white; throat white, divided from the greyish-white chest by a broad collar of black feathers, another black band separates the chest from the isabelline-white belly; flanks white; under tail-coverts black; under wing-coverts white; under-surface of wings ash-grey. Eyes red, feet and tarsus leaden-blue, bill bluish-grey. Total length 115 mm.; culmen 8, wing 52, tail 43, tarsus 13. Figured. Collected on Parry's Creek, East Kimberley, North-west Australia, on the 4th of January, 1909 (black rump). (*annulosa*.)

Adult female. Similar to the adult male.

Adult female. Fore-head, a narrow line over the eyes, down the sides of the neck, and encircling the throat, black; crown and back of the neck light brown, each feather finely barred and vermiculated with dusky-brown; back of the neck and mantle greyish-ash, evenly and closely barred with dusky-brown; sides of the lower back with a broad band of deep black; rump white; upper tail-coverts deep black; tail bronze-black; wing-coverts and scapulars brownish-black, densely covered with white spots and markings; primaries and secondaries brownish-ash, marked and spotted on the outer web with white; lores, feathers surrounding the eye, chin, throat and chest white; a distinct black band across the chest; belly, abdomen and sides of the body yellowish-white; vent and under tail-coverts deep black; under-surface of wing ash-grey, margined on the inner web with rich buff. Eyes black, feet and bill grey. Total length 100 mm.; culmen 8, wing 52, tail 38, tarsus 14. Figured. Collected near Normanton, Gulf of Carpentaria, North Queensland, on the 8th of May, 1914 (white rump). (*bichenovii*.)

Adult male. Similar to the adult female.

BANDED FINCH.

Adult female. Fore-head, a line over each eye bordering the ear-coverts and encircling the throat, black; top of the head ash-brown, indistinctly barred with blackish-brown; back of the neck paler; mantle brownish-ash, regularly barred with brownish-white; a bar of black feathers across the lower back; rump white; upper tail-coverts black; tail uniform black; wing-coverts and innermost secondaries black covered with spots and markings of white; four outer primaries uniform blackish-brown, innermost primaries and outermost secondaries blackish-brown, spotted with white on the margin of the outer web; throat white, separated from the greyish-white chest by a black collar; belly and sides of the body white tinged with fawn-colour, which is again separated from the chest by another black band; under tail-coverts black; under-surface of wings greyish-ash. Total length 95 mm.; culmen 9, wing 51, tail 38, tarsus 14. Collected at Bourke, Western New South Wales, in April, 1893, and is the type of *Munia bichenovii pallescens* (middle figure).

Nestling. Head, neck, mantle and lower back ashy-olive, very indistinctly barred with grey; rump and upper tail-coverts black; primaries and outer secondaries brownish-black, barred on the outer web with white; innermost secondaries broadly barred across both webs with dusky-white; cheeks and sides of the face white, a patch of black feathers behind the ear; throat white; a collar round the fore-neck formed by the black-edged feathers of the lower throat; chest, sides and flanks greyish-white; middle of the abdomen whitish; under tail-coverts black; tail above and below blackish; under-surface of wing ash-grey, margined on the inner web with whitish. Collected at Derby, North-west Australia, on the 4th of July, 1901.

Steganopleura bichenovii.

Eggs. Four to five eggs form the clutch. A clutch of five eggs taken near Townsville, North Queensland, on the 11th of February, 1900, is of a pure white. Ovals in shape. Surface of shell fine and smooth, but devoid of gloss. 15 by 10 mm.

Nest. The usual bottle-shaped structure, composed of dried grasses, and lined with feathers and other soft material. Generally built in a small bush or tall grass growth.

Breeding-months. July to December. Some years the seasons are earlier and later, according to the rains.

Steganopleura annulosa.

Eggs. Four to six eggs usually form the clutch. A clutch of five eggs taken on Groote Eylandt, Northern Territory, on the 15th of June, 1921, is white, possessing the very faintest trace of a pale bluish tinge. Sometimes the eggs of this species possess many very minute specks of blackish-brown at the larger end. Swollen ovals in shape. Surface of shell smooth, but devoid of gloss. 15 by 10 mm.

Nest. The usual bottle-shaped structure, composed of dried grasses, and lined with finer material.

Breeding-months. February to June and July to December.

VIGORS and Horsfield named this species after the then Secretary of the Linnean Society from specimens in that Society's Museum "discovered by Mr. Brown at Shoalwater Bay and Broad Sound, September 1802."

Gould a little later met with it and recorded: "This beautiful little Finch inhabits the extensive plains of the interior, particularly such portions of them as are thinly intersected with low scrubby trees and bushes. My specimens

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were obtained on the Liverpool and Brezi Plains. The Bichenos's Finch is very tame in its disposition, and is generally to be observed on the ground, occupied in procuring the seeds of the grasses and other small plants, which form its principal food. When I visited the interior in the month of December, it was assembled in small flocks of from four to eight in number; these, when flushed from among the grasses, would perch on the neighbouring bushes rather than fly off to any distance, and indeed the form of its wings and tail indicate that it possesses lesser powers of flight than many of the other Finches."

Berney wrote from the Richmond district, North Queensland: "This species only comes to us in the worst of bad times, leaving again as soon as the drought breaks. I do not think it ever nests here."

Capt. S. A. White writes: "Were met with in large flocks near Daly Water; they were feeding in the long grass along a creek bank; after the manner of many of the Finch tribe they were flying up and down from the ground into the shrubs, calling insistently in their sharp little note; did not see any signs of nesting in May and June. Met with the Queensland white-rumped variety several times; they seem to frequent the clearings and open spaces in scrub country. Found these birds very plentiful in and around the Incbil Forest north of Brisbane."

Macgillivray has written: "Many of these birds in the Gulf country. Several nests were found in and after the wet season, the usual clutch being four to six. The nests on the Cloneurry River were usually composed of fine rootlets and placed in the tea-tree. At Augustus Downs, on the Leichhardt, they were building in the cane grass. Here they were nesting freely in June. On the Gregory River they were still nesting in July."

Later he added: "When at Cooktown, on our way up the coast, we noticed several Banded Finches in some small trees near the wharf. They were common on the Archer River in June, where several nests containing eggs were found. They were also nesting in April on the Watson."

Gould described this species, writing: "Was one of several, collected by the officers of H.M.S. 'Beagle,' and for the specimens from which my descriptions were taken I am indebted to Messrs. Bynoe and Dring. The bird has also been brought to England by Sir George Grey; all these specimens were collected on the north-west coast, and it is not unfrequently seen on the Cobourg Peninsula, where it inhabits the grassy banks of running streams, in small families of from six to ten in number."

Mr. J. P. Rogers' notes read: "About the 9th Aug., 1908, I had all the dry grass, herbage, etc., cleared away from round my house for a distance of seven yards; three days afterwards there were fully fifty Finches (*S. annulosa*) gathered to feed on the seed that had been exposed.

BANDED FINCH.

They gradually disappeared as the seed was eaten. They got very tame and would often come into the bough shed at the back after crumbs. Sept. 23rd, 1908: At dusk I saw five fly out of a nest, which formed a roosting place. Oct. 1st, 1908: They have a few notes which are sung in an undertone when the birds are perched on the bushes. It is hard to be sure of the individual, as they stop when one approaches. Feb. 1st, 1909: Nest found containing two eggs, placed in a horizontal fork of a small bauhinia about six feet from the ground; at sundown both birds were on the nest." Later he wrote: "A few of these birds were seen at a big spring fourteen miles down Maragle Creek from my camp. On my way up the Fitzroy to Jegurra from Maragle Creek I saw a good many. On Jegurra Creek the birds were seen for a short distance up the creek from the river. This species is usually found near rivers, springs and waterholes and rarely goes far from cover, preferring to feed close to bushes, cane grass, etc., in which it takes refuge when alarmed. Is fairly numerous along the Fitzroy River."

Mr. Rogers told me that he has seen this Finch in captivity with the space between the black bands on the breast turned black.

Hill recorded it from Napier Broome Bay, North-west Kimberley, as "A common bird near the coast and on the sandstone hills, where eggs were taken from March to June. As a rule the nests are built in exposed positions in stunted scrub (*Calycotrix microphylla* Cunn.), but it is not unusual to find them very carefully concealed amongst the dead leaves of pandanus palms. Fine twigs and grass or grass only are the materials used in nest building. From three to eight eggs are laid.

Then from Borroloola, Northern Territory, Hill reported: "*Stictoptera bichenovii*. Found in the same localities as *S. annulosa*, which species they closely resemble in habits, though they do not appear to fraternise.

"*Stictoptera annulosa*. Generally found near the river in tall grass and low bushes in parties of from six to twelve birds. The nesting season commences in January."

It is unfortunate that in making this statement Hill did not confirm it with specimens, as Barnard later wrote from the same locality:

"*Stizoptera bichenovii* (*S. b. bandi*). Very common in the brush along the McArthur River, where they bred freely."

H. L. White recorded McLennan's notes from the same place under the name *Stictoptera annulosa*. "Macarthur River, 7/8/15: Noticed when passing in boat. Cape Barrow, 25/8/15: Some seen in thick brush in forest. King River: Small flocks always along river flat and about springs. Crop, seeds."

Campbell then recorded a pair from Groote Eylandt, Gulf of Carpentaria, as "Typical with *black* rump, not *white* as in *bichenovii*."

THE BIRDS OF AUSTRALIA.

I have quoted the above notes as there can be little question from the birds examined that these birds are very closely related and appear only subspecifically separable, and it will be noted that the above accounts are more or less contradictory and apparently depend upon more or less careful observation with recourse to series of specimens actually procured.

The Banded Finch was named by Vigors and Horsfield from Broad Sound, Queensland, and when Gould received specimens from North-west Australia collected by Bynoe and Dring he separated them as a distinct species, remarking that it differed in the spots and markings on the upper-surface being rather less defined, and in the colouring of the rump, which in this species is black, while in the other it is white. As the black and white colouring of the rump varies in quantity, the forms are really only of subspecific rank, and in my "Reference List" in 1912 I so ranged these, adding two other subspecies, placing them under the genus *Munia* thus:

Munia bichenovii bichenovii (Vigors and Horsfield).
Queensland.

Munia bichenovii pallescens Mathews.

"Differs from *M. b. bichenovii* in being lighter above and paler below. Bourke, New South Wales."

New South Wales.

Munia bichenovii bandi Mathews.

"A pallid form intermediate between *M. b. bichenovii* and *M. b. annulosa*; not as pale as the latter, though paler than *M. l. pallescens* Alexandra, Northern Territory."

Northern Territory.

Munia bichenovii annulosa (Gould).

North-west Australia.

In his "Handbook" Gould used the genus name *Stictoptera*, proposed by Reichenbach for this species, and Sharpe followed in the *Catalogue of Birds in the British Museum*, and hence custom followed. Oberholser in 1899 pointed out that this name was preoccupied and therefore unavailable and proposed *Stizoptera* to replace it. Oberholser's genus name was accepted by me in my 1913 "List," the above four subspecies being recognised.

Recently, as given under *Tavistocka* (ante), I showed that *Steganopleura* was first legitimately used by Bonaparte in this connection, and I therefore here replace Oberholser's name by Bonaparte's, but still admit the four subspecies thus:

Steganopleura bichenovii bichenovii (Vigors and Horsfield).

Steganopleura bichenovii pallescens (Mathews) for the white-rumped form
and

Steganopleura bichenovii bandi (Mathews).

Steganopleura bichenovii annulosa (Gould) for the black-rumped form.

GENUS—DONACOLA.

DONACOLA Gould, Birds Austr., pt. 7 (Vol. III.,
pl. 94), June 1st, 1842. Type (by mono-
typy) *Amadina castaneothorax* Gould.

Also spelt—

Donacicola Selater, Proc. Zool. Soc. (Lond.), 1879, p. 449.

Weebongia Lesson, Echo du Monde Savant,
12th year, No. 13, 1845 (Feb. 23rd), col.
295 (cf. Ménegeaux, Reprint Art. Ornith.
Lesson, p. 232, 1913). Type (by mono-
typy) *Weebongia albiventer* Lesson=
Amadina castaneothorax Gould.

Also spelt—

Weeborgia Reichenbach, Die Sing. Vögel, p. 27, 1862.

SMALL Finches with heavy bills and graduated tails, central ones pointed and longest.

These Sharpe classed under *Munia*, an incongruous collection of small Finches with heavy bills and graduate tail of varied styles of coloration. There cannot be the slightest doubt that colour is of higher value in this family than bill or tail structure.

The bill is stouter and shorter than in any of the preceding forms and the bird is of a heavy build; the bill is swollen, the culmen arched, the tip pointed and the upper and under mandibles about equal in depth, the depth of the bill at the base being more than the width. The nostrils are consequently forced more to the top and are nearly open; no nasal bristles, but rictals are present.

The wing is long, formed as usual with the secondaries shorter, not reaching as long as the (apparent) sixth primary.

The tail is graduated, the two central longer and pointed; the lower tail-coverts nearly as long as the tail, the upper tail-coverts not so long, but still more than half the length of the tail.

The legs are short, the toes and claws long; the middle toe is as long as the inner toe and claw, which equals the outer; while the hind-toe is as long as the inner toe but is stouter, and the claw is much longer and stouter.

Key to the Species.

Breast buff, with black band dividing it from white	
under-surface	<i>castaneothorax.</i>
No black band on lower breast, under-surface uniform	<i>flaviprymna.</i>

DONACOLA CASTANEOTHORAX.

CHESTNUT-BREADED FINCH.

(PLATE 565.)

AMADINA CASTANEOTHORAX Gould, Synops. Birds Austr., pt. II., pl. 21, April 1st, 1837:
"Australia" = New South Wales.

Amadina castaneothorax Gould, Synops. Birds Austr., pt. II., 1837.

*Donacola** *castaneothorax*† Gould, Birds Austr., pt. VII. (Vol. III., pl. 94), June 1st., 1842;
id., Handb. Birds Austr., Vol. I., p. 426, 1865; Ramsay, Proc. Linn. Soc. N.S.W.,
Vol. II., p. 187, 1878; Sharpe, Rep. Zool., Coll. Voy. Alert, p. 21, 1884; Ramsay,
Tab. List Austr. Birds, p. 10, 1888.

Weebongia albiventer Lesson, Echo du Monde Savant, 12th year, No. 13, Feb. 23rd, 1845,
col. 295: "Nouvelle Hollande" = New South Wales; Menegaux, Reprint Articles
d'Ornith. Lesson, p. 232, 1913.

Donacola bivittata Reichenbach, Die Sing. Vögel, p. 28, 1862 = New South Wales.

Munia castaneithorax Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 340, 1890; Hall, Key
Birds Austr., p. 50, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 487,
1901; Webb, Emu, Vol. II., p. 29, 1902 (N.Q.); Hall, *ib.*, p. 57 (N.W.A.); Barnard,
ib., Vol. III., p. 233, 1904 (N.Q.); Smedley, *ib.*, Vol. IV., p. 68, 1904 (Q.); Mathews,
Handl. Birds Austral., p. 102, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II.,
p. 281, 1909; Broadbent, Emu, Vol. X., p. 237, 1910 (N.Q.); Hill, *ib.*, p. 289, 1911
(N.W.A.); Barnard, *ib.*, Vol. XI., p. 29, 1911 (N.Q.); Macgillivray, *ib.*, Vol. XIII.,
p. 181, 1914 (N.Q.); Cornwall, *ib.*, Vol. XV., pl. XLIII., p. 257, 1916; Campbell
and Barnard, *ib.*, Vol. XVII., p. 35, 1917 (N.Q.); Macgillivray, *ib.*, p. 207, 1918
(N.Q.); S. A. White, *ib.*, Vol. XIX., p. 226, 1920 (Q.).

Munia castaneothorax assimilis Mathews, Bull. Brit. Ornith. Club., Vol. XXVII., p. 28,
Dec. 1st, 1910: Eureka, Northern Territory; *id.*, Nov. Zool., Vol. XVIII., p. 429,
1912.

Munia castaneothorax castaneothorax Mathews, Nov. Zool., Vol. XVIII., p. 429, 1912.

Munia castaneothorax gangi Mathews, *ib.*, p. 430, Jan. 31st, 1912: Napier Broome Bay,
North-west Australia.

Munia castaneothorax apleyi Mathews, Austral Avian Record, Vol. I., pt. 2, p. 52, April 2nd,
1912: Melville Island.

* Also spelt *Donacicola*.† Also spelt *castaneithorax*.



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DONACOLA CASTANEOOTHORAX
 (CHESTNUT-BREADED FINCH)
 DONACOLA FLAVIPRYMNA
 (YELLOW-RUMPED FINCH.)

1

CHESTNUT-BREADED FINCH.

- Lonchura castaneothorax castaneothorax* Mathews, List Birds Austr., p. 300, 1913.
Lonchura castaneothorax assimilis Mathews, *ib.*
Lonchura castaneothorax apseyi Mathews, *ib.*
Lonchura castaneothorax gangi Mathews, *ib.*
Lonchura thorpei Mathews, Austral Av. Rec., Vol. II., pt. 4, p. 78, Dec. 29th, 1913: Fitzroy River, North-west Australia.
Munia assimilis H. L. White, Emu, Vol. XVI., p. 229, 1917 (N.T.); Campbell, *ib.*, Vol. XX., p. 64, 1920 (N.Q.).
Donacola castaneothorax northi Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 40, Feb. 21st, 1923: Cairns, North Queensland.
Donacola castaneothorax castaneothorax Mathews, *ib.*

DISTRIBUTION. Northern Tropical Australia, ranging on to the east into Northern New South Wales, and on the west to Napier Broome Bay.

Adult male. Top of the head and neck greyish-brown, each feather bordered with greyish-white, giving a scaled appearance; mantle and lower back pale chestnut, each feather margined with pale lilac; rump and upper tail-coverts golden chestnut; central tail-feathers blackish-brown, margined on the outer web with straw-colour, remainder of tail blackish-brown; wing-coverts and secondaries reddish-chestnut; primaries ash-brown margined on the outer web with dull chestnut; lores, sides of the face and throat black; the whole chest pinkish-chestnut; a broad black band bordering the sides of the chest and across the lower chest; belly white; sides of the abdomen, thighs and the under tail-coverts black; under-surface of wings ash-grey, margined on the inner web with pale chestnut. Eyes brown, feet and tarsus leaden blue; bill bluish-grey. Total length 115 mm.; culmen 10, wing 57, tail 36, tarsus 17. Figured. Collected on Apsley Straits, Melville Island, Northern Territory, on the 4th of December, 1911, and is the type of *Munia castaneothorax apseyi*.

Adult female. Similar to the adult male.

Young female. The whole of the upper-parts dark olive-brown, darkest on the head and lightest on the rump; wing-coverts like the back; secondaries ashy-brown margined on the outer web with brownish-buff; primaries ash-brown fringed on the outer web with buff; tail ash-brown, the central pair fringed on both webs with buff, the outer pairs slightly margined on the outer webs with buff; cheeks olive-brown, each feather with a pronounced white shaft-streak; throat buffish-white; upper chest brownish-buff; lower chest, belly, sides of the body, flanks and under tail-coverts whitish-buff; under-surface of wings ash-grey, bordered on the the inner web with buff. Figured. Collected in Queensland.

Eggs. Four to eight eggs form the clutch, usually six. A clutch of seven eggs taken at South Grafton, Clarence River, New South Wales, on the 10th of March, 1900, is of a pure white. Ovals in shape, rather pointed at the smaller end. Surface of shell fine and smooth and devoid of gloss. 16 by 11 mm.

Nest. A large oval structure, with a long spouted entrance at one end. Composed of dried grasses, and chiefly the long flat stems (ribbon-like) of the blady grass so common on the coasts of New South Wales and Queensland. Usually placed in a mass of blady grass or other tall growth of weeds, vines, small bush, etc., and always within a few feet of the ground. Dimensions over all: 6 to 8 inches long, with a circumference of 15 inches at the widest part.

Breeding-months. Vary considerably, but the most usual are July to December (to April).

THE BIRDS OF AUSTRALIA.

GOULD described this species before he went to Australia, and much later wrote: "I had not the good fortune to meet with this bird in a state of nature, but I have been informed that it frequents reed-beds bordering the banks of the rivers and lagoons of the eastern coast, and that it much resembles the Bearded Tit (*Calamophilus biarmicus*) of Europe in the alertness with which it passes up and down the upright stems of the reeds, from the lower part to the very top, a habit for which the lengthened and curved form of its claws seems well adapted."

Mr. J. P. Rogers wrote from Melville Island: "Dec. 3rd, 1911: This evening after sundown I heard strange birds in the mangroves in front of my camp. It was too late to shoot or see the birds, but just at daylight next morning I was out and found the mangroves alive with these birds. One shot killed four males and one female, and the flock then left for Bathurst Island about a quarter of a mile away. Dec. 4th: Again after sundown a large flock of these birds came to the mangroves, fully 200 birds in the flock; this lot only remained a few moments and then passed on to Bathurst Island. On the 29th November a large flock of Finches passed the camp after sundown, which I then thought were *P. gouldiae*, but I now think they would be of this species."

Ramsay wrote: "This species is widely distributed over the whole of the northern parts of New South Wales and Queensland. It breeds plentifully in the extensive grass beds of the Clarence and Richmond River districts, also at Maryborough, Queensland."

Broadbent also noted: "Commonly called the Bullfinch or 'Bully,' is plentiful on the Bellenden plains about the latter part of the year. It may be of interest to note that I saw a flock of these Finches at Chesters' Point, on Thursday Island, during one of my visits to that place, though I have not met with them on the immediate mainland of Cape York Peninsula

Hill wrote from North-west Australia: "These birds were very numerous on Heela Island on 14/11/09, and appeared to be resting after a long flight. Very few were seen at Napier Broome Bay until May, when many small flocks of ten to twenty birds (generally in immature plumage) arrived."

Barnard then recorded from Cape York: "Only two pairs seen. One pair built a large, bulky nest of grass in a large tussock about 20 yards from where I was camped, but deserted the nest as soon as it was finished."

Macgillivray added: "Found only at Cape York, where they nest in the long grass growing on the small, rocky islets near the mainland, seldom being found to nest on the mainland itself. Stomach contents grass seeds."

Later, from the Claudie River district, Macgillivray wrote: "Chestnut-breasted Finches were first noted after the wet season had started on the 24th

CHESTNUT-BREASTED FINCH.

January. As Mr. McLennan and I came out of a swamp (where we had been wading) into long grass we saw a male carrying grass to a nearly completed nest in the grass. The female was inside acting as builder whilst he brought the material. The nest, composed of dry grass, was somewhat spherical in shape, and supported in the upper part of the strongly-growing grass. The stems of this grass are stiff and easily able to support a fairly heavy nest at two to three feet from the ground. The birds were common on the Watson River, where they were breeding in April."

H. L. White wrote: "King River. 16/11/15. Several small flocks coming to water at spring up river. Numerous about springs till the rains. Crop seeds." These being McLennan's notes.

Campbell reported under the name *Munia assimilis*: "Two ♂♂. These were the only Finches collected on Moa Island (Torres Straits) by Mr. McLennan. They resemble *assimilis* except having lighter coloured (cinnamon-buff) upper tail-coverts. Observed several times in families or small flocks about the grass flats."

As pointed out, Gould described this species before he went to Australia, and, later, Lesson and Reichenbach named plumage stages of the same form. In my "Reference List" in 1912 I selected Cairns, Queensland, as the type locality of Gould and Reichenbach's names, as these were simply from Australia, and at that time I knew the bird commonly from Cairns. However, as Ramsay stated it was abundant in Northern New South Wales, it seems much more accurate to select New South Wales as the type-locality, as very few, if any, birds could have reached Europe from Cairns as early as 1837.

No subspecies were recognised when I named in 1910

Munia castaneothorax assimilis.

"Differs from *Munia castaneothorax* (Gould) in having the chestnut band on the chest much darker in colour, and the upper tail-coverts rich chestnut-brown. Wing 55 mm. Eureka, Northern Territory."

Then in 1912 in my "Reference List" I arranged:

Munia castaneothorax castaneothorax (Gould).

Queensland.

Munia castaneothorax assimilis Mathews.

Northern Territory.

Munia castaneothorax gangi Mathews.

"Differs from *M. c. assimilis* in its paler chestnut band, browner head, brighter red on the rump, and greener upper tail-coverts. Napier Broome Bay, North-west Australia."

North-west Australia.

THE BIRDS OF AUSTRALIA.

I then added a little later

Munia castaneothorax apsleyi

“Differs from *M. c. assimilis* in its lighter colour generally and darker orange-red rump. Melville Island.”

Melville Island.

In my 1913 “List” I used instead of *Munia* the genus name *Lonchura*, which had priority over *Munia* but which had been rejected on account of the prior *Lonchurus*. At present there is agreement that names in -us, -a and -um, derived from the same bases, as these undoubtedly are, are not both acceptable. *Munia* would be revived, but as these Finches are very difficult to classify in large genera, as I show in connection with *Erythura* and *Poëphila*, I here make use of *Donacola* proposed for the Australian species.

The subspecies would then be named

Donacola castaneothorax castaneothorax Gould.

New South Wales and South Queensland.

As synonyms, *Weebongia albiventer* Lesson (type locality, New South Wales, not Cairns) and *Donacola bivittata* Reichenbach (type locality New South Wales, not Cairns).

Donacola castaneothorax northi Mathews.

“Differs from *D. c. castaneothorax* Gould in being paler in general coloration, with the rump not so reddish-brown, the band on the breast darker.

North Queensland.

Donacola castaneothorax assimilis (Mathews).

Northern Territory.

Donacola castaneothorax apsleyi (Mathews).

Melville Island.

Donacola castaneothorax gangi (Mathews).

North-west Australia.

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DONACOLA FLAVIPRYMNA
(YELLOW-RUMPED FINCH)

DONACOLA FLAVIPRYMNA.

YELLOW-RUMPED FINCH.

(PLATES 565-566.)

DONACOLA FLAVIPRYMNA Gould, Proc. Zool. Soc. (Lond.) 1845, p. 80, October: North coast of Australia=Victoria River, Northern Territory.

Donacola flaviprymna Gould, Proc. Zool. Soc. (Lond.) 1845, p. 80; *id.*, Birds Austr., pt. XXIII. (Vol. III., pl. 96), June 1st, 1846.

Amadina flaviprymna Gray, Genera Birds, Vol. II., p. 370, 1847.

Dermophrys flaviprymnus Cabanis, Mus. Heine., Vol. I., p. 174, note, 1857.

Munia flaviprymna Gould, Handb. Birds Austr., Vol. I., p. 428, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 345, 1890; Hall, Key Birds Austr., p. 50, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 488, 1901; North, Proc. Linn. Soc. N.S.W., Vol. XXIX., p. 130, 1904; Le Souëf, Emu, Vol. IV., p. 20, 1904; Mathews, *ib.*, Vol. IX., p. 63, 1909 (N.W.A.); *id.*, Nov. Zool., Vol. XVIII., p. 430, 1912; H. L. White, Emu, Vol. XVI., p. 230, 1917 (N.T.).

Munia xanthoprymna Mathews, Handl. Birds Austral., p. 102, Jan. 1st, 1908: substitute name for *flaviprymna* Gould; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 284, 1909.

Lonchura flaviprymna Mathews, List Birds Austr., p. 300, 1913.

DISTRIBUTION. Adjoining parts of North-west Australia and Northern Territory.

Adult female. Top of the head, neck, sides of face, soiled white with dusky centres; mantle light chestnut, shading into duller chestnut on the lower back and rump; upper tail-coverts golden straw-colour; tail dull reddish-chestnut, the central pair margined on both webs with golden straw-colour and the remainder of the tail margined on the outer webs with yellow; throat and sides of the neck white tinged with yellow; chest and sides of the body white strongly tinged with brownish-buff; thighs brown mixed with black; under tail-coverts black with white shaft-streaks; under-surface of wings and tail brownish-ash, the former broadly margined on the inner web with yellowish-buff. Eyes blackish-brown, feet and tarsus leaden-blue, bill blue-grey. Total length 113 mm.; culmen 11, wing 56, tail 34, tarsus 17. Figured. Collected on Parry's Creek, North-west Australia, on the 11th of February, 1909. (pl. 565.)

Adult male. Similar to the adult female.

THE BIRDS OF AUSTRALIA.

The three following descriptions are from birds kept in captivity (pl. 566):—

Adult female. Head and back of the neck light ash-grey; mantle deep chestnut, slightly shaded with lilac; wing-coverts and secondaries dull chestnut; primaries ash-brown, margined on the outer web with dull chestnut and on the inner web with pinkish-buff; rump light chestnut with indistinct bars of whitish; upper tail-coverts golden straw-colour; tail dull brown, the central pairs margined on both webs with straw-colour; lores, sides of the face and ear-coverts light ash-grey tinged on the latter with fawn; upper throat whitish; lower throat, chest, sides of the body and under wing-coverts pinkish-buff; middle of the abdomen white; thighs and under tail-coverts black; under-surface of wings greyish-ash, broadly margined on the inner web with buff. Died in aviary on the 3rd of May, 1905, and is very similar to the typical bird. See *Avie. Mag.* for April, 1905.

Adult male. Top of the head and neck ash-grey, lightest on the fore-head; mantle and lower back dull chestnut, shaded with lavender, lighter on the rump; long upper tail-coverts golden straw-colour; central tail-feathers pointed, light brownish-chestnut in colour and margined on both webs with straw-colour, remainder of tail dull brown; cheeks and ear-coverts reddish-brown with white shaft-streaks; feathers of the throat whitish at the base and brownish-black at the extremity; a patch of blackish-brown on each side of the chest; remainder of the under-surface rich buff, lightest on the sides of the body; middle of the abdomen white; thighs and under tail-coverts black; under-surface of wings greyish-ash, margined broadly on the inner web with rich buff. Died in aviary on the 10th of November, 1906, received March 1905, and is beginning to show the plumage of *castaneothorax*.

Adult male. Head and back of the neck light grey with brownish centres to each feather; mantle and lower back light chestnut washed with lilac-colour; rump golden-chestnut; upper tail-coverts golden straw-colour; tail-feathers brownish-ash, the central pair margined on both webs and tipped with straw-colour; wing-coverts and secondaries dark chestnut; primaries dull chestnut margined on the inner web with lighter chestnut; lores and throat black, shading into blackish-brown on the cheeks and ear-coverts, the latter with whitish shaft-streaks; chest rich buff, some of the feathers with chestnut bars; feathers of the sides of the breast chestnut, tipped with isabelline and with a subterminal bar of black; chest, sides of the body and abdomen rich buff, under tail-coverts and thighs black; under-surface of tail ash-grey, margined on the inner web with reddish-chestnut. Died in aviary on the 18th of February, 1907, and shows the plumage of *castaneothorax* to a greater degree.

Eggs. Four to six eggs form the clutch. A clutch of four eggs taken at the Daly River, Northern Territory, on the 17th of January, 1902, is of a pure white. Long ovals in shape, surface of shell fine and smooth, and devoid of gloss. 16 by 11 mm.

Nest. Very similar to that of *D. castaneothorax*.

Breeding-season. Probably July to January.

In connection with this species it is interesting to note that Gould wrote: "A single specimen, and the only one I have ever seen of this pretty Finch, was presented to me by the late Mr. Bynoe, who procured it on the banks of the Victoria River during the late surveying voyage of H.M.S. Ship 'Beagle.' It is very nearly allied to the *Donacola castaneothorax*, but is specifically distinct from that as well as from every other known species of this now numerous tribe of birds. I regret to add that nothing whatever is known of its habits

YELLOW-RUMPED FINCH.

or mode of life." Later, Gould placed it under the genus *Munia*, while retaining *D. castaneothorax* under *Donacola*. This is here mentioned, as recently these have been claimed to be conspecific. Some birds which arrived here in captivity, by feeding, became darker and were claimed as showing that *D. flavipryma* was simply a desert form of *D. castaneothorax*, which could be easily changed by climatic conditions. The purity of the captive specimens was not certain, as these Finches interbreed, and the bird catchers stated they were found together in flocks. Further, in the British Museum is preserved a specimen of a Gouldian Finch which died in captivity with the head and all the breast black, but this has never been put forward as suggesting that the Gouldian Finch was a desert form of a Black Finch.

The only recent note is that by H. L. White that McLennan at King River, 18/11/15, collected a pair of birds shot amongst flock of *M. castaneithorax*. Crop seeds.

Previously, Rogers collected a specimen at Wyndham.

The status of this form is still unsettled and Plate 566 shows the birds mentioned above, which changed in captivity. These three birds all started their captivity in the plumage of the top figure.

DONACOLA THORPEI.

LONCHURA THORPEI Mathews, Austral Avian Record, Vol. II., pt. 4, p. 78, Dec. 29th, 1913: Fitzroy River, North-west Australia.

I DESCRIBED this:

"Differs from the female of *L. c. castaneithorax* Gould in being much larger and in having the upper- and under-surface darker, the throat brown, and in lacking the light shaft-streaks to the feathers on the ear-coverts. Length 100 mm.; culmen 9, wing 58, tail 31, tarsus 16, middle toe without claw 15." Is this a sport of *castaneithorax* Gould?

GENUS—CHLOROMUNIA.

CHLOROMUNIA Mathews, Austral Av.

Rec., Vol. V., pts. 2-3, p. 40,

Feb. 21st, 1923. Type (by

original designation) *Erythura trichroa macgillivrayi* Mathews.

UNDER the name *Erythura*, spelt *Erythrura*, Sharpe attempted lumping a series of Green Finches with Redtails. The bills varied, being long and thin or short and stout; the tails short with no attenuate central feathers, or with a very long attenuate central pair. Some had red heads, some had blue; and some had the abdomen red, some blue, some green; but nevertheless they were obviously by colour alone closely allied, yet the structure had varied quite considerably for this family.

Sharpe attempted to diagnose the group by means of structure, thus:

“Tail longer than wing, exceeding it by less than length of tarsus. Inner secondaries elongated, so as to equal the primaries in length. Bill sharply pointed and stout, the exposed portion of the culmen more than equal to the length of the hind-toe and claw.”

This applies to one species of his group only, the rest disagreeing in many details, some having the tail only half the length of the wing instead of being longer.

As long ago as 1862, Reichenbach, in “Die Sing. Vögel,” had separated the series into groups, thus:

p. 32 *Amblygnura* for *pealei* Hartl. and *cyanovirens* Peale.

Acalanthe *psittacea* L.

Erythrura *trichroa* (Trichroa) and *prasina* and *pucheranii*
(*Erythrura*)

and stated that the Azuvert, Vieill. Chant., pl. xx., sometimes classed with these, should be placed in *Acmura*. Later, when he came to deal with *Fringilla tricolor* Vieillot, given to the pl. xx., he used the genus name *Diacmura*.

True *Erythrura*, i.e. *prasina*, has a long, stout, sharply pointed bill, the tail short, upper tail-coverts almost as long, but the two central tail-feathers very long and attenuate. The bill is equal to the tarsus, and the tail slightly exceeds the wing in length. The coloration is green above, red rump and tail. blue throat and red abdomen.

CHLOROMUNIA.

The *trichroa* group, for which Reichenbach proposed *Trichroa*, has the same kind of bill, and has a long wedge-shaped tail, the two central feathers a little longer and thinner, but not attenuate. The bill is shorter than the tarsus and the tail is decidedly shorter than the wing. The coloration is green above and below, with a blue fore-head and cheeks and, of course, the red rump and tail.

Amblynura, given to *pealei* and *cyanovirens*, shows a short, stout, heavy bill quite uncharacteristic of *Erythrura sensu stricto*, and a short tail, the central tail-feathers not attenuate and scarcely longer than the others: the tarsus is longer than the bill, and the wing is nearly twice as long as the tail instead of being shorter. The striking green coloration is varied by a red head and face and a blue throat, the red rump and tail being still retained. In the second species the blue extends on the upper chest and on the back.

Acalanthe, based on *psittacea* alone, has a similar stout but shorter bill, and the tail longer and wedge-shaped; the central feathers longer and thinner but not attenuate. The tarsus is one and a half times the length of the bill and the wing is about one-fourth longer than the tail. The red head and face is seen, but no blue throat, all being green save the red rump and tail.

There is thus four distinct groups as regards structure:

- | | |
|-------------------|--|
| <i>Erythrura</i> | with long bill, short tail with long, attenuate, central feathers. |
| <i>Amblynura</i> | short bill, short tail, no attenuate central feathers. |
| <i>Acalanthe</i> | short bill, long wedge-shape tail, no attenuation. |
| <i>Trichroa</i> | long bill, long wedge-shaped tail, no attenuation. |
| (?) <i>Acmura</i> | short bill, short wedge-shaped tail, no attenuation. |

The last is not satisfactorily known, only one specimen being examined.

In making up my volumes of the *Systema Avium* I find that I must admit:

ACALANTHE Reichenbach, Die Sing. Vögel, p. 32, 1862. Type (by monotypy) *Fringilla psittacea* Gmelin.

Acalanthe psittacea (Gmelin), Syst. Nat., p. 903, 1789: New Caledonia.

Synonyms: *Fringilla pulchella* Forster, Deser. Anim. ex Licht., p. 273, 1844.

Poëphila paddoni Macgillivray, Ann. & Mag. Nat. Hist., 1858, p. 284.

OREOSTRUTHUS De Vis., Ann. Rep. Brit. New Guinea, 1896-7, Brisbane, 1898. Type (by monotypy) *Oreostruthus fuliginosus* (De Vis), Ibis, 1897, p. 389: Mt. Scratchley, New Guinea.

AMBLYNURA Reichenbach, Die Sing. Vögel, p. 32, 1862. Type (by subsequent designation) Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 280, 1890.

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AMBLYNURA PEALII (Hartl.).

Erythrura pealii Hartlaub, Weigm. Arch. f. Nat., 1852, p. 104: Vanealevu, Fiji.

Synonym: *Geospiza prasina* (not Sparrman) Peale, U.S. Explor. Exped., Birds, p. 116, 1848.

AMBLYNURA CYANOVIRENS (Peale).

Geospiza cyanovirens Peale, U.S. Explor. Exped., Birds, p. 167, 1848: Upolu, Samoa.

Synonym: *Erythrura pucherani* Bonaparte, Consp. Gen. Av., Vol. I., p. 457, 1852: Oceania. Restricted to Samoa.

AMBLYNURA SERENA (Scl.).

Erythrospiza serena Sclater, Ibis, 1881, p. 544, pl. 15, fig. 1: Aneiteum Island, New Hebrides.

AMBYNURA REGIA (Scl.).

Erythrospiza regia Sclater, *ib.*, f. 2: Api Island, New Hebrides.

LOBIOSPIZA Hartlaub and Finsch, Proc. Zool. Soc. (Lond.), 1870, p. 817.

Type (by original designation)

LOBIOSPIZA NOTABILIS H. and F.

Lobiospiza notabilis Hartlaub and Finsch, *ib.*, pl. 49: Navigator Island.

GENUS—CHLOROMUNIA.

CHLOROMUNIA Mathews, Austral Av.

Rec., Vol. V., pts. 2-3, p. 40,

Feb. 21st, 1923. Type (by

original designation) *Erythrura trichroa macgillivrayi* Mathews.

Trichroa Reichenbach, Die Sing.

Vögel, p. 33, 1862 (? after July

1st). Type (by monotypy and

tautonymy) *Fringilla trichroa* Kittlitz.

Not—

Trichrous Chevrolat, Rev. Mag. Zool., Vol. X., p. 210, 1858.

THE distinct coloration, the long pointed bill and long tail easily distinguish this group from all other Australian Finches.

CHLOROMUNIA TRICHROA.

GREEN-BACKED FINCH.

(PLATE 567.)

[FRINGILLA TRICHROA Kittlitz, Mem. pres l'Acad. Imp. Sci. St. Petersb., Vol. II., p. 8., pl. x., 1833: "Ualan," Caroline Group. Extra-limital.]

Erythrura trichroa macgillivrayi Mathews, Austral Avian Record, Vol. II., pt. 5, p. 103, Sept. 24th, 1914: Claudie River, North Queensland; error=Lloyd Island.

Erythrura trichroa macgillivrayi Mathews, Austral Avian Record, Vol. II., p. 103, 1914; Kershaw, Emu, Vol. XVIII., p. 1, pl. 1, 1918.

Erythrura trichroa Macgillivray, Emu, Vol. XVII., pp. 73-208, 1918 (N.Q.).

DISTRIBUTION. North Queensland, Lloyd Island district.

Adult male. Lores, fore-head to behind the eyes, cheeks and ear-coverts cobalt-blue, tinged with mauve; back of the head, neck, mantle, lower back, wing-coverts and innermost scapulars rich dark grass-green; primaries and outermost secondaries brownish-black, bordered on the outer web with grass-green; rump and upper tail-coverts dull carmine; tail feathers olive-brown, the central margined on both webs with dull carmine; under-surface of the body uniform light grass-green; thighs golden-olive; under-surface of wing dark brownish-ash, margined on the inner web with bright buff. Total length 130 mm.; culmen 10, wing 63, tail 41, tarsus 20. Figured. Collected on Lloyd Island, North Queensland, in February, 1914, and is the type of *Erythrura trichroa macgillivrayi*.

Adult male. Feathers of the fore-head, lores, over the eye and cheeks cobalt-blue washed with mauve; back of the head, neck, mantle, wing-coverts and innermost secondaries rich grass-green; primaries and outermost secondaries brownish-black, margined on the outer web with grass-green; sides of the neck slightly tinged with gold; under-parts paler; thighs brownish-buff; under tail-coverts greenish-olive; under-surface of wings dark ash, broadly margined on the inner web with rich buff. Eyes brown, feet very pale brown, bill black. Total length 109 mm.; culmen 10, wing 61, tail 41, tarsus 18. Figured. Collected at Kuranda, near Cairns, North Queensland, on the 3rd of April, 1913.

DR. MACGILLIVRAY and W. McLennan discovered this fine Finch and I named it

Erythrura trichroa macgillivrayi

writing "Differs from *E. trichroa cyaneifrons* Layard (*Ibis*, 1878, p. 260: Lifu, Loyalty Islands) in its larger bill, deeper blue coloration on the fore-head



H Gronvold, del.

Witherby & C^o

CHLOROMUNIA TRICHROA
(GREEN-BACKED FINCH)

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DIAGNOSTIC LABORATORY

GREEN-BACKED FINCH.

and cheeks, deeper coloured upper tail-coverts and tail, and longer wing. Specimens from British New Guinea, named *E. t. goodfellowi* Ogilvie-Grant (*Bull. Brit. Orn. Club*, Vol. XXIX., p. 29, 1911), come nearer, but the blue on the fore-head is extended on to the top of the head in the Australian form. Wing 62 mm. Claudie River, North Queensland (error=Lloyd Island).

“Remarks: This beautiful Finch adds a genus and species to the Australian List, and the distribution of the species is so remarkable as to merit notice. First described from the Caroline Islands (*Fringilla trichroa* Kittlitz), it next received a name from Ternate (*Erythrura modesta* Wallace), followed by its discovery at Lifu, Loyalty Islands (*Erythrura cyaneifrons* Layard); then it was found at the New Hebrides and Solomon Archipelago; later it was received from Ruk, Bismark Archipelago, and odd specimens have been procured in British New Guinea, while now it is known to live in North Queensland. All the subspecies are difficult to separate, little differentiation having yet taken place in spite of the diverse localities.”

Dr. Macgillivray later gave the history of the above bird: “On the 11th January, whilst walking round between the side of Lloyd’s Island and the mangroves, Mr. McLennan saw a new Finch. It was feeding in the grass, and took refuge in the mangroves. We all went along next morning to look for it, but only got a glimpse of it before it disappeared into the mangroves. We went along to the end of the island, and on our return Mr. McLennan secured the bird. It is grass-green in general colour with a blue face, maroon tail and upper coverts. This species is found in the Mohuecas, Papua, and the Caroline and Solomon Islands.”

Then Kershaw gave a coloured plate and a note reading: “The specimen illustrated is probably the first example of this bird taken in Australia, and the second to be recorded. It was obtained by the National Museum, with other Queensland skins, in March 1891, from F. Ayres, who collected it in North Queensland in 1890. It was then identified as *Erythrura cyaneifrons* Layard, but as some doubt was entertained as to its being Australian, it was not recorded. In 1914, while in company with Dr. W. Macgillivray, President R.A.O.U., and Mr. W. McLennan, on Lloyd Island, North-east Queensland, the latter secured a Finch which I recognised as being similar to the bird previously collected by Ayres. This specimen has been recorded by Mathews (*A. A. Rec.*, II., p. 103, 1914) as a new subspecies, but he quotes the locality as Claudie River instead of Lloyd Island, and states that it differs from *E. t. cyaneifrons* in its larger bill, deeper blue coloration on the fore-head and cheeks, deeper coloured upper tail-coverts and tail and longer wings. The specimen here dealt with approaches very closely to *E. cyaneifrons*, the total length and measurement of the bill being practically the same, not larger, as in the Lloyd Island specimen,

THE BIRDS OF AUSTRALIA.

according to Mathews, and it possesses the blue chin noted in Sharpe's key to the species. The wing, however, is somewhat longer. Mathews, unfortunately, only gives the length of the wing—62 mm. Total length 121; wing 62 mm., tail 50 mm., culmen 11. The specimen figured is a male, and is in the National Museum, Melbourne."

With regard to the bill, although the measurement varies so little, the figure given by Kershaw shows the long bill of the Australian form, quite appreciably larger than that of the Lifu bird; also, although the total lengths agree, Kershaw gives the tail as 50 mm., Sharpe as 1.75 inches, which shows no reliance can be placed upon total length comparisons.

Of this species I admit, besides the above :

Chloromunia trichroa cyaneifrons (Layard) 1878.

Lifu, Loyalty Islands.

Chloromunia trichroa woodfordi (Rothschild and Hartert) 1900.

Solomon Islands.

Chloromunia trichroa modesta (Wallace) 1862.

Ternate.

Chloromunia trichroa papuana (Rothschild and Hartert) 1900.

Arfak Mts., New Guinea.

Chloromunia trichroa goodfellowi (Ogilvie-Grant) 1911.

Moroka Mts., British New Guinea.

Chloromunia trichroa eichhorni (Hartert) 1924.

St. Matthias Island.

GENUS—HETEROMUNIA.

HETEROMUNIA Mathews, Austral Avian Record,

Vol. I., pts. 2-3, p. 60, Oct. 23rd, 1913.

Type (by original designation) *Amadina pectoralis* Gould.

ON the introduction of this name I observed: "Differs from *Lonchura* Sykes in its larger, more conical bill, longer wing, comparatively shorter tail, and stronger feet."

Though this bird was classed by Sharpe under *Munia*, from its colour scheme it seems more closely related to *Poëphila*. Compared with *Donacola* the bill is more conical and not as stoutly built; the secondaries are longer, equal to the fifth (apparent) primary in length. The tail is rounded, the feathers broad, the middle tail-feathers not attenuate; the under tail-coverts are short, less than half the length of the tail.

It may be noted that although Sharpe placed it under *Munia* it was placed last in that genus and does not appear in his "Key."

HETEROMUNIA PECTORALIS.

WHITE-BREASTED FINCH (PICTORELLA).

(PLATE 568.)

AMADINA PECTORALIS Gould, Proc. Zool. Soc. (Lond.) 1840, p. 127, July 1841: North-west coast of Australia.

Amadina pectoralis Gould, Proc. Zool. Soc. (Lond.) 1840, p. 127, 1841.

Donacola pectoralis Gould, Birds Austr., pt. VII. (Vol. III., pl. 95), June 1st, 1842; *id.*, Handb. Birds Austr., Vol. I., p. 427, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, *ib.*, Ser. 2, Vol. I., 1886, p. 1091, 1887; *id.*, *ib.*, Vol. II., 1887, p. 168; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Munia pectoralis Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 354, 1890; Hall, Key Birds Austr., p. 50, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 489, 1901; Hall, Emu, Vol. II., p. 57, 1902 (N.W.A.); Smedley, *ib.*, Vol. IV., p. 68, 1904 (Q.); Berney, *ib.*, Vol. VI., p. 41, 1906 (N.Q.); Mathews, Handl. Birds Austral., p. 102, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 285, 1909; Mathews, Emu, Vol. IX., pp. 64-69, 1909 (N.W.A., N.T.); Macgillivray, *ib.*, Vol. XIII., p. 181, 1914 (N.Q.); H. L. White, *ib.*, p. 215 (Eggs); Barnard, *ib.*, Vol. XIV., p. 49, 1914 (N.T.).

Munia pectoralis pectoralis Mathews, Nov. Zool., Vol. XVIII., p. 430, Jan. 31st, 1912.

Munia pectoralis incerta Mathews, *ib.*: Alexandra, Northern Territory.

Heteromunia pectoralis pectoralis Mathews, List Birds Austr., p. 301, 1913; *id.*, South Austr. Orn., Vol. III., p. 227, 1918.

Heteromunia pectoralis incerta Mathews, List Birds Austr., p. 301, 1913.

DISTRIBUTION. North-west Australia, Northern Territory and North Queensland.

Adult male. Top of the head, neck, mantle, lower back, rump and upper wing-coverts drab colour, washed all over with light grey; secondaries and their coverts browner and with a small spot of white at the extremity; primaries ashy-brown, slightly margined on the outer web with buff; tail brownish-black; feathers at the base of the upper mandible bright reddish-pink, this colour extending over the eyes and broadening out on the sides of the throat and sides of the neck; lores, sides of the face, ear-coverts and entire throat black, glossed with purple and with scattered minute white spots; chest blackish, each feather very broadly margined with silvery-white; breast and belly light pink; sides of the body darker and each feather with a twin spot of white bordered above and below with black; under tail-coverts brownish-ash tipped with isabelline; under-surface of wing



H. Gronvold, del.

W. & A. G. & Co.

HETEROMUNIA PECTORALIS
WHITE-BREASTED FINCH

NATIONAL MUSEUM MEMPHIS

WHITE-BREASTED FINCH (PICTORELLA).

greyish-ash margined on the inner web with pinkish-buff. Eyes brown, legs brown, bill blue-horn. Total length 125 mm.; culmen 10, wing 62, tail 39, tarsus 16. Figured. Collected on Eureka, Northern Territory.

Adult female. Similar to the adult male.

Adult male. Head, neck and upper mantle light brown, washed with grey; lower mantle, back, rump and upper tail-coverts ash-brown; wing-coverts ash-brown with a small spot at the extremity; primaries and secondaries ash-brown, margined on the inner web with isabelline; tail brownish-black; lores, sides of the face, cheeks, ear-coverts and throat black, glossed with purple, with a few scattered white spots; chest dull brownish-pink with a submarginal band of black, and with a broad tip of silvery-white feathers; remainder of the under-parts rich pinkish-buff with twin spots of white on the sides of the body; under tail-coverts with a submarginal band of blackish-brown; under-surface of wing greyish-ash, margined on the inner web with pinkish-buff. Eyes brown, feet light brown, bill blue-grey. Total length 118 mm.; culmen 10, wing 60, tail 37, tarsus 17. Figured. Collected on Alexandria, Eastern Northern Territory, on the 2nd of January, 1906, and is darker than the Eureka bird, and is the type of *incerta*.

Nearly adult. General colour of the upper-parts, including the wings and tail, mouse-brown powdered with grey; wing-coverts and secondaries darker with small round spots and markings of white; cheeks and ear-coverts brown with scattered feathers of brownish-black; chin and throat black, the former with a few white spots; lower throat and chest blackish-brown, each feather broadly and evenly barred at the extremity with white; remainder of the under-parts, including the sides and flanks, isabelline suffused with dull pink; under-surface of flight-feathers brownish-grey, margined on the inner web with isabelline. Eyes brown, feet and tarsus pale brown, bill leaden-blue. Collected on Parry's Creek, North-west Australia, on the 21st of November, 1908.

Immature. Top of the head, back of the neck, mantle and lower back reddish-brown, with a few scattered grey feathers making their appearance; wing-coverts, scapulars, rump and upper tail-coverts brown powdered with grey; tail-feathers brownish-black, lighter at their extremity; throat brownish-grey, with a few black feathers making their appearance; feathers of the chest black at the base with large semi-circular spots of pearly-white; remainder of under-surface, including the sides of the body and under tail-coverts, buffy-pink; inner lining of quills brownish-grey, margined with isabelline. Eyes dark brown, feet and tarsus pale brown, bill pale blue-grey. Collected on Parry's Creek, North-west Australia, on the 16th of November, 1908.

Eggs. Four to six eggs form the clutch. A clutch of six eggs taken at Brunnette Downs, Northern Territory, on the 20th of March, 1913, is of a pure white. Swollen ovals in shape. Surface of shell fine and smooth, and possessing a slight trace of gloss. 17 by 12 mm.

Nest. A large bottle-shaped structure, composed of dried grass stems, and frequently placed in a tussock of grass.

Breeding-months. July to end of December, and often as late as March and April.

GOULD wrote: "For two beautiful specimens of this entirely new Finch I am indebted to E. Dring, Esq., of the 'Beagle,' who procured them on the north-west coast of Australia; no notes of their habits or economy having been forwarded with the specimens, I am unable to give any particulars respecting them."

THE BIRDS OF AUSTRALIA.

Mr. J. P. Rogers wrote from North-west Australia: "April 2nd, 1909: Found nest of six eggs much incubated (one parent flew off the nest), nest built in a bunch of ribbon grass about three inches from the ground. April 19th: More numerous than they were some time ago. May 16th: Numerous since leaving the Stud Station (fifty miles from Wyndham) all the way to Wild Dog Creek, 170 miles south of Wyndham."

Smedley wrote from North Queensland: "Saw first specimen in 1899, taken on Campaspe River; got a nest 26th April, 1895, inside railway fence (homestead). Few to be seen here now. I have some alive in cage."

Berney's notes from the Richmond District, North Queensland, read: "This is an uncertain visitor. One year or another I have seen them during all the four seasons, but they generally pick the good times; this year they are more plentiful than I have ever seen them before. Though generally to be seen in twos or threes, there are sometimes as many as fifteen or twenty together. They invariably frequent the peabush (*Sesbania aculeata*) flats and other low-lying spots, where the grass and herbage grows rather rank. Their note is a simple 'Chip, chip, chip.'"

Macgillivray noted: "First noted at Sedan, but found to be more plentiful near the ranges. They were also met with on the Leichardt and Gregory Rivers. Stomach contents, seeds."

Barnard has written from the McArthur, Northern Territory: "A few of these birds appeared on the tableland in February and March, and bred in the grass on the plains. The nest is a bulky grass structure placed low in the grass. Five and six pure white eggs formed a clutch."

Described by Gould under the genus name *Amadina* he later transferred it to *Donacola*, and when Sharpe merged that genus under *Munia* in *The Catalogue of the Birds in the British Museum* he included this species, but was apparently very doubtful as it comes last and was omitted from the "Key" to the species.

In my "Reference List" in 1912 I left it in *Munia* with one subspecies, viz.:

Munia pectoralis pectoralis (Gould).

North-west Australia.

Munia pectoralis incerta Mathews.

"Differs from *M. p. pectoralis* in being brown and not blue-grey above. Alexandra, Northern Territory."

Northern Territory.

Later, I introduced the genus *Heteromunia*, and under that name included the same two subspecies in my 1913 "List," and no additions or alterations have since been made.

GENUS—AIDEMOSYNE.

AIDEMOSYNE Reichenbach, Die Sing. Vögel,
pp. 1, 14, (prob. after July 1st) 1862. Type
(by monotypy) *Amadina modesta* Gould.

A DISTINCTLY coloured genus with a short stout bill, rounded wings, long wedge-shaped tail, and short legs and delicate feet.

The bill is short and stout ; the secondaries are long, but are only equal to the seventh primary, the (apparent) first to fourth primaries subequal and longest, the first minute as usual.

The tail is long and wedge-shaped, the feathers rather narrow, the central ones not attenuate, more than three-fourths the length of the wing.

The legs are short, but are a little longer than in some of the preceding genera comparatively, the tarsus being half as long again as the chord of the culmen.

AIDEMOSYNE MODESTA.

PLUM-HEAD FINCH.

(PLATE 569.)

AMADINA MODESTA Gould, Synops. Birds Austr., pt. I., pl. (10), Jan. 1st, 1837: New South Wales.

Amadina modesta Gould, Synops. Birds Austr., pt. I., pl. (10), Jan. 1837; *id.*, Proc. Zool. Soc. (Lond.) 1836, p. 105, Feb. 20th, 1837; *id.*, Birds Austr., pt. xxv. (Vol. III., pl. 85), Dec 1st, 1846.

Steganopleura modesta Bonaparte, Consp. Gen. Av., Vol. I., p. 457, 1850.

Aidemosyne modesta Reichenbach, Die Sing. Vögel, p. 14, 1862; Gould, Handb. Birds Austr., Vol. I., p. 414, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 368, 1890; Hall, Key Birds Austr., p. 50, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 489, 1901; Smedley, Emu, Vol. IV., p. 68, 1904 (Q.); Mathews, Handl. Birds Austral., p. 102, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 287, 1909; Mathews, List Birds Austr., p. 301, 1913; Black, Emu, Vol. XVII., p. 228, 1918 (Q.).

Estrelda modesta Gray, Handl. Gen. Sp. Birds B.M., Vol. II., p. 52, 1870; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Munia modesta Mathews, Nov. Zool., Vol. XVIII., p. 430, 1912.

Aidemosyne modesta noogo Mathews, Austral Avian Record, Vol. II., pt. 7, p. 132, Jan. 28th, 1915: Queensland.

Aidemosyne modesta modesta Mathews, *ib.*

DISTRIBUTION. Victoria, New South Wales, South Queensland.

Adult male. Fore-head and top of the head dull vinous-crimson; back of the head, neck, mantle and lower back deep olive-brown; rump and upper tail-coverts same colour as the mantle, but each feather subterminally barred with white; wing-coverts and innermost secondaries deep olive-brown tipped and marked with white; primaries brownish-ash, margined on the outer web with olive; tail-feathers black, the outer pairs with a white spot at the extremity; lores black; chin dull vinous-crimson; sides of the face silvery-white; feathers over the eye, ear-coverts, throat, sides of the neck, chest and sides of the body barred with white and olive-brown in regular alternate bars; middle of the belly and abdomen and under tail-coverts white; under-surface of wing greyish-ash, slightly margined on the inner web with whitish-buff. Total length 120 mm.; culmen 9, wing 55, tail 46, tarsus 17. Figured. Collected on the Darling Downs, South Queensland.



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Witherby & Co

AIDEMOSYNE MODESTA
(PLUM-HEAD FINCH)

NATIONAL MUSEUM, WASHINGTON

PLUM-HEAD FINCH.

Adult female. Feathers bordering the base of the culmen deep vinous-red; top of the head, neck, mantle, and lower back deep greyish-brown; rump and upper tail-coverts similar in colour to the back, but each feather with a white spot at the extremity; wing-coverts and inner secondaries greyish-brown, spotted and marked with white; primaries brownish-ash, externally margined with olive; central tail-feathers uniform black, the outermost pairs tipped with white feathers over the eye; throat less barred than the under-parts; cheeks, sides of the neck, chest and sides of the body alternately barred with regular lines of deep olive-brown and white; middle of the belly, abdomen and under tail-coverts white; under-surface of wings greyish-ash, slightly margined on the inner web with buff. Total length 108 mm.; culmen 9, wing 56, tail 42, tarsus 15. Figured. Collected at Narrabri, New South Wales, in July, 1893.

Eggs. Five to seven eggs form the clutch. A clutch of seven eggs taken on the Dawson River, Queensland, on the 10th of March, 1909, is of a pure white. Stout or swollen ovals in shape. Surface of shell fine, with a slight trace of gloss. 15-16 by 11 mm.

Nest. The usual bottle-shaped structure, built of dried grasses, and lined with feathers.

Breeding-months. September to January.

AGAIN, this distinct species was described by Gould before he went to Australia, and afterwards he wrote: "I found the Plum-coloured Finch tolerably abundant on the Liverpool Plains and on the banks of the Namoi, and Gilbert also mentions his having observed it on the low ranges to the northward of Moreton Bay. In its habits, actions and economy no remarkable differences were observed from those of the other species of the genus. It is usually seen in pairs or associated in small companies, feeding either on or near the ground, the seeds of grasses and other annuals forming its chief supply of food."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "A very rare species in this district, I have not seen more than a dozen birds, just an odd pair turning up any year in the spring. A pair one year took up their abode about my house and I often saw them in the garden. They used to come on to a lawn only a few steps off my verandah, and pick up feathers blown there from a White Cockatoo which is kept in a large cage on the verandah. They had their nest in long grass on the side of a dam just outside my orchard where they reared their young. I have only found three nests containing eggs and the clutches were four, five and six, and all found during the month of November. All the nests I have seen were within three feet of the ground, placed in thistles or grass."

This well-known Finch seems to have created the least interest of all the group, as the above notes cover all I have traced of interest.

The two forms only have been named:

Aidemosyne modesta modesta (Gould).

New South Wales.

Aidemosyne modesta nohoa (Mathews).

Queensland.

GENUS—ÆGINTHA.

ÆGINTHA Cabanis, Mus. Heine., Vol. I., p. 170,
(after Oct. 23rd) 1851. Type (by monotypy) *Fringilla temporalis* Latham.

A PLAIN-COLOURED Finch with small bill and medium wedge-shaped tail.

The bill is shorter and weaker, the upper mandible deeper than the lower, the culmen ridge rather straight and showing growth ridges basally between the nostrils; the under mandible weak and triangular; the gonys straight, a little ascending, not angulate, the interramal space broad, feathered, and very shallow.

The wing has the (apparent) first primary a little shorter than the second, third and fourth, which are subequal and longest; the secondaries long but shorter than the ninth primary, the first primary very minute.

The tail is fairly long and wedge-shaped, all the feathers narrowish but none attenuate, the outer feathers three-fourths the length of the central ones; tail-coverts, upper and under medium, about half the length of the tail.

The legs short and toes slender, but claws rather longer than usual.

NATIONAL MUSEUM OF NATURE



H Gronvold, del

Witherby & Co

REGINTIA TEMPORALIS
(RED-BROWED FINCH)

ÆGINTHA TEMPORALIS.

RED-BROWED FINCH (WAX-BILL).

(PLATE 570.)

FRINGILLA TEMPORALIS Latham, Index Ornith. Suppl., p. XLVIII., (after May 30th) 1801 :
New South Wales (Sydney).

Fringilla temporalis Latham, Index Ornith. Suppl., p. XLVIII., 1801.

Temporal Finch Latham, Gen. Synops. Birds, Suppl. II., p. 211, 1801.

Fringilla quinticolor Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XII., p. 183,
June 21st, 1817 : New South Wales (Sydney).

Estrela temporalis Gould, Birds Austr., pt. VI. (Vol. III., pl. 82), March 1st, 1842 ; Ramsay,
Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878 ; *id.*, Tab. List Austr. Birds, p. 10,
1888.

Amadina temporalis Gray, Genera Birds, Vol. II., p. 370, 1847.

Sporothlastes temporalis Bonaparte, Consp. Gen. Av., Vol. I., p. 455, 1850.

Ægintha temporalis Cabanis, Mus. Heine., Vol. I., p. 170, 1851 ; Gould, Handb. Birds Austr.,
Vol. I., p. 411, 1865 ; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 372, 1890 ;
Hall, Key Birds Austr., p. 51, 1899 ; Campbell, Nests and Eggs Austr. Birds,
Vol. I., p. 490, 1901 ; Hill, Emu, Vol. II., p. 164, 1903 (Vic.) ; Smedley, *ib.*, Vol. IV.,
p. 68, 1904 (Q.) ; A. G. Campbell, *ib.*, Vol. V., p. 144, 1905 (Kangaroo I.) ;
Batey, *ib.*, Vol. VII., p. 10, 1907 (Vic.) ; Hill, *ib.*, p. 20 (Vic.) ; Tregellas, *ib.*, p. 188,
1908 (Vic.) ; Mathews, Handl. Birds Austral., p. 102, 1908 ; North, Austr. Mus.
Spec. Cat., No. 1, Vol. II., p. 288, 1909 ; Ingle, Emu, Vol. X., p. 125, 1910
(Vic.) ; Broadbent, *ib.*, p. 237, 1910 (N.Q.) ; Cleland, *ib.*, Vol. XI., p. 93, 1911
(Food) ; S. A. White, *ib.*, Vol. XIV., p. 144, 1914 (Mallacoota) ; A. J. Campbell,
ib., p. 174, 1915 (N.Q.) ; Cheney, *ib.*, p. 213 (Vic.) ; Le Souëf and Macpherson,
ib., Vol. XX., p. 91, 1920 (N.S.W.) ; (Anon.) South Austr. Orn., Vol. V., p. 39,
1920.

Ægintha minor Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 492, (before April 4th)
1901 : Cape York, Queensland ; Mathews, Bull. Brit. Orn. Club, Vol. XXIII., p. 25,
1909 ; Macgillivray, Emu, Vol. XIII., p. 181, 1914 (N.Q.) ; Campbell and Barnard,
ib., Vol. XVII., p. 35, 1917 (N.Q.) ; Macgillivray, *ib.*, p. 207, 1918 (N.Q.).

Ægintha temporalis temporalis Mathews, Nov. Zool., Vol. XVIII., p. 430, 1912 ; *id.*,
List Birds Austr., p. 301, 1913.

Ægintha temporalis minor Mathews, Nov. Zool., Vol. XVIII., p. 431, 1912 ; *id.*, List Birds
Austr., p. 301, 1913.

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Ægintha temporalis tregellasi Mathews, Nov. Zool., Vol. XVIII., p. 431, Jan. 31st, 1912; (Selby) Victoria; *id.*, List Birds Austr., p. 302, 1914; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs); Belcher, Birds Geelong, p. 361, 1914.

Ægintha temporalis loftyi Mathews, Nov. Zool., Vol. XVIII., p. 431, Jan. 31st, 1912; Mt. Lofty, South Australia; *id.*, List Birds Austr., p. 302, 1913.

Ægintha temporalis macgillivrayi Mathews, South Australian Ornithologist, Vol. I., pt. II., p. 13, April (1st), 1914: Claudie River, North Queensland.

Ægintha temporalis ashbyi Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 40, Feb. 21st, 1923: Blackall Ranges, South Queensland.

DISTRIBUTION. Eastern Australia from North Queensland to South Australia. Not Tasmania.

Adult male. Top of the head leaden-grey, becoming lighter on the neck; mantle and wing-coverts golden olive-yellow; lower back and innermost secondaries less golden; rump and upper tail-coverts deep crimson; tail black, with indistinct greyish bars; primaries and outermost secondaries greyish-ash margined on the outer web with bright olive; chin and cheeks white, tinged with grey; lower throat, chest and sides of body dark grey; belly white, flanks greyish-white, under tail-coverts black; under-surface of wings greyish-ash margined on the inner web with buffy-white. Upper mandible and cutting edges of lower crimson, basal half of culmen brown, centre of lower black, feet and legs straw. Total length 115 mm.; culmen 8, wing 50, tail 41, tarsus 13. Figured. Collected on the Claudie River, North Queensland, on the 17th of January, 1914.

Adult female. Similar to the adult male.

Adult male. Top of the head and back of the neck leaden-grey; sides of the neck, mantle, lower back, wing-coverts and secondaries dull olive-green; rump and upper tail-coverts dull crimson; tail-feathers ash-grey; primaries and outer secondaries ash-brown, bordered on the outer web with olive and basally on the inner web with buff; lores and feathers over the eye crimson-red; sides of the face, cheeks, ear-coverts, chest and sides of the body deep grey, throat buffy-white; middle of the belly and abdomen light buff; under tail-coverts grey, tinged with buff; under-surface of wings greyish-ash, broadly margined on the inner web with whitish-buff. Eyes scarlet, feet light yellow, bill scarlet, culmen base brown, centre of lower black. Total length 113 mm.; culmen 9, wing 54, tail 45, tarsus 17. Figured. Collected at Selby, Victoria, on the 5th of June, 1911.

Adult female. Similar to the adult male.

Immature. Head ash-brown, very slightly glossed with dark olive; back of the neck, mantle, wing-coverts and scapulars dark glossy-green; rump and upper tail-coverts dark crimson-red; wings ash-brown, margined on the outer web with dark olive; tail cuneate and ash-brown in colour; cheeks, sides of the face and rest of the under-surface smoky-brown, darkest on the flanks; under-surface of wings and tail ash-grey. Bill black, eyes muddy-brown, feet light yellowish-brown. Collected at Middle Harbour, Sydney, New South Wales, on the 9th of April, 1910.

Eggs. Five to eight eggs form the clutch, usually six. A clutch of six eggs, taken at Longford, near Sale, Victoria, on the 1st of November, 1910, is of a pure white. Swollen ovals in shape. Surface of shell fine, and possess just a slight trace of gloss. 15-16 by 11 mm.

RED-BROWED FINCH (WAX-BILL).

Nest. The usual bulky bottle-shaped structure, composed of dried grasses, although often green grass is used, and lined inside with feathers and fine grass. Generally placed in a small tree or bush. Dimensions over all: 12 to nearly 14 inches long, by 16 to 20 inches in circumference at the thickest part.

Breeding-months. September to January.

ALTHOUGH this bird appeared many times among the Watling drawings, and one of these (No. 166) was stated to be the type of Latham's description of his Temporal Finch by Sharpe (*Hist. Coll. Nat. Hist. Brit. Mus.*, Vol. II., p. 138, 1906), the species appears to have been described from the paintings of General Davies, as the quotation given by Sharpe at the above place suggests.

Sharpe, however, recorded Watling's note; "Native name is *Goo-lung-ag-ga*. It is a very common bird in New South Wales, easily domesticated, and of a lively disposition even when in a cage, and in a day or two it is easily reconciled"; and another note to another drawing (No. 168): "Native name *Deroo-gnan*."

Vigors and Horsfield wrote: "'This bird,' says Mr. Caley, 'which the settlers call *Red-bill*, is gregarious, and appears at times in very large flocks. I have killed above forty at a spot. They frequently visited my garden in the winter to feed on a species of grass-seed.'"

Gould added: "This species of Finch is very generally spread over the gardens and all such open pasture lands of New South Wales and South Australia as abound in grasses and small plants, upon the seeds of which it chiefly subsists. It is particularly abundant in the neighbourhood of Sydney; even in the Botanic Garden numbers may always be seen flitting from border to border."

Capt. S. A. White writes: "Is widely distributed over Australia and is to be met with in the ranges as well as on the plains. Near the seashore but not through the interior. Have met with the bird in the great forests of Queensland and out on our dry, open plains. It is plentiful in the Mount Lofty Ranges. Builds a large grass nest in September and October, feeds on the ground upon grain and weed seeds."

Mr. Edwin Ashby has written: "One of our commonest Finches in the Mt. Lofty Ranges. Its favourite haunts are along watercourses, building its large grass nest with tubular entrance in the thick tea-trees overhanging the water. Last Christmas we found nests with fresh-laid eggs as well as those with young. This species was very numerous in the Blackall Ranges, Queensland, but the birds were smaller and more brightly coloured than South Australian specimens,"

Mr. F. E. Howe wrote: "Is very plentiful, and small flocks are always met with in any part of the district, but more generally along the creeks or

THE BIRDS OF AUSTRALIA.

about belts of tea-tree or other thickets. This is one of the few birds that roost in their nests during the cold winter months. They pair off early in the spring and commence to build about October. The nest is always built of green grasses and about the first week of November contains the full set of eggs. Incubation lasts about twelve days. The young are born blind and featherless, the mouth is yellow, and the colour of the gape is turquoise-blue. They are tended by both birds and for quite a considerable time after they leave the nest, the young keeping together through the winter."

Mr. Tom Tregellas has written: "This bird is very common in this district and is gregarious, generally going about in very large flocks. Their food consists entirely of seeds, mostly of grasses, but also those of milky and other thistles. They are trusting and confiding, not at all afraid of man's presence. It is surprising how early and how late they build and, more surprising still, the large nest they make. This is always built of fine grass, domed and with a long funnel entrance. Very rarely is there any lining to it, merely the same material, fine grass throughout. The nest is seldom placed at a greater height than twenty feet and is often found within reach of the hand. These birds never clean their nest and when the young are nearly fledged they are lying in a bed of limey excrement. I have found as many as nineteen eggs in one nest, but a large number are infertile and rarely more than half a dozen young are found. These Red-browed Finches are very largely trapped by the boys around here, and readily conform to captivity. They do not fret or pine and are most engaging little birds in an aviary.

Mr. J. W. Mellor's notes include: "It has a short little whistle or squeaky note that it makes, especially when flushed. It is a common bird in South Australia."

Hill has recorded from the Geelong and Otway districts, Victoria: "Everywhere. In immense numbers on all the creeks in the Otway, where it appears to be in the height of the breeding-season at the end of December. 31/12/93: One nest noted on 27/12/93 with three eggs, has now four. 2/1/94, St. George: Nest with a spout at the entrance and a beautiful hood at the end of the spout. 7/1/94: The young birds in a nest noted five days ago, then unfledged, can now fly pretty well. 8/1/94: Nest with three fresh eggs."

Le Souëf and Macpherson record from Sydney, the place from which the first specimens were described: "The pretty little 'Redhead' is always present in Ashton and Taronga Parks and other places, where it nests freely, often close to crowded thoroughfares. It keeps to the timbered areas."

Macgillivray wrote: "*Egintha minor*. This very distinct subspecific form was met with only at Cape Grenville, where the birds were found nesting

RED-BROWED FINCH (WAX-BILL).

in July, 1911. One nest containing five eggs was found in a creeper-covered shrub growing on a sandy rise between the beach and the mangroves; another, containing young birds, was placed in a small mangrove on the beach and at about two feet above high-water mark, and a third half-built one close by in another mangrove. Stomach contents, grass seed."

Later he added: "We saw Lesser Red-browed Finches on several occasions on the Claudie and also saw their old nests. Mr. McLeman records them from the Archer River."

Campbell and Barnard have recorded from the Cardwell district: "*Ægintha minor*. The well-known 'Waxbill' was fairly common. It is more yellowish on the upper-surface than the southern bird."

This must be reconciled with Campbell's statement a couple of years previously: "Red-browed Finches (*Ægintha temporalis*) are numerous in the Mackay, Townsville and Cardwell districts. . . . The smaller form, *Æ. minor*, occurs further north."

When Campbell prepared his *Nests and Eggs* he observed: "Judging by a skin in the Adelaide Museum, from Cape York Peninsula, Queensland, the northern bird differs somewhat from the southern form by its smaller size, wings and mantle more yellowish (golden-green) and under-surface lighter coloured, especially on the throat and abdomen, which are almost white, while the scarlet brow is more intense in colouring. Comparative dimensions of northern and southern forms are: Total length, 3·8 inches; wing 1·87 inch, tail 1·2 inch, tarsus ·62 inch, bill ·35 inch (north); total length 4·2 inches; wing 2·04 inches, tail 1·37 inch, tarsus ·65 inch, bill ·35 inch (south). After more material has been examined, and should the difference be constant, I should suggest the name *Æ. minor* for the northern bird."

When I prepared my "Reference List" in 1912 I admitted Campbell's form as a distinct subspecies and added two more, thus:

Ægintha temporalis temporalis (Latham).

New South Wales.

Ægintha temporalis minor Campbell.

Queensland.

Ægintha temporalis tregellasi Mathews.

"Differs from *A. t. temporalis* in its greener coloration above and more brown underneath, especially on the abdomen (Selby)."

Victoria.

Ægintha temporalis loftyi Mathews.

"Differs from *A. t. tregellasi* in having a brownish head, not grey, as in that subspecies. Mt. Lofty, South Australia."

South Australia.

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In my 1913 "List" the same arrangement was followed, but South Queensland was added to the typical form, while *Æ. t. minor* was restricted to North Queensland.

I have since added

Egintha temporalis macgillivrayi.

"Differs from *A. t. temporalis* in having a black tail and under tail-coverts and the yellow upper-surface more pronounced. Bill crimson, lower basal half of lower mandible brown, legs pale straw. Wing 47 mm. Claudie River, North Queensland."

It may be noted that Hartert in 1899 had written in connection with Cape York birds: "Three males have the wing about 2 mm. shorter than other specimens and the back rather more golden. Comparison of a larger material will probably justify the separation of the Cape York bird as a subspecies."

Egintha temporalis ashbyi, Mathews.

Differs from *A. t. temporalis* in being smaller and of a brighter colour.

Type: Blackall Ranges, South Queensland.

GENUS—BATHILDA.

BATHILDA Reichenbach, Die Sing. Vögel, pp. II.,
19, (prob. after July 1st) 1862. Type (by
monotypy) *Amadina ruficauda* Gould.

A BRIGHTLY coloured monotypic genus with a slightly longer bill than the preceding and not so broad comparatively; a longer wedge-shaped tail, not quite so long as the wing, feathers narrow but none attenuated, the upper and under tail-coverts short.

Compared with the preceding a very distinct form, but when placed alongside *Neochmia*, its colour ally, the chief differences are the slightly shorter bill, the more pointed wing with the shorter secondaries and the less graduated and shorter tail. It has slightly longer legs and the nostrils not quite so open, trivial items.

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Order PASSERIFORMES.

No. 717.

Family PLOCEIDÆ.

BATHILDA RUFICAUDA.

RED-FACED FINCH.

(PLATE 571.)

AMADINA RUFICAUDA Gould, Synops. Birds Austr., pt. I., pl. (10), Jan. 1st, 1837: New South Wales.

Amadina ruficauda Gould, Synops. Birds Austr., pt. I., pl. (10), 1837.

Estrella ruficauda Gould, Birds Austr., pt. VII. (Vol. III., pl. 84), June 1st, 1842; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, *ib.*, Ser. I., Vol. I., p. 1090, 1887; *id.*, Tab. List Austr. Birds, p. 10, 1888.

Steganopleura ruficauda Bonaparte, Consp. Gen. Av., Vol. I., p. 457, 1850.

Bathilda ruficauda Reichenbach, Die Sing. Vögel, p. 20, 1862; Gould, Handb. Birds Austr., Vol. I., p. 412, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 374, 1890; Hall, Key Birds Austr., p. 51, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 492, 1901; Hall, Emu, Vol. II., p. 54, 1902 (N.W.A.); Mathews, Handl. Birds Austral., p. 102, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 291, 1909; Whitlock, Emu, Vol. VIII., p. 188, 1909 (W.A.); Mathews, *ib.*, Vol. IX., p. 64, 1909 (N.W.A.); Barnard, *ib.*, Vol. XIV., p. 49, 1914 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 207, 1918 (N.Q.).

Bathilda ruficauda clarescens Hartert, Nov. Zool., Vol. VI., p. 427, Dec. 9th, 1899: Cape York, Queensland; Hall, Key Birds Austr., 2nd ed., p. 113, 1906; Mathews, List Birds Austr., p. 302, 1913.

Bathilda clarescens Mathews, Handl. Birds Austral., p. 102, 1908.

Egintha ruficauda ruficauda Mathews, Nov. Zool., Vol. XVIII., p. 431, Jan. 31st, 1912.

Egintha ruficauda connectens Mathews, *ib.*: Rockhampton, Queensland.

Egintha ruficauda subclarescens Mathews, *ib.*: Parry's Creek, North-west Australia.

Egintha ruficauda thorpei Mathews, *ib.*: Coongan River, West Australia.

Egintha ruficauda clarescens Mathews, *ib.*

Bathilda ruficauda ruficauda Mathews, List Birds Austr., p. 302, 1913.

Bathilda ruficauda connectens Mathews, *ib.*

Bathilda ruficauda subclarescens Mathews, *ib.*; *id.*, South Austr. Orn., Vol. III., p. 227, 1918.

Bathilda ruficauda thorpei Mathews, *ib.*

DISTRIBUTION. Northern Australia as far south as New South Wales on east, and Coongan River on west.



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BATHILDA RUFICAUDA
(RED-FACED FINCH)

RED-FACED FINCH.

Adult male. Lores, fore-head, sides of the face and chin crimson, the sides of the face with minute spots of white; back of the head, sides of the neck, back, mantle, rump and innermost secondaries greenish-olive; primaries and outer secondaries ash-brown, bordered on the outer web with olive; upper tail-coverts dull carmine, each feather with a large spot of white suffused with pink; tail-feathers dull carmine, shafts black; chest, lower throat and sides of the body greenish-olive, each feather with a spot of white towards the extremity; belly, abdomen and under tail-coverts golden-yellow; under-surface of wings ash-grey, margined on the inner web with whitish. Eyes light red; feet and tarsus yellow; bill red. Total length 115 mm.; culmen 9, wing 53, tail 41, tarsus, 16. Figured. Collected on Parry's Creek, North-west Australia, on the 27th of June, 1909, and is the type of *subclarescens*.

Adult female. Very similar to the adult male.

Adult male. Lores, sides of the face and a patch continued over the eyes, rich crimson, the sides of the face covered with pin-points of white; crown, back of the neck, mantle, back, rump and wing-coverts brownish-olive; primaries and secondaries brownish-ash, margined on the outer web with olive; upper tail-coverts dull carmine with a penultimate spot of white suffused with pink; middle tail-feathers dull carmine, the outer pairs olive-brown; ear-coverts, sides of the neck, throat and chest, and sides of the body greyish-olive, each feather with a spot of white at the extremity; middle of the belly, abdomen, and under tail-coverts olive-yellow; under-surface of wings greyish-ash, margined on the inner web with buff. Total length 110 mm.; culmen 10, wing 54, tail 43, tarsus 16. Figured. Collected in Queensland in 1861, and is the type of *connectens*.

Adult female. Fore-head, lores, a ring round the eye and cheeks crimson, the former and latter spotted with white; back of the head, neck, back, rump, upper tail-coverts, wing-coverts and scapulars yellowish-olive; feathers of the rump rose-red with a wide bar of rosy-white at the extremity; flight-feathers olive, margined on the outer web with yellowish-olive; central tail-feathers dull purplish-red; outer tail-feathers olive, margined on the outer web with dull purplish-red; chin crimson; throat yellowish-white, each feather with a rounded spot of white, bordered with olive; chest, upper breast and sides of the body pale olive with oval spots of white margined with olive; flanks and middle of the belly and under tail-coverts pale golden-yellow; under-surface of wings and tail ashy-grey. Eyes light red, feet and tarsus yellow, bill red. Total length 106 mm.; culmen 9, wing 54; tail 40; tarsus 13. Collected on Parry's Creek, North-west Australia, on the 2nd of February, 1909.

Half-grown. Feathers at the base of the culmen, round the eye and on the cheeks, with a few scarlet feathers making their appearance; head, back, wing-coverts and secondaries greenish-olive; feathers of the rump with a rosy tinge; upper tail-coverts dull purplish-red; flight-feathers olive, margined on the outer web with greenish-olive; throat, chest and flanks yellowish-ash with a few rounded white spots; middle of the belly, thighs and under tail-coverts yellowish-white; under-surface of wings and tail ash-grey. Bill reddish, eyes orange, feet brown. Collected on the Alligator River, Northern Territory, on the 8th of September, 1903.

Immature. General colour of the upper-parts including the wings dull olive-brown; central pairs of tail-feathers dull purplish-red; outer pair olive, margined on the outer web with darker olive; under-parts slightly paler than the upper-parts; abdomen whitish. Bill blackish, eyes yellow, feet brown. Collected on the Alligator River, Northern Territory, on the 4th of September, 1903.

THE BIRDS OF AUSTRALIA.

Eggs. Three to five eggs form the clutch. A clutch of three eggs taken at the Coongan River, Mid-western Australia, on the 16th of August, 1908, is of a pure white. Ovals in shape. Surface of shell fine, smooth, and very slightly glossy. 15 by 10 mm.

Nest. Constructed of dried grasses, and of the usual bottle-shape, built or placed on its side, and lined with fine grasses and feathers.

Breeding-months. Probably September to January.

It is somewhat strange to note the extraordinary number of undescribed species of Australian birds Gould was able to find in English collections when he first turned his attention to the Australian avifauna. Undoubtedly it was this plenitude of novelties that determined his expedition to Australia to discover many more.

This species was named before his departure, and upon his return he wrote: "I observed this beautiful Finch rather thinly dispersed on the sides of the river Namoi, particularly along the sloping banks covered with herbage, where it appeared to be feeding upon such grasses and other annuals as afforded seeds congenial to its taste. I also frequently observed it among the rushes which grow in the beds of mud along the sides of the water."

Keartland found them in the vicinity of the telegraph line, near the junction of the Fitzroy and Margaret Rivers, where they appeared to be permanently located. They were generally seen in small flocks.

Capt. S. A. White says: "Met with in numbers between the Katherine River and Pine Creek, N.T.; beautiful little birds; they were feeding upon a coarse grass-seed and could be seen clinging to the head of the grass searching for the seed, often hanging head downwards."

Whitlock wrote from the Pilbarra Goldfield: "Found both on the upper Coongan and also the de Grey, but local in the extreme. I disturbed a sitting female from her nest in a small bush in the bed of the Coongan whilst watching a pair of Black-fronted Dottrels (*Egialitis melanops*). I was much puzzled at first, as I could see at once the nest was not that of *T. castanotis*. It was very round, rather large, and woven in quite a different manner, and, moreover, had a scant lining of white feathers. I hid myself and watched, and after a time the female slipped back into the nest. I saw at once I had found something new to myself. I returned to camp for my gun, and eventually secured a pair. On comparing them with the description in Halls' 'Key,' I was rather puzzled. I found the tail *not* very long, and the plumage of the female very similar to that of the male—just a little less pronounced, in fact. Hall states 'Female, uniform buffy-brown.'"

"I subsequently found this should refer to the nestling, not to the adult female. On the de Grey I secured a couple of nestlings for examination, with

RED-FACED FINCH.

the above result. I found the old nest near at hand and a few feet above, in the same prickly climbing plant, was a new nest containing eggs. Still higher up the vine was an old nest of *Tæniopygia*, and a second one evidently untenanted, but the thorns were too much for me, and I had to leave it alone. The call of the Red-faced Finch is very feeble and resembles somewhat that of *Zosterops gouldi*. Like the other Finches, it must have plenty of water. The plumage is a lovely combination of delicate greens and buffs, relieved by the fiery vermilion face."

Probably the reason of Hall's error lies in the *Catalogue of the Birds in the British Museum*, where Sharpe unfortunately confused certain birds, and Hall has continued that error without reference to the birds themselves. The confusion of the young and adult female is apparently due to bad copying.

Barnard, reporting upon the birds of the McArthur River, Northern Territory, wrote: "These birds frequent the cane grass along the river; generally they were found in small flocks. They breed in the cane grass in June."

Macgillivray, recording notes on North Queensland birds, noted: "Mr. McLennan met with the Red-faced Finch on the Watson River. On the 22nd April, 1915, he flushed one from its nest placed in a stunted gum sapling, three feet from the ground; the nest contained five eggs. The birds were quite common."

Neither Macgillivray nor Barnard report it from Cape York.

When Hall examined Rogers' birds from the Fitzroy River, N.W.A., he noted: "This adult male agrees in certain respects with Mr. Hartert's *Bathilda ruficauda clarescens*. The red is extending over the crown, and is strong upon the lateral portions of it and around the eye. There is no red upon the lower portion of the throat. The abdomen is yellow, but scarcely bright yellow: wing 53 mm."

No subspecies were known until Hartert described

Bathilda ruficauda clarescens.

"An adult male, Cape York, 14/6/1898, is smaller than all examples in our collection; the red extends nearly over the whole crown, encircles the eye, and extends further down on the throat, and the abdomen is rather bright yellow. Wing 50, tail 45 mm."

However, when I was engaged upon my "Reference List" in 1912 I distinguished five subspecies as follows, placing them in the genus *Ægintha*:

Ægintha ruficauda ruficauda (Gould).

New South Wales.

Ægintha ruficauda connectens Mathews.

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“ Differs from *A. r. ruficauda* in its paler coloration above and below, especially noticeable on the head. Rockhampton.”

Queensland (Rockhampton).

Aegintha ruficauda subclarescens Mathews.

“ Differs from *A. r. ruficauda* in its brighter green coloration above, brighter red fore-head, brighter green on the breast and brighter yellow on the abdomen. Parry's Creek, North-west Australia.”

North-west Australia.

Aegintha ruficauda thorpei Mathews.

“ Differs from *A. r. ruficauda* in its darker upper coloration, deeper red, darker green, and pallid abdomen with only a wash of yellow. Coongan River, West Australia.

Mid-west Australia.

Aegintha ruficauda clarescens (Hartert).

North Queensland (Cape York).

I retransferred these back to their own genus *Bathilda* in my 1913 “List,” but otherwise made no alteration.

GENUS—P O Ë P H I L A.

POËPHILA Gould, Birds Austr., pt. VI., March 1st,
1842. Type (by subsequent designation)
id., Proc. Zool. Soc. (Lond.) 1842, p. 18, Nov. *Amadina acuticauda* Gould.

UNDER the genus *Erythura* I have given a sketch of the variations structurally of the Green Finches, and here analyse the *Poëphila* group as arranged in the *Catalogue Birds British Museum*.

Sharpe separated the group thus :

“Tail produced and pointed, the centre feathers elongated, so that the distance between the outer and centre feathers is greater than the length of the tarsus.

“Tail graduated, the two centre feathers longest but not produced to a thread-like point *Uroloncha*.

“Tail not so strongly graduated, but the centre feathers produced to a thread-like point *Poëphila*.”

Then as members of the genus *Poëphila* he classed the species *acuticauda*, *cincta*, *personata*, *leucotis*, *gouldiæ* and *mirabilis*. The first four were alike in coloration, the last two (only one) different, and the tail of *personata* agreed with Sharpe's diagnosis of his *Uroloncha*, not of his *Poëphila*.

I make *leucotis* and *personata* to be subspecies only, and with *acuticauda* and *cincta* these constitute a colour-group quite distinct from *gouldiæ*, and if the latter is at all closely allied it has varied immensely.

The variation in coloration in the forms *acuticauda*, *cincta* and *personata* is almost negligible, and the bill formation is very similar; but while *acuticauda* and *personata* have striking yellow to red bills, that of *cincta* is smaller and black.

The tail of *cincta* is square with the two central feathers scarcely exceeding the others, but the tips attenuate. The tail of *acuticauda* is wedge-shaped, all feathers pointed and central two with very long, attenuate tips; the next two are longer and more attenuated than the central feathers of *cincta*. The tail of *personata* is wedge-shaped, the central ones thinner, but not hair-like.

While the coloration shows these to be closely allied forms, had the coloration been distinct the structural differences would have long ago been utilised as valid for generic separation. In the present work these are recognised

THE BIRDS OF AUSTRALIA.

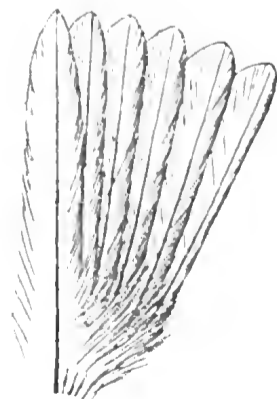
as of generic value and must be so regarded until colour groups are systematically utilised as of more value than structural distinctions.

On account of the attenuate central tail-feathers the well-known Gouldian Finch has been classed in *Poëphila sensu lato*, but if colour values are of importance as shown above, this must be separated absolutely. The coloration is very remarkable and contrasts widely with that of the *Poëphila* group. The varied-coloured head, neck and throat, the latter being always black, suggesting a relationship with the black-throated *Poëphila* (but then there are other black-throated Finches), and the former black, red or golden-yellow, the green back, the bluish upper tail-coverts, the blackish tail, the mauve chest and the yellow abdomen, present a combination unequalled among these Finches.

The bill is larger and more conical, sharper pointed than any *Poëphila*, and the tail is practically square, the two central feathers very long and attenuated to a hair-like point. The Gouldian Finch was correctly generically separated by Reichenbach, but he selected a preoccupied name, so I proposed to perpetuate the memory of Mrs. Gould by naming the genus *Gouldæornis*.

The colour group of *Poëphila* shows three different tail-structures as follows :

<i>Poëphila (acuticauda)</i>	Tail wedge-shaped, all feathers pointed, central pair very attenuate.
<i>Neopoëphila (personata)</i>	Tail wedge-shaped, no feathers pointed, central pair longer but not hair-like.
<i>Alisteranus (cinctus)</i>	Tail square, feathers broader, central ones scarcely any longer than others.



a.

ALISTERANUS.



b.

NEOPOËPHILA.



c.

GOULDÆORNIS.

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POËPHILA ACUTICAUDA
(LONG-TAILED FINCH)

POËPHILA ACUTICAUDA.

LONG-TAILED FINCH.

(PLATE 572.)

AMADINA ACUTICAUDA Gould, Proc. Zool. Soc. (Lond.) 1839, p. 143, March 1840 : North-west Australia=Derby.

Amadina acuticauda Gould, Proc. Zool. Soc. (Lond.) 1839, p. 143, 1840.

Poëphila acuticauda Gould, Birds Austr., pt. VI. (Vol. III., pl. 90), March 1st, 1842; *id.*, Handb. Birds Austr., Vol. I., p. 422, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, *ib.*, Ser. 2, Vol. I., p. 1091, 1887; *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 375, 1890; Hall, Key Birds Austr., p. 51, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 493, 1901; Hall, Emu, Vol. II., p. 55, 1902 (N.W.A.); Le Souëf, *ib.*, p. 149, 1903 (N.T.); Kilgour, *ib.*, Vol. IV., p. 37, 1904 (N.W.A.); Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 293, 1909; Mathews, Emu, Vol. IX., p. 64, 1909 (N.W.A.); Hill, *ib.*, Vol. X., p. 289, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 260, 1913 (N.T.); Barnard, *ib.*, Vol. XIV., p. 49, 1914 (N.T.).

Poëphila hecki Heinroth, Ornith. Monastb., Vol. VIII., p. 22, Feb. (reed. B.M., Feb. 13th), 1900 : Loc. unknown=Port Darwin, Northern Territory; North, Proc. Linn. Soc. N.S.W., Vol. XXX., p. 101, 1905; Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 294, 1909; Macgillivray, Emu, Vol. XIII., p. 182, 1914 (N.Q.); H. L. White, *ib.*, Vol. XVI., p. 229, 1917 (N.T.).

Poëphila aurantiirostris North, Proc. Linn. Soc. N.S.W., Vol. XXVII., p. 208, Oct. 17th, 1902 : Wyndham (error) and Port Darwin, Northern Territory (type locality).

Poëphila acuticauda acuticauda Mathews, Nov. Zool., Vol. XVIII., p. 432, 1912; *id.*, List Birds Austr., p. 303, 1913; *id.*, South Austr. Orn., Vol. III., p. 228, 1918.

Poëphila acuticauda hecki Mathews, Nov. Zool., Vol. XVIII., p. 432, 1912; *id.*, List Birds Austr., p. 303, 1913.

Poëphila acuticauda nea Mathews, Austral Avian Record, Vol. II., pt. 7, p. 132, Jan. 28th, 1915 : Glencoe, Northern Territory.

DISTRIBUTION. North-west Australia, Northern Territory.

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Adult male. Head and back of the neck pearl-grey, upper mantle vinous-pink; lower mantle, back, wing-coverts and secondaries mouse-colour suffused with pink; primaries ash-brown, margined on the outer web with white and on the inner web with vinous-buff; a broad black band across the upper margin of the rump; lower part of the rump and upper tail-coverts pure white; tail intense black, the middle pair of feathers extremely long and acuminate and slightly glossed with purple; lores black; cheeks and ear-coverts silvery-white; chin, throat and upper breast black, slightly glossed with purple; sides of the chest, breast, belly, sides of the body and under wing-coverts vinous-pink; abdomen, vent and under tail-coverts pure white, a large patch of black feathers on each flank; under-surface of the primaries greyish-ash, widely bordered on the inner web with vinous-pink. Eyes reddish-brown, feet and tarsus red, bill yellow. Total length 160 mm.; culmen 10, wing 62, tail 80, tarsus 17. Figured. Collected on Parry's Creek, North-west Australia, on the 26th of December, 1908.

Adult female. Similar to the adult male.

Adult female from Point Torment has the wing-coverts browner and the under-surface more suffused with pink. Eyes red, feet and tarsus red, bill yellow. Total length 163 mm.; culmen 9, wing 61, tail 82, tarsus 17. Collected at Point Torment, North-west Australia, on the 16th of February, 1911.

Adult male. Similar to the adult female.

Immature. Top of the head greyish-ash; back of the neck, mantle and wing-coverts rich isabelline; lower back black; rump and elongated upper tail-coverts white; middle tail-feather long and pointed and of a glossy-black; remainder of tail black, the outer pair tipped and margined on the outer web with white; cheeks and ear-coverts silvery-grey; chin, throat and fore-nock black; chest, belly, sides and flanks rich pinkish-buff; middle of the belly and under tail-coverts pale buff; under-surface of wings ash-grey, margined on the inner web with rust-colour. Eyes brown, feet and tarsi dusky-red, bill black, with base and cutting edge of lower mandible fleshy-grey. Collected on the Lennard River, West Kimberley, North-west Australia, on the 8th of November, 1910.

Eggs. Five to six eggs form the clutch. A clutch of six taken at Napier Broome Bay, North-western Australia, on the 13th of May, 1910, is of a pure white. Rather swollen ovals in shape. Surface of shell fine, smooth, but without gloss. 15 by 11 mm.

Nest. Constructed of dried grass, bottle-shaped; usually built in long grass and sometimes in a small tree or bush as high as 8 and 10 feet from the ground.

Breeding-months. September to January, and earlier and later according to the conditions of the season and the rainfall.

In this case Gould described specimens from North-west Australia, and then wrote: "The specimens from which my description of this bird was taken are from the interesting collection placed in my hands by the late Mr. Bynoe, whose great perseverance and assiduity have enabled me to add many species to the fauna of Australia. Indeed, many of the officers of the 'Beagle' will have their names handed down to posterity in consequence of the attention they paid to this branch of science, independently of the legitimate objects

LONG-TAILED FINCH.

of their various expeditions ; among others I may particularly allude to Mr. Charles Darwin, Captain Wiekham, Captain Stokes, Mr. Dring, etc. Since the arrival of Bynoe's birds, I have also received specimens from Port Essington, which, like their analogue the *Poëphila cincta* of the eastern coast, inhabit the open plains bordering streams, and feed on the seeds of various grasses and other plants."

Mr. J. P. Rogers wrote me from North-west Australia : " From Nov. 9th to Dec. 15th, 1908, many nests were found being built, but all were deserted unfinished, though I saw the birds working at them. On 15th Dec. these birds were feeding on flying ants ; they were hopping about on the ground, and when an ant passed overhead a bird would shoot straight up at it ; they always took their prey from below, seizing it with the bill, then returned to the ground. The birds were very quiet and I was within three or four yards of several of them. The ants flew about twenty feet from the ground and were in swarms. I shot two birds and dissected them and found the crop and stomach full of the fat bodies of the ants. I could not detect any legs or wings ; they seem to rip the ant off at the waist and only swallow the fat end. I saw several flocks at work on the ants and all behaved in the same manner. On May 16th, 1909, they were numerous at Wild Dog Creek, 170 miles south of Wyndham, and on July 1st at Mary River, Kimberley Gold Fields, 290 miles south, they were very rare. They are much more numerous near the coast than inland. At Mungi I saw very few of these birds and none at all on my return journey until I reached Jegurra Creek, 18 miles S. of the Fitzroy."

Hill has written from North-western Australia : " A common resident near Napier Broome Bay. The nests are generally built in the tops of pandanus palms, or in small trees at from 4 feet 6 inches to 20 feet from the ground, but it is not unusual to find them in spinifex grass, from 12 to 18 inches from the ground. The nests vary somewhat according to the site chosen. Those in the grass and pandanus are generally built of grass and lined with feathers. Charcoal was found amongst the feathers in three nests taken from spinifex. I noticed that nests built in trees were generally constructed of grass, small herbaceous plants, and pieces of wire-like creeper, and were more often lined with grass than with feathers. One nest was lined with about 18 inches of snakeskin. The nesting season commenced after the rainy season, eggs being taken from 23rd April to 21st June. From three to eight eggs are laid in a nest."

Barnard wrote from Northern Territory : " Seen in all classes of country on the McArthur. Their bulky grass nests were placed in bushes and trees but never on the ground. During the breeding-season the tail-feathers of this bird are much longer than at other seasons."

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Macgillivray has written: "*Poëphila hecki* met with for the first time on the Leichardt, 25 miles beyond Caloola Station, where a pair was found in attendance upon a nest containing four young birds on 16th June, 1910. This nest was placed in a horizontal bushy limb of a bauhinia, 15 feet from the ground, and was composed of fine grass, lined with a few Galah feathers; it was 6 inches in depth and 8 inches long on the outside, 4 inches by 5 inches on the inside. The young were covered with pin feathers and grey down. Bill blackish, irides grey. Adult ♂, irides dark orange, bill orange-scarlet, legs and feet bright red. Crop and gizzard contained grass-seeds. These birds became numerous as the Gregory River was approached."

No subspecies were suggested until Heinroth in 1902 noted that captive birds in Berlin were darker than birds from Derby and that they had coral-red bills and feet, whereas the Derby birds had yellow bills, as Gould had described from his species. He therefore considered the red-billed birds as a new species and named it *Poëphila hecki*. A little later, ignorant of Heinroth's action, North noticed the same thing among Sydney captive birds, stating that birds from Wyndham and Port Darwin had orange-red bills and were darker than birds from Derby, which had yellow bills, and proposed to name the former *Poëphila aurantirostris*. He at once noted that Heinroth had anticipated his separation.

Rogers collected a series of this bird for me at Derby and then went to Wyndham, where he found all the birds had yellow bills. This proved that Wyndham could not be the correct locality for the red-billed birds if they existed in nature, which I was at first inclined to doubt. Later, I found that they must have come from Port Darwin, as in the closely allied group of *personata*, while the north-western birds had yellow bills the Port Essington birds had orange bills. This later proved correct and I added

Poëphila acuticauda nea.

"Differs from *P. a. acuticauda* in its much darker colour, especially on the under-surface. Glencoe, Northern Territory."

At present I am inclined to allow only the two I admitted in my 1912 "Reference List" and my 1913 "List," viz.:

Poëphila acuticauda acuticauda (Gould).

North-west Australia.

Poëphila acuticauda hecki Heinroth.

Northern Territory.

McLennan notes: "King River: Occasionally seen in forest country. Fairly plentiful about springs and billabongs before the rains."

GENUS—GOULDEORNIS.

- GOULDEORNIS Mathews, Austral Av. Record,
Vol. V., pts. 2-3, p. 41, Feb. 21st, 1921.
Type (by original designation) *Amadina gouldiae* Gould.
- Chlæbia* Reichenbach, Die Sing-Vögel, pp. III.,
30, (prob. after July 1st) 1862. Type (by
monotypy) *C. "gouldiae and mirabilis" =*
Amadina gouldiae Gould.

Not—

Chlæbius Schönherr, Isis, 1823, p. 445; nn. Curc. Disp. Meth., 1826, p. 211.

EASILY distinguished as shown previously by its extraordinary coloration, the long, attenuate tail-feathers like those of *Poëphila* being an independent acquisition, and not conclusive as to genetic relationship.

GOULDÆORNIS GOULDIÆ.

GOULDIAN FINCH.

(PLATE 573.)

- AMADINA GOULDIÆ Gould, Birds Austr., pt. xv. June 1st, 1844: Victoria River, Northern Territory.
- Amadina gouldiæ* Gould, Birds Austr., pt. xv. (Vol. III., pl. 88), June 1st, 1844; *id.*, Proc. Zool. Soc. (Lond.) 1844, p. 5, July.
- “*Poëphile admirable*” Hombron and Jacquinot, Voy. Pôle Sud Zool., pl. 22, figs. 1, 1, 2, January 1845.
- Poëphila mirabilis* Des Murs, Icon. Ornith., pl. III., (after August) 1845: Raffles Bay, Northern Territory; Gould, Birds Austr., pt. xxviii. (Vol. III., pl. 89), Sept. 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 421, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, Proc. Zool. Soc. (Lond.) 1877, p. 350; *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 378, 1890; Hall, Key Birds Austr., p. 51, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 497, 1901; Hall, Emu, Vol. II., p. 56, 1902 (N.W.A.); Le Souëf, *ib.*, p. 150, 1903 (N.T.); Kilgour, *ib.*, Vol. IV., p. 37, 1904 (N.W.A.); Berney, *ib.*, Vol. VI., p. 42, 1906 (Q.).
- Poëphila gouldiæ* Gould, Handb. Birds Austr., Vol. I., p. 420, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 187, 1877; *id.*, *ib.*, p. 281, 1877; *id.*, *ib.*, Vol. II., p. 70, 1877; *id.*, *ib.*, Ser. 2, Vol. I., p. 1091, 1887; Berney, Emu, Vol. II., p. 211, 1903 (N.Q.); Smedley, *ib.*, Vol. IV., p. 69, 1904 (Q.); Butler, *ib.*, Vol. V., p. 46, 1905; Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 296, 1909; Mathews, Emu, Vol. IX., p. 64, 1909; Hill, *ib.*, Vol. X., p. 289, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 261, 1913 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 182, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 50, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 229, 1917 (N.T.); Macgillivray, *ib.*, Vol. XVII., p. 207, 1918 (N.Q.); Black, *ib.*, p. 228; Campbell, *ib.*, Vol. XVIII., p. 187, 1919 (N.T.).
- Chlæbia gouldiæ* Reichenbach, Die Sing. Vögel, p. 30, 1862.
- Chlæbia mirabilis* Reichenbach, *ib.*
- Poëphila armitiana* Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 72, July 1877: North Queensland.



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GOULDAEORNIS GOULDIAE
(GOULDIAN FINCH.)

MATTHEW 22:15-16

GOULDIAN FINCH.

Poëphila mirabilis gouldiæ Ramsay, *ib.*, p. 187; *id.*, Tab. List Austr. Birds, p. 10, 1881.

Poëphila mirabilis armitiana Ramsay, *ib.*

Poëphila gouldiæ gouldiæ Mathews, Nov. Zool., Vol. XVIII., p. 432, 1912; *id.*, List Birds Austr., p. 303, 1913.

Poëphila gouldiæ armitiana Mathews, Nov. Zool., Vol. XVIII., p. 432, 1912; *id.*, List Birds Austr., p. 303, 1913.

Poëphila gouldiæ kempî Mathews, Austral Av. Rec., Vol. II., pt. 7, p. 132, Jan. 28th, 1915: Normanton, Queensland.

Gouldæornis gouldiæ westra Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 41, Feb. 21st, 1923: Napier Broome Bay, North-west Australia.

Gouldæornis gouldiæ gouldiæ Mathews, *ib.*

Gouldæornis gouldiæ mirabilis Mathews, *ib.*

Gouldæornis gouldiæ armitiana Mathews, *ib.*

Gouldæornis gouldiæ kempî Mathews, *ib.*

DISTRIBUTION. North-west Australia, Northern Territory, North Queensland.

Adult male. Lores, top of the head, cheeks, ear-coverts, chin, throat and upper neck, intense black; a broad band of verditer-blue across the back of the head, continued across the hinder portion of the sides of the face and bordering the black throat, followed by a broad collar of golden-olive on the back of the neck; mantle, lower back, wing-coverts and secondaries bright grass-green; rump light verditer-blue; upper tail-coverts darker than the rump; middle tail-feathers black, exceedingly lengthened, all tapering to a point; outer tail-feathers greyish-ash and margined at the extremity with white; entire chest and upper breast rich glossy purple; belly, sides and flanks silky golden-orange; middle of the abdomen and under tail-coverts pure white; under-surface of wings ash-grey, widely margined on the inner web with greyish-white. Eyes brown, feet and tarsus yellow; bill, tip and cutting edge red, remainder greyish-white. Total length 142 mm.; culmen 11, wing 69, tail 57, tarsus 15. Figured. Collected on Parry's Creek, North-west Australia, on the 29th of December, 1908.

Adult male. Lores, cheeks and top of the head brilliant scarlet; a broad band of verditer-blue bordering the crown, continued down the sides of the neck and lower throat; back of the neck golden-green; mantle, lower back, wing-coverts and secondaries bright grass-green; rump bright verditer-blue, becoming darker on the upper tail-coverts; tail black, the middle pair greatly lengthened and tapering sharply to a point; outer tail-feathers black, narrowly tipped with white; entire chest and upper breast rich glossy purple; belly, sides and flanks silky golden-yellow; middle of the belly and under tail-coverts white; under-surface of wings ash-grey, widely bordered on the inner web with greyish-white. Eyes amber, bill whitish, feet dark cream. Total length 132 mm.; culmen 10, wing 66, tail 55, tarsus 16. Figured. Collected at Napier Broome Bay, North-west Australia, on the 25th of April, 1910.

Adult female. Fore-head, lores, cheeks, ear-coverts, chin and throat black; a narrow band of light verditer-blue bordering the crown; back of the neck slightly golden; mantle, lower back, wing-coverts and secondaries dull grass-green; rump and upper tail-coverts light verditer-blue; middle tail-feathers black and pointed at the extremity; outer tail-feathers greyish-ash tipped with white; chest and upper breast vinous-pink; belly, sides and flanks silky golden-yellow; middle of the abdomen and under tail-coverts white; under-surface of wing ash-grey, broadly

THE BIRDS OF AUSTRALIA.

edged on the inner web with greyish-white. Bill grey with tip red, eyes amber, feet buff. Wing 64 mm., tail 40. Figured. Collected on Napier Broome Bay, North-west Australia, on the 10th of December, 1909.

Adult female. Top of the head and cheeks dull scarlet, a narrow line of black feathers bordering the crown, succeeded by a band of dull verditer-blue which gradually merges into the green of the upper-parts; back of the neck, mantle, lower back and secondaries dull grass-green; rump dull greenish-blue; middle tail-feathers long and pointed and black in colour; outer tail-feathers ash-brown, narrowly tipped with white; chin, throat and sides of the cheeks black; a narrow ring of greenish-white feathers surrounding the fore-part of the neck and continued up the sides of the head; chest lavender-pink; belly and sides of the body silky golden-yellow; abdomen and under tail-coverts white; under-surface of wings ash-grey, bordered on the inner web with whitish-buff. Wing 60 mm. Figured. Collected in North-west Australia in the autumn of 1905.

Young. Fore-head, lores and a line behind the eyes across the back of the head black; nape and hind-neck ash-grey, gradually shading into the olive colour of the neck, mantle, wing-coverts and secondaries; scapulars dull olive-green; rump and upper tail-coverts bluish; middle tail-feathers long and pointed, blackish-grey in colour; outer tail-feathers ashy-grey, narrowly fringed with yellowish-white; flight-feathers ash-brown, narrowly margined on the outer web with dull olive; throat and fore-neck, as well as the sides of the head, black; chest and upper breast pinkish-buff, the feathers on the sides of the breast purplish-pink; sides and flanks yellowish-olive, middle of the belly lighter; abdomen and under tail-coverts white; under-surface of wings and tail ash-grey, margined on the inner web with whitish. Eyes amber, feet light horn, bill blackish. Collected at Napier Broome Bay, North-west Australia, on the 10th of June, 1910.

Young. Occiput whitish-brown, with freshly-moulted black and scarlet feathers making their appearance; a line of blue feathers separating the black occiput from the back of the head, which is dull olive-green like the neck, mantle, wing-coverts and scapulars; lower back, rump and upper tail-coverts greenish-blue; primaries and secondaries blackish-brown, margined on the outer web with dull olive-green; central tail-feathers long and very pointed, dull olive at the base and blackish towards their extremity; outer tail-feathers greyish-olive fringed at their tips with yellowish-white; lores, sides of the face, chin and throat black, mixed with a few whitish-buff feathers; chest and upper breast purplish-pink; belly and sides of the body yellowish-orange, becoming paler on the middle of the belly; thighs and under tail-coverts white; under-surface of wings and tail ash-grey, margined on the inner web with whitish. Eyes brown, feet yellow. Collected in Queensland in November, 1896.

Immature. Head, cheeks, sides of the neck and hind-neck ash-grey, gradually shading into the greenish-olive colour of the back, wings and tail; primaries blackish-brown, margined on the outer web with yellowish-olive and on the inner web with buffish-white; under-parts ashy-brown, palest on the chin and middle of the belly and under tail-coverts; under-surface of wings and tail ashy-grey. Eyes black, feet pink, bill rosy. Collected at Normanton, Gulf of Carpentaria, North Queensland, on the 11th of October, 1913.

Eggs. Five to eight eggs form the clutch, five usually. A clutch of five taken at Burketown, North Queensland, on the 13th of August, 1895, is white. Ovals in shape. Surface of shell fine and smooth, and almost entirely devoid of gloss. 16 by 11 mm.

GOULDIAN FINCH.

Nest. Is a bottle-shaped structure, composed of dried grasses and placed in a variety of situations—in tall grass, bush, small tree, or in the hollow limb of a tree.

Breeding-months. August to December, and some seasons as late as March, April and May.

EVERY ornithologist agrees with Gould's explanation: "It was with feelings of the purest affection that I ventured to dedicate this lovely bird to the memory of my late wife, who for many years laboriously assisted me with her pencil, accompanied me to Australia, and cheerfully interested herself in all my pursuits." The dedication of this bird to Mrs. Gould's memory will surely then receive the sanction of every scientific ornithologist.

The *Poëphila gouldiæ* was discovered by Gilbert on Greenhill Island at the head of Van Diemen's Gulf, "where it inhabited the edges of the mangroves and thickets; when disturbed it invariably flew to the topmost branches of the loftiest gums, a habit I have not before observed in any other member of the genus. Its note is a very mournful sound added to a double twit. Those I observed were feeding among the high grass in small families of from four to seven in number, and were very shy. The stomach is tolerably muscular, and the food consists of grass and other seeds." More recently, the late Mr. Elsey observed it in great abundance on the Victoria River. Gould then added *P. mirabilis* as a distinct species, observing: "Some ornithologists have entertained the opinion that the *P. mirabilis* and the *P. gouldiæ* were one and the same species, but that such is not the case has been proved by the researches of the late Mr. Elsey, who lived for some time at the Victoria River, surrounded by hundreds of both these birds. This gentleman found them breeding, and collected many examples, which, all carefully labelled, are now in the national collection. Some of the black-headed ones, or *P. gouldiæ*, are labelled 'adult male'; one is marked 'female obtained from the nest'; there are also red-headed specimens labelled 'adult male' and 'adult female' and young birds which are totally different in colouring, being nearly uniform olive, without markings of any kind. Mr. Elsey informed me that he often saw the two species associated in large flocks."

Mr. J. P. Rogers has noted: "Only one of this species seen at Mungi, in fact this was the only one seen during the whole trip and none were seen at Derby on my return. This is about the southern limit of this bird's range, although I know a bird-catcher who caught a few thirty miles out from Broome, which lies about 100 miles S.W. of Derby."

Rogers' previous notes from the Fitzroy River, North-west Australia, were recorded by Hall: "The scarlet-headed bird is not common, while I have not seen any of the yellow-headed variety. *P. gouldiæ* comes with

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P. acuticauda in a small flock for the purpose of drinking from a rock-hole. I find them near the coast rather than inland. On 31/8/00 I met a large flock of *P. mirabilis* and *P. gouldiæ* on a sand-ridge fifteen miles inland from Derby. I believe these birds are now (24/3/00) nesting, as I saw a pair building up an old nest which was placed in a bunch of spinifex. I have always seen the birds in rough, stony country. In no place are they plentiful, as about 15-20 is the most I have seen congregated. This was in December. The stomachs of those dissected were full of spinifex seed. I saw, at Breakaway on 15/1/01, a large flock of Finches. They consisted of *P. gouldiæ*, *P. mirabilis*, and *T. castanotis*. The green backs of the former are very beautiful as they appear with the rising of the birds against the dry grass."

Berney wrote from the Richmond district, North Queensland: "Concerning this very handsome Finch, I cannot do better than repeat the information given me by a bird-catcher who is a keen ornithologist. He reported it as being a summer visitant to the Homestead district, where the earliest arrivals might be looked for at the end of November, or more probably during December, the main body arriving during January, by the end of which month they would be fairly plentiful. They nested here, building their nests in the spouts of hollow trees, and left again at the end of April, when they are supposed to journey north-west. All the old birds and most of the young ones go, but some of the latter remain right through the winter. The immature, which are very plain coloured, do not obtain their full adult plumage till Christmas. They extend as far west along the northern railway line as Torrens Creek. They are always known as 'Painters' to Homestead people."

Hill recorded from Napier Broome Bay, North-west Australia: "On 16th and 19th November, flocks of these Finches arrived at the station, and remained a couple of weeks. Six weeks later many more arrived, and remained until the beginning of July. None of these birds nested in the district. The red and black-headed varieties were always found in the same flocks, the latter outnumbering the former by about three to one."

Maegillivray has written: "First observed on the Leichhardt River, two miles beyond Augustus Downs. Seven miles from the Leichhardt, on the Gregory River track, they came to a water-hole at night in numbers."

Barnard has observed, from the McArthur River, Northern Territory: "This handsome Finch was often seen on dry ridges at long distances from water. It resorts to small hollows in trees for nesting purposes, and several pairs nest in the same hollow. An instance of this came under my notice while collecting on the McArthur. In a swamp gum growing on the bank of the river, three nesting hollows were found at heights varying from 20 to 40 feet from the ground. One hollow contained five eggs, of two distinct types;

GOULDIAN FINCH.

a second contained no fewer than fourteen perfectly fresh eggs, of three distinct types; the third hollow was beyond reach. After taking the eggs I watched the birds assemble about the different hollows; no fewer than six pairs gathered at one hollow and three at the other. At the hollow that was not disturbed several birds were busy carrying in bits of straw and dead coolibah leaves."

As above noted, Gould maintained that the black-headed and red-headed birds were distinct species, but Ramsay, to cite one instance, suggested that the red-headed were females and the black males, but, moreover, pointed out that some birds had golden heads and named these *P. armitiana* to favour those who regarded the red-headed and black-headed as distinct species, and later wrote: "I am not yet quite satisfied that these species are really distinct, but as we have specimens now breeding in our aviaries, I hope the time is not far off when this matter will be settled. It is only fair to say that I have failed to mate adults of the *red-headed* phase with the *black-headed varieties*, but both have been captured from the same troop. I am inclined to believe that the young *males* and *females* of both these so-called species are alike in colour, both having black on the fore-head and face, and light, *dull, plum-coloured* breasts. If they are to be considered as distinct species, this is the only solution of the question, but it must be remembered that we have one variety with *bright golden-yellow*, instead of *red* or *black* on the face and fore-head." North then added: "It may be interesting to know that several of the Gouldian Finches have bred in Dr. Ramsay's aviary at the Museum. A pair, male and female, of the black-headed phase, hatched out on May 13th last three young ones, one of which, although having a dull-coloured breast, has developed a crimson head."

The golden-headed phase named by Ramsay seems to be very local, as no one has mentioned it since on the east coast and it has not been met with on the west. The black-headed phase is probably the latest development, as the throat appears to be permanently black, thus suggesting relationship to the black-throated *Poëphila*, but then other groups have also black throats; the change from red to golden is at present inexplicable, but I have seen a "red-faced" *Erythura* with a yellow face, a similar change.

Campbell observed: "There is a singular fact in connection with the young birds that has not yet been recorded by other observers—that is, a protuberance upon the gape which (when the youngster is in the dark part of the aviary) reflects the light and shines with an opal-like brilliancy. Why nature has endowed the young birds with such lustrous mouthpieces has not yet been determined."

Mrs. Black has written: "I have reared young Gouldian (*Poëphila gouldiæ*), Black-throated (*P. cincta*), Plum-head (*Aidemosyne modesta*) and

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Banded (*Stictoptera bichenovii*) Finches in my aviary, and was most interested in the markings in the mouths of the young Gouldians, or Painters, as we call them. I have never noticed any signs of bright spots or colouring in the other young Finches reared in captivity."

This appeared in answer to a note I wrote in the *Emu*, Vol. XVII., p. 100, 1917, entitled: "The Nestlings of Australian Finches: What do we know about them." I there recorded Chapin's valuable study of African forms apparently closely allied, and indicated questions in connection with the Australian forms, but very little result has yet been seen.

The forms admitted are

Gouldæornis gouldiæ gouldiæ (Gould).

Van Diemen's Gulf, Northern Territory.

Of this *Gouldæornis mirabilis* (Des Murs), Raffles Bay, is a synonym.

Gouldæornis gouldiæ armitiana (Ramsay).

North Queensland (Cardwell?).

Gouldæornis gouldiæ kempfi (Mathews).

Normanton, Gulf of Carpentaria.

Gouldæornis gouldiæ westra Mathews.

Differs from *G. g. gouldiæ* (Gould) in having the head (either black or red) much more intense in colour and the back a deeper shade of green. Type: Napier Broom Bay, North-west Australia.

GENUS—ALISTERANUS.

ALISTERANUS Mathews, Nov. Zool., Vol. XVIII.,
p. 433, Jan. 31st, 1912. Type (by original
designation) *Amadina cineta* Gould.

THIS genus was proposed when I was lumping and despising colour values, and was differentiated on account of its square tail which disagreed altogether with the other species associated in *Poëphila*. The colour scheme is so exactly that of *Poëphila* that it must be classed next to that genus, but the tail is still quite different, and shows that structural features can be evolved without any disturbance of the colour arrangement.

According to Mrs. Black this species has not the mouth markings of the Gouldian Finch.

ALISTERANUS CINCTUS.

BLACK-THROATED FINCH.

(PLATE 574.)

- AMADINA CINCTA* Gould, Proc. Zool. Soc. (Lond.) 1836, p. 105, Feb. 20th, 1837: New South Wales.
- Amadina cincta* Gould, Proc. Zool. Soc. (Lond.) 1836, p. 105, Feb. 20th, 1837; *id.*, Synops. Birds Austr., pt. II., pl. 21, April 1st, 1837.
- Poëphila cincta* Gould, Birds Austr., pt. VI. (Vol. III., pl. 93), March 1st, 1842; *id.*, Handb. Birds Austr., Vol. I., p. 425, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 376, 1890; Hall, Key Birds Austr., p. 51, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 494, 1901; Smedley, Emu, Vol. IV., p. 69, 1904 (Q.); Berney, *ib.*, Vol. VI., p. 41, 1906 (Q.); Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 295, 1909; Macgillivray, Emu, Vol. XVII., p. 207, 1918 (Q.); Black, *ib.*, p. 228.
- Sporothlastes cincta* Bonaparte, Consp. Gen. Av., Vol. I., p. 456, 1850.
- Poëphila atropygiatis* Diggles, Trans. Philos. Soc. Queensl. 1876, p. 11, after Aug. 3rd: Normanton, Queensland: Castelnau and Ramsay, Proc. Linn. Soc. N.S.W., Vol. I., p. 382, March 1877; *id.*, *ib.*, Vol. II., pp. 111-187, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888; Hall, Key Birds Austr., p. 51, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 496, 1901; North, Proc. Linn. Soc. N.S.W., Vol. XXIX., p. 130, 1904.
- Poëphila nigrotecta* Hartert, Bull. Brit. Ornith. Club, Vol. VIII., p. LIX., July 4th, 1899: Cape York, Queensland; Nov. Zool., Vol. VI., p. 426, 1899; Hall, Key Birds Austr., 2nd ed., p. 113, 1906; Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 300, 1909.
- Poëphila neglecta* North, Rec. Austr. Mus., Vol. V., p. 263, June 16th, 1904: New South Wales.
- Alisteranus cinctus cinctus* Mathews, Nov. Zool., Vol. XVIII., p. 433, 1912; *id.*, List Birds Austr., p. 303, 1913.
- Alisteranus cinctus vinotinctus* Mathews, Nov. Zool., Vol. XVIII., p. 433, Jan. 31st, 1912: Inkerman, Queensland; *id.*, List Birds Austr., p. 303, 1913.



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ALISTERANUS CINCTUS
 (BLACK-THROATED FINCH.)
 ALISTERANUS ATROPYGIALIS
 (BLACK-TAILED FINCH.)

WATERBURY, MASS. 01567

BLACK-THROATED FINCH.

Alisteranus cinctus atropygiulis Mathews, Nov. Zool., Vol. XVIII., p. 433, 1912; *id.*, List Birds Austr., p. 304, 1913.

Alisteranus cinctus nigrotectus Mathews, Nov. Zool., Vol. XVIII., p. 433, 1912; *id.*, List Birds Austr., p. 303, 1913.

Alisteranus neglectus Mathews, Austral Av. Rec., Vol. II., p. 137, 1915.

Alisteranus cinctus macleannani Mathews, Austral Av. Rec., Vol. III., pt. 6, p. 159, June 25th, 1918: Watson River, North Queensland.

DISTRIBUTION. Queensland, New South Wales.

Adult male. Head, back, and sides of the neck light leaden-grey; cheeks and ear-coverts lighter grey; upper mantle light reddish-chestnut; lower back, wing-coverts and scapulars chestnut-brown; rump and upper tail-coverts black; tail glossy purplish-black; lores, chin and throat glossy bronze-black, forming a "bib"; chest, upper breast and sides of the body reddish-chestnut, a large patch of black feathers on each side of the body joining on to the rump; abdomen, flanks, thighs and under tail-coverts white; primaries and inner secondaries blackish-brown, narrowly bordered on the outer web with buff and broadly margined on the inner web with pinkish-chestnut; under-surface of wing ash-grey, widely bordered on the inner web with pale chestnut. Eyes rich brown, bill black, legs and feet coral-red, claws brown. Total length 125 mm., culmen 10, wing 62, tail 38, tarsus 18. Figured. Collected on the Watson River, North Queensland, on the 18th of June, 1914, and is the type of *macleannani* (*atropygiulis*).

Adult female. Similar to the adult male.

Adult male. Fore-head, crown and back of the neck light grey; cheeks and ear-coverts silvery-grey; upper mantle pinkish-chestnut; mantle, wing-coverts and secondaries and wings vinous-buff, shading into the colour of the mantle; rump and upper tail-coverts glossy-black; tail-feathers dull black; lores and entire throat glossy-black; chest, breast, belly and sides of the body chestnut-pink; a large black patch on each flank; thighs and under tail-coverts white; under-surface of wings ash-grey, widely bordered on the inner web with pinkish-chestnut. Eyes reddish-brown, feet red, bill black. Total length 107 mm.; culmen 9, wing 60, tail 38, tarsus 16. Collected at Cape York, North Queensland, on the 18th of June, 1898, and is the type of *nigrotecta* (*atropygiulis*).

Adult female. Similar to the adult male.

Immature. Entire upper-parts, including the secondaries and tail, earth-brown; flight-coverts ash-grey, fringed with the same colour as the upper-parts; under-surface of the body dull reddish-brown; middle of the belly whitish; under-surface of wings ash-grey, widely margined on their inner webs with rusty-brown. Eyes black, feet pinkish, bill blackish. Collected at Normanton, Gulf of Carpentaria, North Queensland, on the 16th of April, 1914 (*atropygiulis*).

Eggs. Five to nine eggs form the clutch. A clutch of six eggs taken at Duaringa, near Rockhampton, Queensland, on the 10th of November, 1899, is of a pure white. Swollen ovals in shape. Surface of shell fine, smooth, and slightly glossy. 15-17 by 12 mm.

Nest. A bottle-shaped structure, composed of dried grasses, lined with feathers, and usually placed in high grass, a bush, or small tree.

Breeding-months. August to December; but the seasons are greatly influenced by the weather conditions and the rainfall.

THE BIRDS OF AUSTRALIA.

Eggs. Six to nine eggs form the clutch. A clutch of nine eggs taken at Coen, Cape York Peninsula, North Queensland, on the 31st of March, 1922, is white, possessing the very faintest trace of a tinge of green. Very rounded ovals in shape. Surface of shell fine and smooth, and slightly glossy. 15-16 by 11 mm.

Nest. A bulky and rather flask-shaped structure. Composed of fine dried grasses, twigs, and leaves of small plants, etc., lined with fine hair-like seed tops of fine grass. Dimensions over all: 9 inches long by 7 inches across, and 3 inches in depth. Entrance: $2\frac{1}{2}$ inches wide by $1\frac{1}{2}$ inches deep; egg-chamber: $3\frac{1}{2}$ inches diameter by 2 inches deep from roof to bottom. Nest placed in tall grass or bush, and frequently between the spirals of dead leaves of the Pandanus Palm-tree, the top layer of leaves often forming the roof of the nest.

Breeding-months. August to January, and often as late as April or even June. The season depends on the rainfall.

STILL another of the "new species" Gould discovered in the British Museum before he went to Australia, but he had little to write about it on his return, stating: "This species is tolerably abundant on the Liverpool Plains, and the open country to the northward towards the interior. It occurs so rarely on the sea side of the ranges, that I only once met with it during my sojourn in New South Wales."

Smedley wrote from the Lower Burdekin River, North Queensland: "Common all over district. Have seen them catching and eating white ants (*termites*) the winged ones, any time after heavy rain. They seem to enjoy a feed of ants."

Berney noted: "This species was only seen once (January 1906) when I watched a pair in the river (Flinders) timber."

Macgillivray has written: "Were common on the Archer River, where Mr. McLennan found them nesting in June. On the Watson they were nesting freely in April, and were mostly found frequenting the *Pandanus* flats."

In the *Queensland Philosophical Society's Transactions* there appeared a paper by Diggles, wherein he wrote: "I have now the pleasure of informing you that an undoubtedly new species of *Poëphila* has been sent to our friend the Secretary of this Society by Mr. Gulliver, from Normanton. The new Finch bears a very near resemblance to our *P. cincta*, a plentiful species near Brisbane. It is a bird about the same size, but differs in having the upper tail-coverts brownish-black, whereas in *P. cincta* they are white. The name I propose for it will indicate this peculiarity—*P. atropygialis*, or black-rumped *Poëphila*. The drawings will sufficiently show the difference without further description."

The name was recognised by Castelnau and Ramsay at once for Normanton birds, and the species admitted in the "Tabular List" in 1888. Sharpe in *The Catalogue of the Birds in the British Museum* in 1890 gave a

BLACK-THROATED FINCH.

footnote (Vol. XIII., p. 375): "Dr. E. P. Ramsay mentions (*Tab. List Austr. B.*, p. 10) a species from the Gulf of Carpentaria as *Poëphila atropygialis* Diggles (*Queensl. Phil. Soc.*, p. 876). I have not been able to find the quotation and cannot fix the species."

Hartert then described a bird from Cape York as a new species: "*Poëphila nigrotecta*. Similar to *P. cincta*, from which it differs in being considerably smaller, and in having the upper tail-coverts black like the rump. Wing 59-60 mm. (about 63 in *P. cincta*)."

Australian ornithologists at once recognised that this was probably the same form which Diggles described, while North described an intermediate between the black- and white-rumped forms as *Poëphila neglecta*, the exact locality being unknown, but probably from New South Wales.

When I drew up my "Reference List" in 1912 I proposed the new genus *Alisteranus* for this species, with the tail square, none of the feathers elongated, and allowed four subspecies.

Alisteranus cinctus cinctus (Gould).

New South Wales.

As a synonym I placed *Poëphila neglecta* North.

Alisteranus cinctus vinotinctus Mathews.

"Differs from *A. cinctus cinctus* in its paler coloration above and below, its silvery head, and the breast pale rosy-brown. Inkerman, Queensland."

Queensland (Inkerman).

Alisteranus cinctus atropygialis (Castelman and Ramsay).

Queensland (Norman River).

Alisteranus cinctus nigrotectus (Hartert).

North Queensland (Cape York).

I allowed Hartert's form as Cape York birds are generally different from Normanton ones, which were not available at that time. In my 1913 "List" the same four forms were admitted, but North's *P. neglecta* was ranked as a probable synonym of Diggles' form. Since then I have received Normanton birds and they are easily separable from the Cape York form, and I have added

Alisteranus cinctus maclennani.

"Differs from *A. c. atropygialis* (Diggles) in its darker coloration above and below, and measurements probably larger. Wing 61 mm.: typical birds are 58 mm. Watson River, North Queensland."

The other figured bird on the plate is *cinctus*, a female collected in New South Wales, it differs from *atropygialis* in having the upper tail-coverts white, not black; some of the black feathers on the rump are tipped with white. It is also lighter on the under-surface.

The male is similar to the female.

GENUS—NEOPOËPHILA.

NEOPOËPHILA Mathews, Austral Avian
Record, Vol. I., pt. 8, p. 196,
March 20th, 1913. Type (by
original designation) *Poëphila personata belcheri* Mathews.

IGNORING colour values, a very bad policy, and judging from structural features alone, I placed this species with *Neochmia* in my "Reference List" in 1912. Still using structural features, but taking colour into consideration, I separated this group, writing: "Differs from *Neochmia* in having the tail-feathers more pointed."

I have shown the really near relationship with *Poëphila*.

NATIONAL MUNICIPAL LEAGUE



H. Grönvold, del.

Witherby & C^o

NEOPOEPHILA PERSONATA
(MASKED FINCH.)

NEOPOËPHILA PERSONATA.

MASKED FINCH.

(PLATE 575.)

POËPHILA PERSONATA Gould, Birds Austr., pt. VI., March 1st, 1842: Port Essington, Northern Territory.

Poëphila personata, Gould, Birds Austr., pt. VI. (Vol. III., pl. 91), March 1st, 1842; *id.*, Proc. Zool. Soc. (Lond.) 1842, p. 18 (Nov.); *id.*, Handb. Birds Austr., Vol. I., p. 423, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 377, 1890; Hall, Key Birds Austr., p. 51, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 495, 1901; Le Souëf, Emu, Vol. II., p. 150, 1903 (N.T.); Kilgour, *ib.*, Vol. IV., pp. 37-40, 1904 (N.W.A.); Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 298, 1909; Mathews, Emu, Vol. IX., pp. 16-64, 1909 (N.W.A.); Hill, *ib.*, Vol. X., p. 289, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 260, 1913 (N.T.); H. L. White, *ib.*, Vol. XIII., pp. 100-195, 1913-4; Macgillivray, *ib.*, p. 182, 1914 (N.Q.); Barnard, *ib.*, p. 209 (N.T.); *id.*, *ib.*, Vol. XIV., p. 50, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 229, 1917 (N.T.); Campbell, *ib.*, Vol. XVIII., p. 187, 1919 (N.T.).

Amadina personata Gray, Genera Birds, Vol. II., p. 370, 1847.

Poëphila leucotis Gould, Proc. Zool. Soc. (Lond.) 1846, p. 106, Jan. 26th, 1847: River Lynd, Queensland; Gould, Birds Austr., pt. XXVI. (Vol. III., pl. 92), March 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 424, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; *id.*, Tab. List Austr. Birds, p. 10, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 377, 1890; Hall, Key Birds Austr., p. 51, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 496, 1901; Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 299, 1909; Macgillivray, Emu, Vol. XVII., p. 207, 1918 (N.Q.).

Poëphila personata belcheri Mathews, Bull. Brit. Ornith. Club, Vol. XXVII., p. 68, March 28th, 1911: Parry's Creek, North-west Australia; *id.*, Nov. Zool., Vol. XVIII., p. 23, 1911 (Eggs).

Neochmia personata personata Mathews, Nov. Zool., Vol. XVIII., p. 433, 1912.

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Neochmia personata harterti Mathews, *ib.*, p. 434, Jan. 31st, 1912: Napier Broome Bay, North-west Australia.

Neochmia personata belcheri Mathews, *ib.*

Neochmia personata leucotis Mathews, *ib.*

Neopoëphila personata personata Mathews, List Birds Austr., p. 304, 1913.

Neopoëphila personata harterti Mathews, *ib.*

Neopoëphila personata leucotis Mathews, *ib.*

Neopoëphila personata watsoni Mathews, Austral Av. Rec., Vol. III., pt. 4, p. 71, July 21st, 1917: Watson River, North Queensland.

Neopoëphila personata hilli Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 41, Feb. 21st, 1923: Borroloola, Gulf of Carpentaria, Northern Territory.

DISTRIBUTION. Northern Australia from Parry's Creek, North-west Australia, to Watson River, North Queensland.

Adult male. Feathers bordering the base of the culmen, lores, chin and upper throat glossy black; head, neck, mantle and wing-coverts light chestnut; rump white; upper tail-coverts white, bordered on the outer margin with black; tail black, the central pair long and tapering to a point; secondaries ash-brown; primaries brownish-ash, margined on the outer web with light chestnut, and on the inner webs with pinkish-chestnut; sides of the face, lower throat, chest, belly and sides with light pink; a large patch of black covering the flanks; abdomen, thighs and under tail-coverts white; under-surface of wings blackish-brown, widely margined on the inner web with light chestnut. Eyes deep orange, bill yellow, feet coral pink. Total length 135 mm.; culmen 10, wing 61, tail 58, tarsus 18. Figured. Collected at Napier Broome Bay, North-west Australia, on the 16th of December, 1909, and is the type of *harterti* (*personata*).

Adult female. Similar to the adult male.

Adult male. A narrow line of feathers bordering the upper mandible, lores, chin and upper throat black; cheeks white, suffused with pink; head, neck, mantle, rump, wing-coverts and secondaries reddish-chestnut; upper tail-coverts white, bordered on the outer web with black; tail-feathers deep black, the middle pair long and pointed; wings ash-brown, bordered on the outer web with reddish-chestnut, and on the inner web with pinkish-chestnut; lower throat, sides of the neck, chest, breast, belly and sides of the body chestnut-pink; a large patch of black feathers on each flank; middle of the belly, thighs and under tail-coverts white; under-surface of wings brownish-black, widely margined on the inner web with vinous-chestnut. Eyes red, bill yellow, legs coral red. Total length 120 mm.; culmen 10, wing 59, tail 47, tarsus 19. Figured. Collected on the Watson River, North Queensland, on the 22nd of July, 1914, and is the type of *watsoni* (*leucotis*).

Adult female. Similar to the adult male.

Eggs. Five to six eggs form the clutch. A clutch of six eggs taken at Port Stewart, north of Cooktown, Queensland, on the 4th of May, 1922, is of a white colour, being greatly discoloured and blackened owing to the small pieces of charcoal which this species places in with its eggs. Clutches taken also at Borroloola, Macarthur River, Northern Territory, during May, 1913, are blackened the same way, and those from Napier Broome Bay in North-western Australia, during June, 1910. Swollen or roundish ovals in shape. Surface of shell fine and smooth, but without gloss. 15 by 11 mm.

MASKED FINCH.

Nest. The usual bulky bottle-shaped structure, composed of dried grasses, and lined with feathers and small pieces of charcoal about the same size as the eggs. It is often built in grass, and placed near or actually upon the ground, and at other times in a bush or small tree, and situated six feet or more up from the ground.

Breeding-months. August to December, and often as late as April, May and June.

ANOTHER of Gilbert's fine discoveries; Gould wrote: "This beautiful and well-marked species of Grass-Finch is a native of the north-west coast of Australia, where several specimens were shot by Gilbert during an excursion from Port Essington towards the interior of the country, who states that it inhabits grassy meadows near streams, feeding on grass seeds, etc. It was tolerably abundant, being congregated in flocks of from twenty to forty. When on the wing it utters a very feeble cry of *twit, twit, twit*, but at other times pours forth a drawn-out, mournful note, like that of some of the other Grass-Finches."

Hill recorded from North-western Australia: "A few birds were seen near Napier Broome Bay at rare intervals, but in the barren country near the Drysdale River this species is more plentiful than *P. acuticauda*. The nests are more often built in the grass than in trees, and in many cases rest on the ground near a stump or log. About a teaspoonful of finely broken charcoal was found in each nest."

From Borroloola, Northern Territory, Hill wrote: "More frequently met with than *P. acuticauda*. In April these birds were nesting very freely in the Roper River country. The nests are nearly always built in one of the following positions: (a) on termites' nests, (b) on bare ground at the base of termites' nests, (c) in tussocks of grass at the base of termites' nests, (d) rarely in shrubs growing through or against termites' nests. I cannot recollect having seen a single nest built anywhere but in close proximity to termites' nests, but a reliable ornithologist informed me that he found several nests near Pine Creek in the grass, and that he had not noticed any partiality on the part of these Finches for termites' nests. Bill yellow."

Macgillivray recorded: "*Poëphila personata*: First noted on the Leichhardt River, two miles beyond Augustus Downs. On the Gregory River they were numerous. Stomach contents, grass seeds. Bill yellow."

Barnard then recorded from Borroloola, Northern Territory: "Often seen in small flocks of from eight to twelve. This bird builds its bulky grass nest in short grass, often almost, if not quite, on the ground. It resembles a bunch of dead grass. Small pieces of charcoal are built in with the layers of grass in forming the nest, and loose pieces are left in with the eggs. When first laid the eggs are pure white, but in a few days they take on a sooty appearance from coming in contact with the charcoal. This is intensified as the brooding is carried on, and, when hard set, the eggs are much the

THE BIRDS OF AUSTRALIA.

colour of the charcoal. The bill of this bird in life is a bright yellow, but fades after skinning."

McLennan's notes, recorded by H. L. White, from the Northern Territory, read: "King River. Occasionally seen in forest and numerous along river flats and about springs prior to rains. Crop, small seeds; gizzard, seeds and sand."

Discussing these, Campbell has written: "Three ♂♂, 1 ♀. Wings 58 mm. Slightly darker or richer coloured than those from other localities. However, some from Port Darwin (near the type locality) are a little lighter coloured, and agree with Napier Broome Bay (North-west) specimens—Mathews's *harterti*."

It is a pity Campbell did not give the bill coloration, as Gould described it as orange and Gilbert separated as a different bird, which Gould called *leucotis*, the one he met with in Mid-Queensland as it had a yellow bill. I named the north-western forms on account of their yellow bills (in the first place) and now Barnard and Hill note that the Borroloola bird has a yellow bill, and Macgillivray records the birds from the Gulf country as having yellow bills.

Gould's other features of his *leucotis* are the white ear-coverts and richer upper coloration, apparently only of subspecific value.

Macgillivray has written without comment: "*Poëphila leucotis*. White-eared Grass Finches were common on the Archer River."

Under the heading *Poëphila leucotis*, Gould wrote: "The present beautiful species of *Poëphila* is one of the novelties discovered during Dr. Leichardt's expedition from Moreton Bay to Port Essington; it was killed in the neighbourhood of the river Lynd by Gilbert, in whose Journal, under the date of June 3rd. 1845, I find the following remark: 'The most interesting circumstance that occurred to me to-day was the discovery of a new species of *Poëphila*, which is very nearly allied to the one from Port Essington (*P. personata*) but which differs from that bird in having the bill light yellowish horn-colour instead of orange, the irides dark brown, and the legs red; it is in every respect a true *Poëphila*, having the black face and throat, the black marks on the flanks, the lengthened tail-feathers, and the general plumage of a light brown; like the other members of the genus, it inhabits the open spots of country, and feeds on grass seeds.' In addition to the differences pointed out by Gilbert, I may mention that it may also be distinguished from the *P. personata* by its white ear-coverts and by the black of the throat being bounded below, and the black marks on the flanks anteriorly, with white; the colouring of the upper-surface is also a somewhat richer brown."

Ramsay was so little impressed with the differences cited that he suggested that the two forms were identical, but later they were considered separable, although the real value seems only sub-specific.

MASKED FINCH.

I early named

Poëphila personata belcheri.

“ Differs from *P. p. personata* Gould in having the back uniform reddish-brown ; the ear-coverts and under-surface slightly lighter in colour, and the black under the chin extending in a V-shape for about 12 mm. ‘ Bill yellow, eyes, feet and tarsus red.’—J. P. Rogers. Length 123 mm. : wing 60 mm., culmen 12, tarsus 16. Parry’s Creek, North-west Australia.”

In my “ Reference List ” in 1912 I placed the species under the genus name *Neochmia* and allowed four subspecies :

Neochmia personata personata (Gould).

Northern Territory.

Neochmia personata harterti Mathews.

“ Differs from *N. p. belcheri*, its nearest ally, in its darker coloration above, especially on the wings, and its rosier under-surface. Napier Broome Bay, N.W.A.”

North-west Australia.

Neochmia personata belcheri (Mathews).

North-west Australia (Parry’s Creek).

Neochmia personata leucotis (Gould).

North Queensland.

I transferred these to the genus *Neopoëphila* in my 1913 “ List ” where they appeared without any other alteration.

I have since added

Neopoëphila personata watsoni.

“ Differs from *N. p. leucotis* (Gould) in being darker on the under-surface. Watson River, North Queensland.”

North Queensland (Watson River).

The Borroloola and Gulf country birds should be named

Neopoëphila personata hilli, subsp. nov.

Differs from *N. p. watsoni* in being darker coloured, and they are also slightly larger.

GENUS—NEOCHMIA.

NEOCHMIA Gray, Genera Birds, Vol.

II., p. (369), June 1849 (ex Hombron MS.). Type (by original

designation) *Fringilla phaeton* Hombron & Jacquinot.

THIS very distinctly coloured bird proves to be a close ally, from the colour scheme, of *Bathilda*.

The conical bill, rounded wing, long wedge-shaped tail and short legs serve structurally to characterize the genus. At different times attention has been called to the more open nostrils and the very short legs, but neither of these items is of much importance.

The bill is a little more conical, narrower at the base, and shallower, but comparative measurements would show nothing of value.

The wing is more rounded than in the majority of these Finches, the first primary minute as usual; the second shorter than the third and exceeded in length by the long, not pointed, secondaries; the fourth, fifth, sixth and seventh primaries subequal and longest; the eighth longer than the second and equalled by the secondaries.

The tail is very long and wedge-shaped, longer than the wing; the outside feathers less than half the length of the central ones, which are narrowed towards their tips but not attenuate.

The legs are short, scutellate in front, bilaminate behind, and the toes are slender, the mid-toe very long, and the hind-toe not very stout.

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NEOCHMIA PHAETON
(CRIMSON FINCH.)

NEOCHMIA PHAËTON.

CRIMSON FINCH.

(PLATE 576.)

- FRINGILLA PHAËTON Hombron et Jacquinot, Ann. Sci. Nat. Paris, Ser. II., Vol. XVI., p. 314, (after Nov.) 1841: Raffles Bay, Northern Territory.
- Fringilla phaëton* Hombron et Jacquinot, Ann. Sci. Nat. Paris, Ser. II., Vol. XVI., p. 314, 1841.
- "*Néochmie phaëton*" Hombron et Jacquinot, Voy. Pôle Sud Zool., pl. 22, fig. 33, Jan. 1845.
- Estrelida phaëton* Gould, Birds Austr., pt. VIII. (Vol. III., pl. 83), Sept. 1st, 1842; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 186, 1878; *id.*, *ib.*, Ser. 2, Vol. I., p. 1091, 1887; *id.*, Tab. List Austr. Birds, p. 10, 1888.
- Neochmia phaëton* Bonaparte, Consp. Gen. Av., Vol. I., p. 458, 1850; Gould, Handb. Birds Austr., Vol. I., p. 415, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 389, 1890; Hall, Key Birds Austr., p. 52, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 499, 1901; Webb, Emu, Vol. II., p. 29, 1902 (N.Q.); Hall, *ib.*, p. 56 (N.W.A.); Le Souëf, *ib.*, p. 150, 1903 (N.T.); Smedley, *ib.*, Vol. IV., p. 69, 1904 (Q.); Berney, *ib.*, Vol. VI., p. 42, 1906 (Q.); Mathews, Handl. Birds Austral., p. 103, 1908; North, Austr. Mus. Spec. Cat., No. 1, Vol. II., p. 300, 1909; Mathews, Emu, Vol. IX., p. 64, 1909 (N.W.A.); Broadbent, *ib.*, Vol. X., p. 237, 1910 (N.Q.); Hill, *ib.*, p. 290, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 261, 1913 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 182, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 50, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 229, 1917 (N.T.); Campbell and Barnard, *ib.*, Vol. XVII., p. 35, 1917 (N.Q.); Campbell, *ib.*, Vol. XVIII., p. 187, 1919 (N.T.).
- Erythrura phaëton* Pucheran, Voy. Pôle Sud Zool., Vol. III., p. 99, 1853.
- Neochmia phaëton phaëton* Mathews, Nov. Zool., Vol. XVIII., p. 434, 1912; *id.*, List Birds Austr., p. 304, 1913.
- Neochmia phaëton iredalei* Mathews, Nov. Zool., Vol. XVIII., p. 434, Jan. 31st, 1912: Rockhampton, Queensland; *id.*, List Birds Austr., p. 305, 1913.
- Neochmia phaëton fitzroyi* Mathews, Austral Avian Record, Vol. I., pt. 5, p. 120, Dec. 24th, 1912: Fitzroy River, North-west Australia; *id.*, South Austr. Orn., Vol. III., p. 228, 1918.

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DISTRIBUTION. Northern Australia from the Fitzroy River. North-west Australia, to Mid-west Australia; Queensland and New South Wales.

Adult male. Crown and back of the head greyish-black; sides of the neck, upper mantle and neck smoky-grey; lower mantle dull carmine fringed with dark grey; rump smoky-grey; upper tail-coverts bright carmine-red; middle tail-feathers long and pointed and of a dull carmine; outermost tail-feathers blackish-brown on the inner webs and dull carmine on the whole of the outer webs; primaries ash-grey with the outer web olive; secondaries similar in colour to the mantle; lores, feathers over the eyes, cheeks and ear-coverts dull crimson; throat, chest and sides of the body dull carmine, the feathers of the sides of the breast with a pearl-white spot on the middle; belly, abdomen and under tail-coverts smoky-black; under-surface of the wings ash-grey, margined on the inner web with pale isabelline. Eyes light yellowish-brown; feet and legs pale yellow, tinged with brown; bill red. Total length 144 mm.; culmen 11, wing 52, tail 65, tarsus 15. Figured. Collected on the Fitzroy River, North-west Australia, on the 18th of July, 1911, and is the type of *fitzroyi*.

Adult female. Fore-head, crown, sides of the neck, mantle, back and rump smoky-grey, with a few scattered dull carmine feathers on the lower back; innermost secondaries dull carmine, margined with dull olive; primaries and outermost secondaries ash-grey, margined on the outer web with olive and on the basal part of the inner web with creamy-white; upper tail-coverts dull crimson; tail-feathers dull crimson, the outermost pair greyish-olive on the inner web; lores, feathers above the eyes, cheeks, ear-coverts, sides of the face and chin carmine-red; lower throat and chest smoky-grey; sides of the body smoky-grey suffused with carmine, and with small pearl-white spots scattered over the sides; middle of the breast, belly, abdomen and under tail-coverts pale isabelline; under-surface of wings greyish-ash, narrowly margined on the inner web with greyish-white. Eyes light brown, feet olive-brown, tarsi light yellow, bill red. Total length 120 mm.; culmen 10, wing 53, tail 54, tarsus 15. Figured. Collected at the same time and place as the male.

Eggs. Five to eight eggs form the clutch. A clutch of seven taken at Napier Broome Bay, North-western Australia, on the 27th of March, 1910, is pure white. Rounded ovals in shape. Surface of shell fine, smooth, and slightly glossy. 15-16 by 11-12 mm.

Nest. The usual bottle-shaped structure. Composed of dried grasses, bark, and leaves; lined with grass, leaves and feathers, and sometimes fur. Placed in long grass, or in a bush or tree, and sometimes placed as high as 25 feet from the ground in a tree, and often in the top of a Pandanus Palm.

Breeding-months. August to December, and often as late as March, April and May.

THIS extraordinary Finch was discovered at Raffles Bay, Northern Territory, by the French scientists Hombron and Jaquinot on board the "Astrolabe" and "Zelée." They described it in a little paper read before the Paris Academy of Sciences and thus anticipated Gilbert's discovery of it at Port Essington very shortly afterwards. Gould records Gilbert's notes: "This bird is an inhabitant of moist, grassy meadows, particularly where the *Pandanus* (Screw Pine) is abundant. It is generally found feeding among the grass, and when disturbed invariably takes to those trees. From July to

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November it is to be observed in large flocks, sometimes of several hundreds ; but although great numbers were shot during this period, not more than three or four were obtained in the rich plumage. About the latter part of November they were either in pairs or in small companies, not exceeding six in number ; the males decorated with their rich red and spotted dress. The stomach is muscular, and the food consists of grass and other small seeds."

Capt. S. A. White says : " Met with this glorious little bird on the Adelaide River, N.T., in 1922. June. There were numbers feeding on an open space near the river bank, and as they flew up and down from the ground to a low bushy tree they were like flashes of fire shooting out of the dry grass, their beautiful plumage shows so brilliantly in the strong sunlight. Grass and weed seeds seemed to be their principal food ; did not see any signs of mating at that time."

Mr. Tom Carter wrote me : " There is no doubt that some form of *Neochmia* occurs on the Upper Minilya River, as a personal friend, manager of a station there, has some specimens in a cage obtained there in spinifex country."

Kearland's notes read : " At each of the homesteads near the junction of the Fitzroy and Margaret Rivers these birds make their appearance during December, and immediately after the rainfall in January commence building their nests. At the Police Camp there were eight pairs of birds which had located their structures on the plates of the verandahs. Others had buried their nests in the reedy thatch of the stable. At Mr. Blyth's camp they were nesting under the eaves of the thatch, and the birds were so tame as to hop about the ground close to where we sat at breakfast. Although two birds were taken off their eggs and handled, they returned to their nests immediately they were liberated. The birds usually disappear again as soon as their young take wing. I never saw nests belonging to this species on trees or bushes."

Rogers' notes, recorded by Hall, read : " Two pairs have built near the camp of my neighbour, Mr. Douglas. One of these was under an old rug hanging in a tree. As soon as the birds showed their intentions (15/3/00), the rug was well secured for their purpose, and they completed their dwelling in due course. The second is placed in a small mistletoe growing immediately above his tent. Both are built of paper-bark, grass, and ' ravelings ' of an old net. When Mr. Douglas detected the wish of the birds regarding the net he unwound much of it, and they carried it away in pieces as fast as he undid the tangle. In one case the male bird did all the work while the female sat upon a limb and watched him. With the other pair, the female remained inside the skeleton nest and built in the material as her mate brought it. At times he went inside to help her. All are in beautiful plumage. On 27th September I found a nest with eggs in a low pandanus palm near the river's (Fitzroy) edge. It was made of

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pandanus, fine rootlets and paper-bark, and lined with soft paper-bark (of a species of tea-tree). I find the young just now (22/8/00) to be very common, but there are no nests as far as I can trace."

Hill wrote from North-west Australia: "This beautiful bird is resident and fairly plentiful about all the creeks and springs from Napier Broome Bay to the Drysdale River. The nests are generally built in pandanus palms, or in the forks of large cajaput trees, at from 10 to 50 feet from the ground. The materials used in nest-building are partly decayed leaves of a coarse swamp grass or cajaput bark on the outside, with feathers or grass as lining. Both sexes assist in building their large and roughly constructed nests. Flower buds and seeds of many small plants, honey from the flowers of *Grevillea*, and grass-seeds form the chief articles of diet. Green-tree ants (*Ecophylla smaragdina*) destroy many eggs and young of this species."

Berney has written from the Richmond district, North Queensland: "1902 is the only year I have seen them. I used to come across them feeding on the dry mudbanks along the river from June to November, sometimes ten or a dozen together. Their call is a subdued 'Peet, peet, peet,' uttered disjointedly."

Hill noted from Borroloola, Northern Territory: "Generally found in tall grass near the river. The nests are built of bark and broad leaves of grass, lined with feathers, and portions of grass-seeds; usually placed in forks or under loose pieces of bark from 8 to 20 feet from the ground."

Macgillivray wrote: "Noted throughout the Gulf country, being more numerous along the Leichhardt and Gregory than in the vicinity of Cloncurry. Along those rivers it was found frequenting the cane grass and pandanus, and many nests were found. They were bulky structures, composed of grass and lined with feathers. Stomach contents seeds."

Barnard, from the MacArthur River, Northern Territory, noted: "Frequents the cane-grass and pandanus palms growing in marshy localities. The butts of the pandanus leaves often formed a nesting site. At other times a hollow spout or jutting piece of bark was chosen."

H. L. White has recorded McLennan's notes from the Northern Territory: "King River—Small flocks always seen along river flat and in long grass and pandani about springs. 17/11/15: Small flock seen catching flying termites. Roper River, 21/2/16: Birds seen along river amongst the pandani and vines. Crop, termites and seeds; gizzard, seeds and sand."

Campbell and Barnard, dealing with the birds of Rockingham Bay district, North Queensland, wrote: "The choice coloured Crimson Finches, although not numerous, were often seen, and were building at 'Fringford,' a farm on the Upper Murray."

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Smcdley had previously recorded them as "Not common, though often seen on the Lower Burdekin River," and Broadbent included this species in his Cardwell birds from "Craig's, Herbert River."

No subspecies were named until I prepared my "Reference List" in 1912, when I accepted

Neochmia phaëton phaëton (Hombron and Jacquinot).

Northern Territory, North-west Australia.

Neochmia phaëton iredalei Mathews.

"Differs from *N. p. phaëton* in its much paler coloration above and below, the dark head being only indicated. Rockhampton, Queensland."

North Queensland.

I later added

Neochmia phaëton fitzroyi.

"Differs from *N. p. phaëton* in having the belly and the red on the throat lighter, in having a brown instead of a black head, and in having a grey rump. From *N. p. iredalei* it differs in having the belly and the red on the throat darker and in having a much darker head. Fitzroy River, North-west Australia."

These three were admitted without any alteration in my 1913 "List."

Since then, Campbell, reporting upon birds from the King River, has confirmed the latter distinction, writing: "Three ♂♂, two ♀♀. A nice series, and well named 'crimson' in tone of colour. Not a Gouldian-Gilbert type, but, as Gould states, Hombron and Jacquinot's bird was collected at Raffles Bay, 'a locality closely bordering that in which Gilbert procured his specimens.' It is interesting to note, as Mathews has pointed out, that type-locality birds have a black crown instead of brown, as in North-west specimens (*fitzroyi*). The Territory birds, in general, are also more intensely coloured. There is less difference in the respective females."

NEOCHMIA ALBIVENTER.

WHITE-BELLIED CRIMSON FINCH.

(PLATE 577.)

NEOCHMIA PHAËTON ALBIVENTER Mathews, South Austr. Ornithologist, Vol. I., pt. II., p. 13, April (1), 1914: Claudie River, North Queensland.

Neochmia phaëton albiventer Macgillivray, Emu, Vol. XV., p. 36, 1915 (egg); *id.*, *ib.*, Vol. XVII., p. 208, 1918.

DISTRIBUTION. Claudie River.

Adult male. Feathers of the fore-head, crown and back of the neck smoky-grey; mantle, wing-coverts and innermost scapulars dull carmine with brownish-grey margins; a band of greyish-brown feathers across the lower back; rump and upper tail-coverts carmine-red; tail-feathers dull carmine-red, the outermost pairs washed on the inner web with dull olive; primaries ash-grey, margined on the outer web with olive; lores, feathers of the eyes, cheeks, ear-coverts, throat, breast and sides of the body bright crimson-red; middle of the belly, abdomen and under tail-coverts white; flanks buffy-white; sides of the body with small spots of pearl-white suffused with pink; under-surface of the wings ash-grey, margined on the inner web with whitish. Eyes light brown, bill rose-red, legs brownish, feet darker. Total length 117 mm.; culmen 10, wing 50, tail 57, tarsus 16. Figured. Collected on the Claudie River, North Queensland, on the 19th of January, 1914, and is the type of the species.

Adult female. Top of the head, neck, mantle, back, rump, and upper tail-coverts greyish-brown; innermost secondaries dull carmine on the outer web and olive-brown, slightly tinged with dull carmine, on the inner web; primaries and outermost secondaries brownish-ash, margined on the outer web with olive and narrowly margined with pale buff on the inner web; rump carmine-red; middle tail-feather dull carmine, the outermost pairs dull carmine on the outer web and olive suffused with carmine on the inner web; lores, feathers over the eyes, cheeks, ear-coverts, chin and throat carmine-red; chest and sides of the body greyish-ash; middle of the belly, abdomen and under tail-coverts white; under-surface of wings greyish-ash, margined on the inner web with whitish-grey. Eyes pale brown, bill crimson, base blue, legs and feet yellow, claws light brown. Total length 120 mm.; culmen 10, wing 48, tail 50. Figured. Collected on the Watson River, North Queensland, on the 14th of June, 1914.

Immature. General colour of the upper-parts, including the wing-coverts, reddish-brown; secondaries fringed on the outer webs with dull carmine; flight-feathers ash-brown, slightly margined on their outer and inner webs with olive; tail wedge-shaped, dull reddish-crimson in colour; throat, sides of the face and remainder of the



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NEOCHMIA ALBIVENTER
(WHITE-BELLIED CRISSAL FINCH.)

WHITE-BELLIED CRIMSON FINCH.

under-parts smoky-brown; middle of the belly, abdomen and under tail-coverts buffish-white; under-surface of wings ash-grey; under-surface of tail ash-brown, fringed with dull carmine on their outer webs. Eyes greyish-brown, bill blackish-brown, legs and feet yellow tinged with brown, claws pale brown. Collected on the Watson River, North Queensland, on the 14th of June, 1914.

Nest and eggs and breeding-habits similar to Neochmia phaëton.

I DESCRIBED this distinct species very shortly as: "Differs from *N. p. phaëton* in having a white belly and a grey head. Type from Claudie River, North Queensland."

Macgillivray's notes (the only ones yet made) read: "This new subspecies of the Crimson Finch we first found on 31st December in a small watercourse running through long grass towards a large patch of scrub on the Claudie. We did not come across it again until the 19th January, when we first secured a specimen in *Pandanus* and long-grass country near a swamp. Two days later we saw a few more, again in the same class of country. Mr. McLennan found it to be common on the Archer River, where it was nesting in April. He found his first nest, containing four eggs, in a *Pandanus*, and it was mostly in the *Pandanus* flats that he found them. He also noted them catching and eating flying termites."

This species shows more clearly the colour relation of *Neochmia* to *Bathilda*.

GENUS—MIMETA.

MIMETA Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 326, Feb. 17th, 1827. New name for *Mimetes* King. Type (by subsequent designation) Lesson, Compl. de Buff., 2nd ed., Vol. II., p. 497, 1838

Gracula viridis Lath.=
Coracias sagittata Latham.

Mimetes King, Survey Intertrop. Coasts Austr., Vol. II., p. 418, "1827" = April 15th, 1826. Type, as above

Coracias sagittata Latham.

Not—*Mimetes* Eschscholtz, Mem. l'Acad. Imp. Sci., St. Petersb., 1818.
Nor—Huebner, Verz. bekannt. Schmett., p. 210, 1822.

Amimeta Mathews, Austral Avian Record, Vol. II., pts. 2-3, p. 62, Oct. 23rd, 1913. New name for *Mimeta* Vigors and Horsfield.

ORIOLES of dull streaked coloration, with long bills, long wings, long tail, and small stout legs and feet.

The bill is as long as the head, laterally compressed, not much expanded basally; culmen ridge semikeeled; culmen nearly straight, anteriorly sloping forwards, tip sharp, strongly decurved and posteriorly notched; nasal groove small, about one-fourth the length of the bill; nostrils open as operculate linear slits, a few small nasal bristles, and rictal bristles small and obscure; the under mandible nearly as stout as upper, gonys long, a little ascending but not angulate, the interramal space small and feathered.

The wing has the first primary short, about half the length of the second, the third and fourth subequal and longest, the second shorter than the fifth but longer than the sixth, the secondaries short.

The tail-feathers broad, the tail rounded in shape.

The legs short, scutate in front, with five scutes, bilaminate behind; the middle toe and claw longer than the hind-toe and claw, the inner toe shorter than the outer.

The genus name *Mimetes* was proposed by King for these birds like Orioles, which were Honey-suckers, and, as the name had been used before,

MIMETA.

Vigors and Horsfield simply changed the ending, replacing the invalid name by *Mimeta*, and it is now a moot point whether the latter alteration is valid. In order to avoid complications I introduced the new name *Amimeta*, so that if it be later considered necessary to reject *Mimeta*, a similarly formed substitute is available. Recently, the committee of the Systema Avium agreed that names of the same derivation differing only in the gender, *i.e.* -us, -a, -um, were to be regarded as homonyms, but the more intricate questions such as the present one were left over for further consideration.

MIMETA SAGITTATA.

ORIOLE.

(PLATE 578.)

- CORACIAS SAGITTATA* Latham, Index Ornith. Suppl., p. xxvi., (after May 30th) 1801 : New South Wales.
- Coracias sagittata* Latham, Index Ornith. Suppl., p. xxvi., 1801.
- Gracula viridis* Latham, *ib.*, p. xxviii., (after May 30th) 1801 : New South Wales ; Mathews, Austral Avian Record, Vol. V., pt. I., p. 26, pl. (2), 1922.
- Striated Roller Latham, Gen. Synops. Birds, Suppl. II., p. 122, 1801.
- Green Grakle Latham, *ib.*, p. 129.
- Coracias striata* Shaw, Gen. Zool., Vol. VII., p. 400, 1809 : New South Wales.
Not *Coracias striata* Gmelin, Syst. Nat., Vol. I., p. 381, 1788.
- Oriolus variegatus* Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XVIII., p. 196, Dec. 27th, 1817 : "Nouvelle Hollande" = New South Wales.
Not *Oriolus variegatus* Bechstein, Kurze Uebers. Vögel, p. 127, 1811.
- Oriolus viridis* Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. XVIII., p. 197, 1817 ; Gould, Birds Austr., pt. XXI. (Vol. IV., pl. 13), Dec. 1st, 1845 ; Diggles' Ornith. Austr., p. xvi., 1868 ; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 212, 1877 ; Hall, Key Birds Austr., p. 10, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 81, 1901 ; Batey, Emu, Vol. VII., p. 5, 1907 (Vic.) ; Ingle, *ib.*, Vol. X., p. 122, 1910 (Vic.) ; Cheney, *ib.*, Vol. XIV., p. 213, 1915 (Vic.) ; Ramsay, *ib.*, Vol. XIX., p. 6, 1919 (N.S.W.).
- Mimetes viridis* King, Survey Intertrop. Coasts Austr., Vol. II., p. 419, "1827" = April 1826.
- Mimeta viridis* Vigors and Horsfield, Trans. Linn. Soc. (Lond), Vol. XV., p. 326, 1827 ; Gould, Handb. Birds Austr., Vol. I., p. 462, 1865 ; Ramsay, Proc. Zool. Soc. (Lond.), 1875, p. 593 ; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878 ; *id.*, Tab. List Austr. Birds, p. 11, 1888.
- Mimeta meruloides* Vigors and Horsfield, Trans. Linn. Soc. (Lond.) ; Vol. XV., p. 327, Feb. 17th, 1827 : New South Wales.
- Oriolus affinis* Gould, Birds Austr., Introd., Svo, p. 57, Aug. 1st, 1848 : Port Essington, Northern Territory ; *id.*, Birds Austr., Folio, Vol. I., Introd., p. LIII., Dec. 1st, 1848 ;



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MIMETA SAGITTATA
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- Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 188, 1877; Ramsay, Tab. List Austr. Birds, p. 32, 1888; Hall, Key Birds Austr., p. 10, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 79, 1901; Hall, Emu, Vol. I., p. 106, 1902 (N.W.A.); Le Souëf, *ib.*, Vol. II., p. 87, 1902 (N.T.); Macgillivray, *ib.*, Vol. X., pp. 217-233, 1910 (N.Q.); Broadbent, *ib.*, p. 238 (N.Q.); Hill, *ib.*, p. 290, 1911 (N.W.A.); E. W. Barnard, *ib.*, Vol. XI., p. 210, 1912 (Q.); Hill, *ib.*, Vol. XII., p. 261, 1913 (N.T.); Campbell and Kershaw, *ib.*, p. 276; Macgillivray, *ib.*, Vol. XIII., p. 182, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 50, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 230, 1917 (Q.); Campbell and Barnard, *ib.*, Vol. XVII., p. 35, 1917 (Q.); Macgillivray, *ib.*, p. 208, 1918 (Q.); Harvey Bros., *ib.*, Vol. XIX., p. 42, 1919 (Q.).
- Mimeta affinis* Gould, Handb. Birds Austr., Vol. I., p. 465, 1865; Ramsay, Proc. Zool. Soc. (Lond.) 1875, p. 593; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; *id.*, Tab. List Austr. Birds, p. 11, 1888; Campbell, Emu, Vol. XX., p. 65, 1920 (Q.).
- Mimeta sagittata* Robinson and Laverock, Ibis, 1900, p. 615; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 75, 1902; Gogerley, Emu, Vol. XXI., p. 315, 1922.
- Oriolus sagittarius* (error) Mathews, Handl. Birds Austral., p. 104, 1908; *id.*, Emu, Vol. IX., p. 16, 1909 (N.W.A.); Cleland, *ib.*, p. 226, 1910 (Food); *id.*, Vol. XI., p. 93, 1911 (Food); *id.*, Vol. XII., p. 17, 1912 (Food).
- Oriolus sagittatus sagittatus* Mathews, Nov. Zool., Vol. XVIII., p. 434, Jan. 31st, 1912; Meinertzhagen, Ibis, 1923, p. 86.
- Oriolus sagittatus subaffinis* Mathews, Nov. Zool., Vol. XVIII., p. 435: Cooktown, North Queensland; *id.*, Austral Av. Rec., Vol. I., p. 63, 1912 (Eggs); *id.*, South Austr. Orn., Vol. II., p. 60, 1915.
- Oriolus sagittatus affinis* Mathews, Nov. Zool., Vol. XVIII., p. 435, Jan. 31st, 1912; Meinertzhagen, Ibis, 1923, p. 87.
- Oriolus sagittatus blaauwi* Mathews, Nov. Zool., Vol. XVIII., p. 434, Jan. 31st, 1912: Napier Broome Bay, North-west Australia.
- Mimeta sagittata sagittata* Mathews, List Birds Austr., p. 305, 1913; Belcher, Birds Geelong, p. 363, 1914.
- Mimeta sagittata subaffinis* Mathews, List Birds Austr., p. 305, 1913.
- Mimeta sagittata affinis* Mathews, *ib.*
- Mimeta sagittata blaauwi* Mathews, *ib.*; *id.*, South Austr. Orn., Vol. III., p. 228, 1918.
- Amimeta sagittata* Mathews, Austral Avian Record, Vol. III., p. 68, 1916.
- Amimeta sagittata sagittata* Mathews, *ib.*
- Amimeta sagittata subaffinis* Mathews, *ib.*
- Amimeta sagittata affinis* Mathews, *ib.*
- Amimeta sagittata blaauwi* Mathews, *ib.*

DISTRIBUTION. Northern Australia running down to the east into Victoria and South Australia, and on the west to Derby and Mungi, North-west Australia.

Adult male. Feathers of the upper-surface of the body light grey, suffused with greenish-olive, each feather with a mesial shaft-stripe of blackish, wider and more pronounced on the head and becoming paler towards the upper tail-coverts, which are almost

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devoid of markings, a whitish eyebrow commencing in front of the eye and continued over the ear-coverts; cheeks greyish-olive; wing and secondary coverts brownish-grey, bordered on both webs with brownish-buff; secondaries greyish-brown, margined on the outer web with greyish-white; primaries greyish-brown, narrowly bordered on the outer web with grey; tail-feathers similar to the primaries, but with a spot of rufous-buff on the inner web at the tip; under-surface of the body white, with narrow black shaft-streaks on the throat, and with drop-like markings of black on the chest and sides of the body; middle of the belly, abdomen and under tail-coverts white; under wing-coverts and axillaries rusty-buff; under-surface of wing ash-brown, margined on the inner web with greyish-white. Eyes dark amber, bill dark horn, tarsus grey. Total length 268 mm.; culmen 31, wing 145, tail 101, tarsus 26. Figured. Collected at Napier Broome Bay, North-west Australia, on the 23rd of July, 1910, and is the type of *blaarwi*.

Adult male. Feathers of the lores, head, sides of the neck, wing-coverts, mantle, back, rump and upper tail-coverts olive-green with blackish shafts-streaks to the feathers of the mantle; tail blackish-grey with a large spot of white on the inner web at the extremity; primaries and secondaries brownish-ash, margined on the outer web with white; chin and throat smoky-white with indistinct greyish shaft-streaks; sides of the throat washed with greenish-olive; sides of the chest washed with bright olive-green; chest, breast and belly creamy-white, each feather with a broad streak of black down the middle; under tail-coverts white; under-surface of wings greyish-brown basally margined on the inner web with vinous-buff. Eyes light red, feet and tarsi leaden-blue, bill fleshy-brown. Total length 275 mm.; culmen 29, wing 152, tail 103, tarsus 27. Figured. Collected on Melville Island, Northern Territory, on the 28th of May, 1912.

Adult female. Similar to the adult male.

Nearly adult female. Fore-head, crown and back of the head light greyish-brown washed with yellow, and with distinct shaft-streaks of brownish-black; an ill-defined greenish-grey collar round the hind-neck; mantle and lower back greenish-olive with broad blackish-brown shaft-streaks, brighter on the rump; wing-coverts ash-brown, broadly margined with rusty-buff; secondaries and innermost primaries blackish-brown margined on the outer web and at the tip with buff; primaries brownish-black, narrowly margined on the outer web with white and basally on the inner web with rich buff; tail-feathers brownish-black, very narrowly margined on the outer web with buff and with a large spot of rusty-buff on the inner web at the extremity; an indistinct eyebrow of dull yellow; ear-coverts olive; lores dusky; chin, throat, breast, and sides of the body creamy-white, suffused with yellow and with drop-like markings of blackish-brown on the shafts of each feather; middle of the abdomen, thighs and under tail-coverts white, the latter margined with yellow; under wing-coverts rust-colour; under-surface of wings ash-brown, widely margined on the inner web towards the base with pinkish-buff. Eyes black, feet grey, bill brownish-black. Collected at Normanton, North Queensland, on the 7th of April, 1914.

Immature. Feathers of the head dull golden-olive with wide black shafts-streaks; back of the neck and upper mantle ash-grey with blackish shaft-streaks; mantle, lower back, rump and upper tail-coverts greenish-olive, middles of each feather with a broad streak of black down the centre; tail greyish-olive, darker on the outer web and with a large patch of white on the inner web at the extremity, and a smaller spot on the outer web; lesser wing-coverts blackish-brown, widely bordered with rufous-buff; secondaries and greater wing-coverts olive-grey, widely margined on the outer web with rufous-buff; primaries dark brown margined on the inner web with whitish; chin and throat greyish-white with blackish shaft-strips;

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remainder of the under parts white, each feather with heavy drops of black ; under tail-coverts uniform greyish-white : under-surface of wings blackish-brown, margined on the inner web with vinous-pink. Collected near Brisbane, Queensland.

Eggs. Two to four eggs form the clutch, three usually, four very seldom. A clutch of three eggs taken at Belltrees, Upper Hunter River, New South Wales, on the 3rd of October, 1909, is of a pale cream ground-colour, spotted and blotched (particularly towards the larger end) with light and dark amber and slaty-grey. Swollen ovals in shape. Surface of shell fine, smooth and glossy. 33 by 23 mm.

Nest. A deep, open, cup-shaped structure, composed of strips of bark interwoven with leaves, etc., and, when built about a homestead, pieces of twine and strands of old bagging are often used. It is well secured to the limb from which it is suspended by the rim, and closely resembles the nest of the Noisy Friar-Bird (*Philemon corniculatus*). Lined with thin dried grasses. The outside of the structure is often ornamented and matted together with the silk-like egg-bags of spiders and moth cocoons, etc. Generally placed in a tree, mostly in the forest, and at various heights from 15 up to 40 feet or more ; frequently the nest is situated near the end of a drooping branch. Measurements over all, $6\frac{1}{2}$ to nearly $7\frac{1}{2}$ inches across by $5\frac{1}{2}$ to 6 inches in depth. Egg-cavity, 4 to $4\frac{1}{2}$ inches across by $2\frac{1}{2}$ to 3 inches deep.

Breeding-months. September to end December or January.

As hereafter discussed, Latham described first a species of Roller and then a Grakle, both of which were based on paintings of this bird.

The description of the Grakle was soon recognised and used for this Oriole, and Vigors and Horsfield added a new species, giving as field notes : "The following extract from Mr. Caley's MSS. contains all the knowledge we have of these birds. He speaks undecidedly ; but what he says is against the opinion that they are *meliphagous*. 'These are birds of passage. I think I once saw a flock of them in Government Garden, and that the gardener complained of their destroying the figs. One of my specimens, to the best of my recollection, I shot in a *green wattle* tree close to Government House.' "

Goold noted : "This form is merely an offshoot from *Oriolus*, from which it is distinguished by the absence of any gay colouring in the plumage of its members. The true and probably the restricted habitat of this species is New South Wales, where in the months of summer it is tolerably plentiful in every part of the colony. I frequently observed it in the Botanic Garden at Sydney, and in all the gardens of the settlers, where there were trees of sufficient size to afford it shelter ; the brushes of the country, the sides of brooks, and all similar situations are equally inhabited by it. I did not find it in South Australia, neither has it been observed to the westward of that part of the country. That its range extends pretty far to the northward I have no doubt, as its numbers rather increased than diminished in the neighbourhood of the rivers Peel and Namoi. The bird as observed by me in New South Wales was bold and active, and was often seen in company with the Regent-, Satin- and Cat-Birds, feeding in the same trees and on similar berries and

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fruits, particularly the small wild fig. I often observed it capturing insects on the wing and flying very high, frequently above the tops of the loftiest trees."

Ramsay's notes read: "During the winter months these birds may be found in flocks of from five to twenty in number, feeding upon various cultivated and wild fruits, and often in company with the Fruit-eating Magpie, the note of which they often imitate. They frequent nearly all the orchards and gardens about Sydney, especially if they contain any of the native olive- or Moreton Bay fig-trees in fruit, to which they are very partial. I have known them, though seemingly with great reluctance, eat the berries of the white cedar.

Towards the beginning of September those near Sydney pair and seek for breeding-places, each couple selecting a distinct locality, where they remain during the whole of the season; even if the nest be taken, they will, like the *Grallina australis*, continue building near the same place until the season has expired. The note of this Oriole is very melodious and varied. It may often be seen perched on some shady tree, with its head thrown back, showing to perfection its mottled breast, singing in a low tone and imitating the notes of many birds, including the *Zosterops*, and particularly the Black or Fruit-eating Magpie. While feeding, it frequently utters a harsh, guttural sort of squeak. During the breeding-season, which commences at the end of September and ends in January, it confines itself to a very monotonous although melodious cry, the first part of which is quickly repeated, and ends in a lower note."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales: "A species which appears to be coming more numerous each year; a few years back it was rather a rare thing to see one, but now it is almost common, and its monotonous notes can be heard at any time of the year, but more so during the spring and summer months. Excepting in my orchard, when the grapes are ripe, I have never seen more than two of these birds together, and when not breeding, they go about singly and are usually heard calling from the topmost branches of a large tree. I have only found three pairs breeding here. They are great marauders in orchards, especially when the grapes are ripe."

Mr. F. E. Howe has written me: "During September this bird makes its appearance at Ringwood, and in October its large nest is found suspended in the saplings (on one occasion as low as about twelve feet). The clutch is three and often only two. Both help in incubating the eggs, which takes about sixteen days, and the young are born blind and featherless. This bird appears to spend a lot of its time perched high up on a dead stick and uttering its peculiar gurgling cry. Breeding-season extends from September to December.

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Capt. S. A. White says: "This bird with its subspecies has a very wide range; it comes down to South Australia occasionally in the autumn and soon makes its presence known by its wonderful gurgling note, so unlike any other South Australian bird; they do not remain long with us. While here they feed upon olives, white cedar (*Melia*) berries, both Australian and American varieties, ivy berries and insect life.

"They were very numerous in the flowering eucalypts near Darwin in June, 1922. Many birds, including the Oriole and the yellow variety, would be seen squabbling over the huge heads of blossom any morning in the week, calling very loudly and often making a scolding note."

Mr. Tom Tregellas has also written: "My first note on the arrival of the Orioles this season is on Oct. 17th, and from that date to the present (Dec. 25th) they have been very much in evidence. When first heard, the call of the Oriole seems pleasant and a remembrance of last year's visit, but when this call is repeated the whole day long, and with but little variation, it becomes monotonous in the extreme. The favourite locality in which to look for these birds is on a hillside overlooking a gully, and in such a place they build their beautiful nests. They may be heard long before they are seen as they have a powerful voice; their call-note resembles in part that of the Harmonious Thrush, but they vary it greatly as the season advances. When first heard, they sit straight up like a Red Wattle-Bird and give vent to the call 'lock-a-lock-a-law.' This is the call one gets tired of. As the nesting advances it is occasionally changed for 'ee-aw-ee,' and, when the nest is built and intruders are about, for a scream somewhat recalling that of the Spur-winged Plover. They are very fearless when defending their nests, and will fly with opened beak against the climber, uttering meanwhile these piercing screams. The nest is found at all heights from 7 to 40 feet from the ground; on November 2nd I found a nest with three young about seven days old. Their markings were: Bill and feet flesh-coloured, eyes just opened and irides a pale blue; gape fleshy-cream, roof of mouth light pink, throat a beautiful cerise, all the skin of body yellow and orange and fatty; fine buff-coloured down all over head, wings and spine, quills just appearing on centre of back, mantle and wings; tail-feathers just budding. On Nov. 13th found nest with two young just hatched. On 27th I examined same nest and the birds had 'gape and bill flesh-coloured, inside of mouth a beautiful pink, roof of mouth purple, legs and feet stony grey; feathers on head brown with down of the same hue above them, feathers on back mottled grey, wings dark grey with buff outer edges, breast and abdomen pure white with black blotch in centre, tail grey with white tips, under tail-coverts white. This bird is fifteen days old.'"

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Mr. Edwin Ashby notes: "This is a rare visitor in the neighbourhood of Adelaide. I have seen two specimens killed at the Reed-beds, and I have once seen it near my home at Blackwood, South Australia."

Mr. E. D. Barnard has recorded: "It may not be generally known that the Oriole is a capable mimic. A few mornings ago an Oriole treated us to a display of its powers, which proved it a fit rival to any Bower-Bird. Just about sunrise, when we were sitting at our breakfast round the camp fire, the bird came, and the entertainment only ceased when we had to leave the camp. The calls most easily identified and perfectly rendered were those of the Wedge-tailed Eagle, Black-backed Magpie, Butcher-Bird, Blue-faced and other Honey-eaters and Red-breasted Babbler; but his *répertoire* embraced several other birds, which the Oriole was apparently only learning, and could not render aright."

Macgillivray has noted: "Numerous on the Gregory River, but not so common in other parts of the Gulf country. Frequent at Cape York, where it was found in the open forest country. Its note differs considerably from that of its southern congener. Stomach, beetle and other insects, and caterpillars." Later, he added: "Was noted at Cooktown. A few were noted on the Archer River in June in the open forest."

Barnard observed: "A fairly common bird on the McArthur. It was often found feeding in fig-trees and on wild berries growing along the river. Nests were found during December and January."

Mr. J. P. Rogers has written me: "Aug. 2, 1908: I saw a great many Orioles to-day, chiefly of this species. Only saw one pair of *O. flavicinctus*." Later: "Only one seen at Marngle Creek and the next one on the Fitzroy on my return from Jegurra Creek." From Melville Island he wrote: "Cooper's Camp, Nov. 20, 1911: This bird is not so numerous as *O. flavocinctus*. It is now not so numerous as when I came on the island. Dec. 12, 1911: Have seen this species occasionally in the past three weeks. Jan. 13, 1912: A few were seen on the north side of the island. Cooper's Camp, Jan. 29, 1912: I have seen none since my return here."

Ramsay, the son of the famous E. P. Ramsay, has recently noted from the Upper Clarence River district, New South Wales: "Birds plentiful. On two occasions it was noted that their partly completed nests were taken possession of by Drongos."

Harvey Bros., writing from Mackay, North Queensland, note: "The Northern Oriole is not by any means a common bird in this district. During the breeding-season each pair of birds seems to be restricted to a certain locality, and never goes beyond its own boundaries. As a mimic the Oriole has few equals. During the months of July and August, just before the breeding-

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season, the Oriole amuses itself by imitating the calls of other brush birds. Among the bird calls which are imitated to perfection by this mimic may be mentioned the Magpie, Black-throated Butcher-Bird, Friar-Bird, Magpie-Lark, Drongo, Macleay Kingfisher, Black-faced and Little Cuckoo-Shrikes, Whistling Eagle, Goshawk, Blue-faced Honey-eater, Fig-Bird and many others. Its suspended open nest is a bulky structure of tea-tree bark, and similar in size and shape to that of the Friar-Bird, but easily distinguishable by its untidy appearance."

Accompanying this note was published a delightful little photo of three young nearly fledged Orioles perched on a branch.

This species was given two names by Latham, as shown in the synonymy, naming it as the Striated Roller and then again as the Green Grakle, in neither case stating the source of his description.

G. R. Gray recognised two Lambert drawings as being thus named by Latham, determining the former as *Mimeta viridis* ♀, the latter as *Mimeta viridis* King, overlooking the fact that the former had precedence.

Sharpe, in his exposition of the Watling drawings, regarded:

"No. 67. Southern Oriole, Latham MS." and

"No. 69. Green Grakle Latham"

as being this bird and noted: "Latham does not seem to have recognised the identity of Nos. 67 and 69," and continued the usage of *Oriolus viridis* ex Latham.

The fact that *sagittatus* was the correct name was not even realised when Robinson and Laverock in 1900 pointed out that in *The Catalogue of the Birds in the British Museum* the name *Gracula viridis* was made use of *twice*, once for the Oriole, the other time for the Cat-Bird. They therefore proposed to use the name *viridis* for the Cat-Bird and make use of the name *sagittata* for the Oriole. This was not exactly right, as *viridis* was based on the Oriole and could not be used for the Cat-Bird, but neither could it be continued for the Oriole, as *sagittatus* was *earlier* and was also given to the Oriole. I pointed this out in my "Reference List" in 1912, when I placed the specific names correctly and these have not since been altered.

As regards the subspecific forms there was confusion for a long time until the publication of my "Reference List." In the Introduction to his *Birds of Australia*, published in 1848, Gould proposed a new species, *Oriolus affinis*, writing: "Inhabits the neighbourhood of Port Essington, and only differs from the preceding species (*O. viridis*) in having a smaller body, a shorter wing, a much larger bill, and in the white spots at the tip of the lateral tail-feathers being much smaller in extent."

Sharpe, in *The Catalogue of the Birds in the British Museum*, Vol. 3, in 1877, did not recognise this, suggesting it was the immature of the succeeding species,

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but this view was contradicted by Ramsay, who wrote: "Mr. R. B. Sharpe seems to doubt the existence of a third *Oriole* in Australia—*O. affinis* Gould. I can only assure ornithologists that in my opinion this is a good species, and fairly described by Mr. Gould, and that it has nothing to do with the young of *O. flavicineta*, as supposed by Mr. Sharpe. This bird is smaller than *O. viridis*, the bill larger than *O. viridis*, the wings shorter, the tarsi smaller, the breast duller, etc., etc. *Hab.* Gulf District, N.W. Queensland, and Dawson River Districts, etc." It will be at once noted that the localities given by Ramsay are not the ones that Gould mentioned. Nevertheless, following Ramsay, Australian ornithologists recognised *O. affinis* from North Queensland right across to North-west Australia. As Ramsay recorded both species from North Australia it is obvious that he was not recognising the *race* Gould had named. Gould's species was a geographical one and Ramsay's was not. Upon examining my series in 1912 I recognised that Gould's species was a valid subspecific form and that the North Queensland bird was different and was also a valid subspecies, as also was the north-western form. This meant the reduction of Gould's species to its proper value and the addition of two subspecies, making instead of two doubtful species four well-marked subspecies as

Oriolus sagittatus sagittatus (Latham).

New South Wales, Victoria.

Oriolus sagittatus subaffinis Mathews.

"Differs from *O. s. sagittatus* in its smaller size and more streaked upper-surface. Cooktown, Queensland."

North Queensland.

Oriolus sagittatus affinis Gould.

Northern Territory.

Oriolus sagittatus blaauwi Mathews.

"Paler than *O. s. affinis* above and below, with less streaking on the under-surface, and with a long black bill. Napier Broome Bay, North-west Australia."

North-western Australia.

I transferred these to the genus *Mimeta*, but otherwise made no alterations in my 1913 "List."

Recently Campbell, dealing with a female from Torres Straits, has recorded: "Slightly lighter coloured (less greenish) than birds from Northern Territory, but similar to a female taken in Victoria save its smaller size—wing 140 mm., as against the southern example, 150 mm. Migrating birds taken in Victoria are similar to those at Cardwell, the bills of which, however, are larger. In northern birds the white spots on the terminal end of the tail-feathers are smaller, and almost disappear in some specimens."

GENUS—NEOMIMETA.

NEOMIMETA Mathews, Austral Avian Record,
Vol. III., pt. 3, p. 68, April 7th, 1916.

Type (by original designation) *Mimetes flavocinctus* King.

MORE brightly coloured Orioles than the preceding, with a differently formed wing and square tail.

The bill is similarly formed but is a little longer and stouter.

The wing has the first primary short, but it is decidedly longer than half the second, which is equal to the seventh; the third, fourth and fifth subequal and longest, the sixth very little shorter; the emargination on the outer webs of the primaries also is more marked on the third, fourth and fifth.

The tail is a little longer and square in shape.

The feet are similar, but the hind-toe is stouter and longer with claw than the middle toe and claw, the claw notably stouter and longer.

NEOMIMETA FLAVOCINCTA.

YELLOW ORIOLE.

(PLATE 579.)

MIMETES FLAVOCINCTUS King, Survey Intertrop. Coasts Austr., Vol. II., p. 419, "1827"
=April 15th, 1826.

Mimetes flavocinctus King, Survey Intertrop. Coasts Austr., Vol. II., p. 419, "1827"
=1826; Mathews, Austral Av. Rec., Vol. III., p. 68, 1916.

Mimeta flavocincta Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 327,
1827; Gould, Handb. Birds Austr., Vol. I., p. 466, 1865; Ramsay, Proc. Zool.
Soc. (Lond.) 1875, p. 593, 1878 (Q.); *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 188,
1878; *id.*, Tab. List Austr. Birds, p. 11, 1888.

*Oriolus flavocinctus** Gray, Genera Birds, Vol. I., p. 232, 1845; Gould, Birds Austr., pt. xxx.
(Vol. IV., pl. 14), March 1st, 1848; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 206,
1877; Hall, Key Birds Austr., p. 9, 1899; Campbell, Nests and Eggs Austr.
Birds, Vol. I., p. 80, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 79, 1902;
Le Souëf, Emu, Vol. II., p. 87, 1902 (N.T.); Mathews, Handl. Birds Austral., p. 104,
1908; *id.*, Emu, Vol. IX., pp. 16-64, 1909 (N.W.A.); Macgillivray, *ib.*, Vol. X.,
pp. 216-7, 1910 (N.Q.); Hill, *ib.*, p. 290, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI.,
p. 29, 1911 (N.Q.); Macgillivray, *ib.*, Vol. XIII., p. 182, 1914 (N.Q.); H. L.
White, *ib.*, Vol. XVI., p. 230, 1917 (N.T.); Campbell and Barnard, *ib.*, Vol. XVII.,
p. 35, 1917 (N.Q.); Macgillivray, *ib.*, p. 208, 1918 (N.Q.); Campbell, *ib.*, Vol. XVIII.,
p. 188, 1919 (N.T.).

Oriolus flavocinctus flavocinctus Mathews, Nov. Zool., Vol. XVIII., p. 435, Jan. 31st, 1912.

Oriolus flavocinctus kingi Mathews, *ib.*: Cairns, Queensland; *id.* Austral Av. Rec., Vol. I.,
p. 63, 1912 (Eggs).

Oriolus flavocinctus madaraszi Mathews, Nov. Zool., Vol. XVIII., p. 435, Jan. 31st, 1912:
Cooktown, Queensland.

Oriolus flavocinctus parryi Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 52, April 2nd,
1912: Parry's Creek, North-west Australia.

Mimeta flavocincta flavocincta Mathews, List Birds Austr., p. 306, 1913.

Mimeta flavocincta parryi Mathews, *ib.*

* Also spelt *flavicinctus*.



H Grönvold. del.

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NEOMIMETA FLAVOCINCTA
YELLOW ORIOLE.

NATIONAL BUREAU OF STANDARDS

YELLOW ORIOLE.

Mimeta flavocincta kingi Mathews, *ib.*; *id.*, South Austr. Orn., Vol. II., p. 60, 1915.

Amimeta flavocincta Mathews, Anstral Av. Rec., Vol. III., p. 68, 1916.

Amimeta flavocincta flavocincta Mathews, *ib.*

Amimeta flavocincta parryi Mathews, *ib.*

Amimeta flavocincta kingi Mathews, *ib.*

Amimeta flavocincta madaraszi Mathews, *ib.*

Neomimeta flavocincta Mathews, *ib.*

Neomimeta flavocincta flavocincta Mathews, *ib.*

Neomimeta flavocincta parryi Mathews, *ib.*

Neomimeta flavocincta kingi Mathews, *ib.*

Neomimeta flavocincta madaraszi Mathews, *ib.*

DISTRIBUTION. Northern Tropical Australia from Napier Broome Bay on the west to Cooktown, Queensland, on the east.

Adult male. Feathers of the fore-head dark grey, mixed with a few olive-green feathers; whole of the upper-surface of the body, including the lesser wing-coverts dull olive-green; feathers of the head and neck with blackish shaft-streaks, becoming broader on the mantle and back where they take the form of broad arrow-shaped markings, and on the rump and upper tail-coverts almost obsolete; two central pairs of tail-feathers greyish-olive, fringed on the outer webs with greenish-olive; outer pairs of tail-feathers brownish-black, bordered on the outer web with greenish-olive, with a large spot of saffron-yellow on the inner web and a smaller spot of the same colour on the outer web at the tip; chin blackish; throat, fore-neck and breast bright olive-green, becoming golden-yellow on the belly and under tail-coverts, with black centres to the feathers of the throat and wide black shaft-streaks on the feathers of the chest; under wing-coverts and axillaries olive-yellow; under-surface of the wing ash-grey, widely margined on the inner web with canary-yellow. Eyes red, feet leaden-grey, bill fleshy-brown. Total length 285 mm.; culmen 27, wing 141, tail 105, tarsus 27. Figured. Collected on Parry's Creek, North-west Australia, on the 3rd of September, 1908, and is the type of *parryi*.

Adult female. Lores, fore-head and crown greenish-olive with wide black middles to the feathers, a ring of bright greenish-olive round the hind-neck; wing-coverts, mantle and back black with olive-green margins to the feathers; rump bright olive-green; upper tail-coverts of the same colour as the back but with blackish markings down the shafts; wing-coverts and secondaries brownish-black, bordered with yellowish-white; primaries blackish-brown, narrowly margined on the outer web and suffused with yellowish-olive over the greater part of the inner web; chin, throat, sides of the face, neck and chest dark greenish-olive with well-marked black shaft-streaks; breast, belly and sides of the body olive-yellow with dull blackish shaft-streaks; abdomen and under tail-coverts lighter olive-yellow; under wing-coverts and axillaries olive-yellow; under-surface of wings brownish-olive, widely margined on the inner web with greenish-yellow. Eyes red, feet and tarsi leaden-blue, bill fleshy-brown. Total length 263 mm.; culmen 30, wing 135, tail 100, tarsus 28. Figured. Collected on Melville Island, Northern Territory, on the 11th of November, 1911.

Immature male. Head dark olive-green, each feather with a broad central streak of black, becoming broader on the back of the neck; upper back and mantle olive-green with large blackish-brown centres to the feathers, producing a heavily spotted appearance; rump and upper tail-coverts golden olive-green with blackish-brown

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shaft-streaks; middle tail-feathers dark olive-green; outer tail-feathers olive-brown margined on the outer web with dark olive-green, all the feathers with a large spot of yellowish-white on the inner web and a small one on the outer; entire under-parts bright olive-yellow with wide black shaft-stripes; under-surface of wings brownish-olive, widely margined on the inner web with golden-yellow. Eyes brown, feet and tarsi leaden-blue. Bill blackish-brown, base brown. Collected on Melville Island, Northern Territory, on the 14th of June, 1912.

Immature female. Feathers of the head and neck dark olive-green, each feather with a broad central streak of black; mantle and back dull olive-green, each feather with a large blackish-brown centre; rump light olive-green, fringed with yellow; two central pairs of tail-feathers dark olive-green, outer tail-feathers blackish-brown, all the feathers with a large spot of pale yellow on the inner web and a smaller spot on the outer web at the extremity; wing-coverts and secondaries blackish-brown margined with yellowish-white; primaries brownish-ash, margined on the outer web and tip with yellowish-white and on the inner web with pale yellow; a well-marked eyebrow of deep yellow; all the under-parts of the body golden-yellow washed with olive and with blackish shaft-streak, very pronounced on the chest; under-surface of the wings ash-grey very widely margined on the inner web with light yellow. Eyes brown, feet slate, bill brown. Collected at Cooktown, North Queensland, on the 4th of August, 1900.

Eggs. Two eggs form the clutch, three being seldom met with. A clutch of two eggs taken near Cooktown, North Queensland, on the 24th of November, 1894, is of a pale cream-colour, boldly spotted and blotched (particularly at the larger end) with blackish-brown and pale slate. Ovals in shape. Surface of shell is fine and smooth with the exception that there are a few small, hard, and limey excrescences on the shell. 33 by 23 mm.

Nest. An open and cup-shaped structure, composed of strips of soft bark, vine tendrils, etc., well woven in together. Lined with twigs, vine tendrils, etc. Dimensions over all, 7 to 7½ inches by 4 to 5 inches in depth. The egg cavity, 3½ to 4 inches across by 2½ to 3 inches deep. Usually suspended near the end of a long branch of a tree, and placed from 15 to nearly 50 feet up from the ground.

January 4th, 1912. 10 miles S.E. of Snake Bay, Melville Islands. Full clutch, two eggs, one of which was broken; it was partly incubated. This nest was built in a paper-bark growing in the edge of the great swamp in a depth of about 6 inches of water. Was placed in a fork of a thin horizontal limb about 12 feet above the water. The materials of the outer nest were broad strips of paper-bark fastened together with cobwebs and cocoons. The nest was lined with fine twigs and stalks of grasses. Dimensions outside, 8 by 5 by 4½ inches deep; inside, 4 by 3 by 2¼ inches deep. From the outside upper edge of the nest several long broad strips of paper-bark up to 20 inches in length were suspended, being fastened to the nest with cobwebs.

Breeding-months. September to end of December.

A BOOK, published by Capt. King, on a *Survey of the Intertropical Coasts Australia*, contains descriptions of new animals and includes the new genus *Mimetes* for this and the preceding species, on the ground that they were Honey-eaters with brush tongues masquerading as Orioles.

No notes regarding its habits were given, and Gould simply added: "Gilbert procured two specimens at Port Essington, and Commander

YELLOW ORIOLE.

Ince, R.N., subsequently obtained an additional example in the same locality. All the information that has reached me respecting its habits and economy is contained in a short note sent to me by Gilbert, which merely states that his specimens were obtained in the forests of mangroves bordering the coast."

Mr. J. P. Rogers' notes from Melville Island, Northern Territory, read: "Cooper's Camp, Nov. 20th, 1911: On the 28th Oct. I saw a nest of this species; it was built of paper-bark and placed in a fork near the end of a thin, horizontal limb at the height of thirty-five feet from the ground. This bird is common on the Island, usually near creeks or other places where the growth is fairly dense. Was still very common on Dec. 16th. This species was very common on the north side of the Island, especially in the paper-bark trees in and along the edges of the big swamp. Several nests were found, all of which contained two eggs each."

McLennan's notes, recorded by H. L. White on his King River trip, read: "Glyde River, 11/9/15: Noted in small patches of tangled scrub on ridges. Liverpool River, 21/9/15: Occasional bird noted along river. King River: Occasionally seen in mangroves and in small patches of scrub. Howard Island Channel, 31/1/16: Heard in mangroves. Port Bradshaw, 5/2/16: Few seen and heard about small patches of scrub. Stomach, remains of small figs and skins and seeds of other fruits. Two small worms in abdominal cavity."

Macgillivray has written: "A very common bird at Cape York, frequenting scrubs and mangroves, but preferring to nest in the open pockets, where it usually selects a small tree, the nest being generally placed at a height of from 5 to 20 feet from the ground. It also nests in the mangroves just above high-water mark, and occasionally in the scrub. The nest is a pensile structure of bark, and as a rule one long streamer of bark of from one to two feet in length hangs from it. Nests were found from November to February. Two eggs form a clutch." Later, he recorded: "Was a common bird on the Claudie. On a bright day in the scrub the pleasant, liquid, bubbling notes are heard on every side. On the 8th January we found a nest on a tree near the bank of the river at about 20 feet from the ground; it contained the usual clutch of two eggs. On the 28th of the same month, when wandering in dense mangroves down the river, we came across another nest hanging in a small horizontal branch, at about 8 feet from the ground. The nest was constructed of strips of paper-bark and lined with fibres and rootlets. It also contained eggs. Judging by the stomach contents, the usual food consists of wild fruits. A few were noted in the scrub along the Archer River."

Campbell and Barnard have written from Rockingham Bay: "The scrubs, especially by the streams, appeared to be the home of this handsome Oriole. The birds were so numerous in parts that at the early morn 'babel of bird

THE BIRDS OF AUSTRALIA.

voices' the chorus of the loud bubbling-like notes of the Yellow Orioles drowned all others. The birds frequently visited the orchards after cultivated fruit. They were pretty figures in the pa-paw trees. They were laying during October. The Cardwell bird is larger and much brighter (more yellowish) in colour compared with birds from the Northern Territory—the type locality of *flavocinctus*; therefore Mathews's *kingi* would be an acceptable name to distinguish the southern and more handsome race."

The whole of the northern birds were classed as one species without any distinguishing remarks until I prepared my "Reference List" in 1912, when I proposed to divide it into three subspecies, as

Oriolus flavocinctus flavocinctus (King).

Northern Territory: North-west Australia.

Oriolus flavocinctus kingi Mathews.

"Differs from *O. f. flavocinctus* in its lighter coloration: wing 152 mm. Cairns, Queensland."

Queensland (Cairns).

Oriolus flavocinctus madaraszi Mathews.

"Differs from *O. f. kingi* in its smaller size wing 142 mm. Cooktown, Queensland."

North Queensland.

A little later I separated

Oriolus flavocinctus parryi.

"Differs from *O. f. flavocinctus* in its much lighter yellow coloration and heavier bill: Parry's Creek, North-western Australia."

North-west Australia.

In my 1913 "List" I transferred the species back to the genus *Mimeta* and synonymised the two Queensland forms, allowing only

Mimeta flavocincta flavocincta (King).

Northern Territory.

Mimeta flavocincta parryi Mathews.

North-west Australia.

Mimeta flavocincta kingi Mathews.

North Queensland.

Campbell, dealing with King River specimens, observed: "One ♂, one ♀. Gilbert likewise procured a pair of these fine birds, which possess more black markings on the back than east- and west-coast specimens, but agree with the latter in their lighter (olive-yellow) under-surface. East-coast birds have a richer yellow (yellowish-citrine) above and below, and have more yellow in the light-coloured edgings of the wing-feathers and tail tips and are slightly larger. Two races can therefore be easily discerned visually—the type (*flavo-cinctus*) from north and north-west, and the more handsome, *kingi* Mathews, on the east."

GENUS--NOTOCHIBIA.

NOTOCHIBIA Mathews, Austral Av. Rec., Vol. V.,
pts. 2-3, p. 41, Feb. 21st, 1923. Type (by
original designation) *Dicrurus bracteatus* Gould.

MEDIUM sized "Drongos" with large stout bills, long wings, long tail, and short legs and small feet.

The bill is about as long as the head, strongly laterally compressed, deep, little basal expansion, culmen strongly arched, tip decurved and posteriorly notched, the culmen keeled, side slopes steep, bill as deep at the base as wide; the nostrils are circular apertures in a depression, but they are entirely hidden by strong frontal feathering, and strong nasal bristles are notable; the rictal bristles are very long, strong and prominent; the under mandible is fairly deep, the triangular interramal space small and feathered, the gonys very long and straight.

The wing has the fourth primary longest, the fifth very little less, the third longer than the sixth, the second equal to the seventh but longer than the secondaries; the first primary small, about half the length of the second.

The tail is long but shorter than the wing, the outer tail-feather bent out towards the tip which is broad and square; the tail when closed is notably emarginate, but spreads out into a regular square shape without any emargination.

The legs are very short and stout, the front showing five strong scutes, behind bilaminate; the feet are small, the outer toe longer than the inner, claws small and curved, the inner toe with claw exceeding the middle toe alone, the hind-toe stout, nearly as long as the middle toe, hind-claw long and well curved, the hind-toe and claw longer than the middle toe and claw.

Described as a species of *Dicrurus* this species was afterwards placed in *Chibia*, from which it is easily separable. Salvadori nearly fifty years ago separated the Austro-Malayan species from that genus, noting that "*Chibia* has a much longer and more acute bill, and is also very conspicuous for the tuft of silky feathers springing from the fore-head." He proposed the genus *Dicruropsis*, Proc. Zool. Soc. (Lond.), 1878, p. 88, June, for this group, but named no type. As the only species named in connection was *D. megalornis*

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Gray, that automatically becomes the type by monotypy, and I find that this differs from the Australian bird in many details. First it is a larger bird with a stouter bill. The wing formula differs, the first primary being more than half the length of the second which is about equal to the ninth; the third, fourth, fifth and sixth primaries subequal, the fourth and fifth equal and a little the longest.

The tail is of the same formation as the preceding but is much longer, exceeding the wing in length and more emarginate, the outer tail-feathers inclining to twist, and when spread out the tail is still distinctly emarginate, not square. The hind-toe is stouter and longer.

NATIONAL MUSEUM WASHINGTON



H. Gronvold, del

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METALLOPSAR METALLICUS
 (SHINING STARLING)
 NOTOCHIBBIA BRACKETTA
 (SPANGLED DRONGO)

NOTOCHIBIA BRACTEATA.

SPANGLED DRONGO.

(PLATE 580.)

DICRURUS BRACTEATUS Gould, Proc. Zool. Soc. (Lond.) 1842, p. 132, Feb. 1843: "New South Wales" = Queensland.

Dicrurus bracteatus Gould, Proc. Zool. Soc. (Lond.) 1842, p. 132, 1843; *id.*, Birds Austr., pt. xx. (Vol. II., pl. 82), Sept. 1st, 1845; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 85, 1902.

Dicrurus balicassius (*nec* Linné) Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 211, 1827.

Balicassus bracteatus Bonaparte, Comptes. Rendus Acad. Sci. Paris, Vol. XXXVIII., p. 539, 1854.

Chibia bracteata Gould, Handb. Birds Austr., Vol. I., p. 235, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 236, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., 182, 1878; *id.*, Tab. List Austr. Birds, p. 5, 1888; Hall, Key Birds Austr., p. 10, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 85, 1901; Le Souëf, Emu, Vol. II., p. 88, 1902 (N.T.); Cochrane, *ib.*, Vol. III., p. 49, 1903 (N.Q.); Cornwall, *ib.*, Vol. VII., p. 173, 1908 (Q.); Banfield, *ib.*, p. 178; Mathews, Handl. Birds Austral., p. 104, 1908; Broadbent, Emu, Vol. X., p. 236, 1910 (N.Q.); Hill, *ib.*, p. 290, 1911 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 29, 1911 (N.Q.); Cleland, *ib.*, Vol. XII., p. 18, 1912 (Food); Campbell, *ib.*, Vol. XIII., p. 69, 1912 (Eggs); Macgillivray, *ib.*, p. 183, 1914 (N.Q.).

Dicrurus bracteatus bracteatus Mathews, Nov. Zool., Vol. XVIII., p. 437, Jan. 31st, 1912.

Dicrurus bracteatus baileyi Mathews, *ib.*: Alligator River, Northern Territory.

Dicruopsis bracteatus bracteatus Mathews, List Birds Austr., p. 307, 1913; *id.*, South Austr. Orn., Vol. II., p. 61, 1915.

Dicruopsis bracteatus baileyi Mathews, List Birds Austr., p. 307, 1913; *id.*, Austral Av. Rec., Vol. I., p. 64, 1912 (Nest and Eggs).

Dicruopsis bracteatus D'Ombraïn, Emu, Vol. XVIII., p. 154, 1918.

DISTRIBUTION. Northern Australia, ranging down the east coast into New South Wales, but on the west only as far south as Napier Broome Bay.

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Adult male. Fore-head, feathers over the eye and top of the head deep velvety-black, spangled with metallic purplish-blue; back of the neck, mantle, rump and upper tail-coverts velvety-black, slightly glossed with metallic blue-green; wing-coverts, secondaries and outer webs of the primaries black glossed with bluish-green; inner webs of the primaries uniform deep black; tail-feathers black, glossed on the inner web with blue and on the outer webs with bluish-green, the outermost feathers curved outwards; sides of the face, chin and throat deep velvety black; feathers of the throat and fore-neck spangled with metallic purplish-blue; breast, belly, sides of the body and under tail-coverts black, slightly glossed with bluish; under-surface of wings shining black. Eyes red, legs and bill black. Total length 300 mm.; culmen 31, wing 165, tail 136, tarsus 25. Figured. Collected on the South Alligator River, Northern Territory, on the 11th of November, 1902, and is the type of *baileyi*.

Adult female similar to the male.

Immature. Lores, top of the head and back of the neck dull black, spangled with a few blue metallic feathers; mantle, back, scapulars, rump and upper tail-coverts dull black, slightly glossed with purplish-blue; wing-coverts, and innermost secondaries glossy purplish-blue; outermost flight-feathers black, slightly margined on the outer web with dull glossy blue, innermost flight-feathers and secondaries with the outer web glossy steel-blue; tail black, margined outwardly with steel-blue; cheeks, throat and entire under-surface dull black. Eyes brown, feet and tarsi black, bill black, with white tip. Collected on Melville Island on the 29th of November, 1911.

Nestling. Whole of the upper plumage black, glossed with steel-blue on the wing-coverts, secondaries and tail; feathers of the under-surface of the body dull smoky-black. Eyes brown, feet, tarsi and bill leaden-black. Collected on Melville Island on the 24th of November, 1911.

Eggs. Three to four eggs form the clutch, usually four. A clutch of four eggs taken at Cooktown, North Queensland, on the 11th of December, 1895, is of a pale pinkish ground-colour (though in some clutches the ground-colour is almost white), spotted and blotched with pinkish-red, chestnut and purple; the markings are well scattered over each egg, and some take the form of hair-like wavy streaks and smudges. In some instances the markings are very much crowded together at the larger end of the eggs. Ovals in shape. Surface of shell moderately fine and smooth, but with very little gloss. 29 by 21 mm.

Nest. An open shallow structure, and at times inclined to be rather saucer-shaped. Constructed of twisted, rather stiff tendrils, and fine pliable vines; often well bound with cobweb and other silky material. Frequently lined with small roots. Looking up at the nest from beneath, the eggs can sometimes be detected in it, as it is such an openly built structure. Placed in the forked limbs of a bushy tree and at heights of from 18 to nearly 50 feet up from the ground. Dimensions over all: 6 to 7 inches across by 4 to 4½ inches deep. The egg cavity is nearly 4 inches across by 1½ to nearly 2 inches deep.

Breeding-months. End September to end January.

THIS peculiar Indian group was first distinguished as an Australian form when Vigors and Horsfield considered a specimen in the collection of the Linnean Society to be inseparable, recording it under the name *Dicrurus balicassius*, writing: "We consider our bird to be the same as the species above referred to, with which it agrees in its most essential particulars, although it does not

SPANGLED DRONGO.

exhibit the green metallic lustre which is described as alternating with the black of that species. The bird in the Society's collection may be a young bird or a female, and thus may not show the same splendour in its colours. The species is described as very generally diffused over the East, being found in the Philippine Islands and various parts of India."

Gould differed, explaining: "Having carefully compared the bird here represented with the other species of the genus inhabiting the Indian islands and the continent of India, I find it to be quite distinct from the whole of them. I have therefore assigned to it a separate specific title, and selected that of *bracteatus* as expressive of its beautifully spangled appearance. Its range is very extensive, the bird being equally abundant in all parts of the northern and eastern portions of Australia; it was found by Sir George Grey on the north-west coast, by Gilbert at Port Essington, and it has also been observed in the neighbourhood of Moreton Bay. I did not encounter it myself during my rambles in Australia; we are therefore indebted to Gilbert's notes for all that is known of its history: 'This species is one of the commonest birds of the Cobourg Peninsula, where it is generally seen in pairs and may be met with in every variety of situation, but more frequently among the thickets and mangroves than elsewhere. It is at all times exceedingly active and its food consists entirely of insects of various kinds, particularly those belonging to the orders *Coleoptera* and *Neuroptera*. Its usual note is a loud, disagreeably harsh, cackling or creaking whistle, so totally different from that of any other bird, that having been once heard it is readily recognised.'"

Mr. J. P. Rogers wrote from Melville Island: "Cooper's Camp, Nov. 20th, 1911: These birds are fairly numerous in all localities, but seem to prefer the open forest. Many nests were found, placed in forks of thin horizontal branches thirty to fifty feet from the ground. Jan 14th, 1912: Not many of these birds on the north side of the island. Cooper's Camp, later: There are now many of these birds in the mangroves here."

Cornwall has recorded from the Mackay district, North Queensland: "The Drongo Shrike is a migratory species with us, though odd individuals may be noted in the district at all times of the year. They arrive in considerable numbers about the middle of October, and my first record of a nest last season was on 9th November. The nest was then nearly completed, but it was two weeks later before the full complement of four eggs was laid. On the 23rd November they were noted nesting freely everywhere; and continued on to the middle of January. Four eggs generally constitute the full clutch, but I have a set of five taken as late as 6th January. Towards the end of January the Drongos appear to be making a move northward once more, and by the middle of February very few are to be seen."

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A delightful account from the pen of that attractive bird student, Dr. E. J. Banfield, must be read *in extenso*, but I here quote the opening paragraphs to whet the appetite of the reader: "In many parts of the coastal tract of North Queensland the Drongo—a singularly important little bird—is fairly plentiful. He is black, but not so solemnly black that a shade of purple is absent from his shoulders. He has a decidedly crowish head and bill, brownish-red eyes, and a long forked, fish-like tail, which he has the habit of twitching or flicking to emphasize the meek, clinking tones of his staid and sober moments. Though a bird of the forest, the Drongo choose those resorts which are adjacent to the jungle, and in my experience invariably selects the Moreton Bay ash for nesting. Among the thin grey-green leaves, far towards the end of a branch, the nest, though conspicuous, is fairly safe. But if the nest were not easily seen, the Drongo is not of the disposition to allow anyone to pass without noticing his demure spouse, whose long tail sticks over the edge of the nest of coarse grass and frail twigs in matronly pride and defiance of all conventions. He 'cheeps' and she answers, for she is just as fussy over the business as he is vain. Most birds are secretive in respect of the serious occupation of their lives. The Drongo and his consort make as much of it as possible, advertising if far and wide, and they follow and feed noisily their young long after the desertion of the nest. In many ways and attributes the Drongo is a character. Conspicuous, noisy, self-assertive, fussy and often inconsequent, it might be thought that his duties in the harmony of nature were of little concern to others. But, as a fact, he is so useful and brave that the lives of many others would be attended with greater risks and be less comfortable and happy if his species were exterminated. Many other birds he bullies most impudently, for he has a voice 'like Mars, to threaten and command.' His office, however, is peaceful, for he is the head of the detective department. He owns no deputy. He glories in his work, and he performs it with the utmost vigilance, alertness, and audacity. The chief enemy to other birds—domestic as well as bird—in this locality is the Grey Falcon. Whensoever the Falcon comes the Drongo makes proclamation, and follows him, using language calculated to make the Falcon confoundedly ashamed of himself, if not to provoke a breach of the peace. . . . When three or four impetuous Drongos make common cause against him the Falcon flies away with a sulky air, followed by volleys of wrathful feather-ruffling language."

Barnard has recorded: "Very common at Cape York. These birds are migratory, coming from New Guinea in large numbers during October."

Macgillivray states: "Found all the year round at Cape York, but not so numerous in the winter. They nest in company with other birds in the open forest usually, but sometimes in the scrub." Later, he noted:

SPANGLED DRONGO.

"Spangled Drongos were first seen in the Townsville Gardens. On the Claudie they were common both in the scrub and open forest. Nesting commenced about the 23rd December; thence afterwards it continued until well on into January. These birds are insectivorous. A few were seen along the Archer River."

Capt. S. A. White writes: "Met with these birds throughout Northern N.S.W. and Queensland. They are an elegant bird upon the wing, with their remarkable forked tail and shiny plumage, and quite a delight to watch when hawking for insects from the top of some forest tree. In the scrubs near Darwin this is a common bird and can be seen with other birds amongst the flowering tree-tops after insects attracted by the blossoms."

Ramsay, the second, has written from the Upper Clarence River district, New South Wales: "Fairly common at Camp 2, and a most quarrelsome bird. I have more than once lost sight of a female Rifle-Bird through a Drongo suddenly swooping down and driving her away. If its victim is in the air it has little hope of escape, but I have seen the Rifle-Bird put up a good fight when on a branch and ultimately drive away the intruder. As noted above, on two occasions, at least, they took possession of nests of the Oriole."

H. L. White has recorded McLennan's notes on his King River trip: "Port Bradshaw, 1/9/15: Birds noticed about small patch of scrub. Glyde River, 11/9/15: Occasionally seen along the river and in patches of scrub on ridges. Liverpool River, 21/9/15: Few birds seen. King River: Occasionally seen along the flats. Liverpool River Island, 27/1/16: Two birds seen. Howard Island Channel, 31/1/16: Seen occasionally. Port Bradshaw, 5/2/16: A few seen. Stomach, remains of insects."

D'Ombraïn has recorded: "In January, 1915, saw a Drongo Shrike at Gordon (near Sydney). This is rather an unusual locality for it. It was seen afterwards near Gordon feeding a young one which has evidently been reared there."

Recording birds from the Rockingham Bay district, Campbell and Barnard wrote: "The Drongo was often seen, and might be sometimes mistaken for a Black Butcher-Bird as it darts through the timber. If this bird migrates from New Guinea (one of us has observed it doing so) why does Mathews make two subspecies of the Drongo—one for Queensland and the other for Northern Territory?" Later, reviewing a male and female from Torres Straits, Campbell wrote: "These shining and spangled specimens are typical. There does not appear sufficient grounds for two races or subspecies in Australia. This migratory species was commonly seen during November, December, and up to about the middle of January."

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The above refers to the two forms I separated in my "Reference List," thus:

Dicrurus bracteatus bracteatus Gould.

Queensland, New South Wales.

Dicrurus bracteatus baileyi Mathews.

"Differs from *D. b. bracteatus* in its larger wing—161 mm. Alligator River, Northern Territory."

Northern Territory.

These were maintained in my 1913 "List" with the addition of North-west Australia to the range of the latter and reference to the genus *Dicruopsis*.

I have now introduced the genus *Notochibia* for this species and the two subspecies will be

Notochibia bracteata bracteata Gould.

Notochibia bracteata baileyi Mathews.

The fact that the species is to some extent migratory does not invalidate the distinction of subspecies, as though Barnard has seen the Cape York birds in migration from New Guinea there is at present no grounds for supposing that the North-west Australian birds go near New Guinea.

GENUS—METALLOPSAR.

METALLOPSAR Mathews, Austral Avian
 Record, Vol. II., pts. 2-3, p. 60, Oct.
 23rd, 1913. Type (by original designa-
 tion) *Calornis purpurascens* Gray.
Calornis Gray, List Genera Birds, 2nd ed.,
 p. 53, Sept. 1st, 1841. Type (by original
 designation) *Turdus cantor* Gmelin=
Muscicapa panayensis Scopoli.

Also spelt—
Calliornis Agassiz. Index Univers., 1848.

Not—
Calornis Dalman in Billberg, Enum. Ins., in Mus. Billberg, p. 77, 1820.

I SEPARATED this genus with the definition: “Differs from *Lamprocorax* Bonaparte in its weaker bill, shorter wing, more slender legs and feet, and longer wedge-shaped tail with two central feathers much projecting.”

“Glossy Starlings” with short stout bills, long wings, long wedge-shaped tail, and short stout feet and long thin toes.

The flat head recalls that of the Common Starling, but the bill is quite unlike, more like that of a Shrike, while the shining lanceolate feathers on back of neck and upper back and throat are characteristic. Immature show glossiness above but not below.

The bill is shorter than the head, the culmen arched, semi-keeled, tip decurved and sharp, posteriorly notched; the culmen is laterally compressed, little basal expansion, nasal groove hidden by frontal feathering so that only the nostrils as small, open, oval apertures are visible; no nasal bristles and rictals very small, scarcely discernible; under mandible almost as stout as the upper, depth of both mandibles at the base more than the basal width; interramal space feathered nearly half the length of the short bill, gonys not angulate, a little ascending.

The wing has the first primary minute, second longest pointed, rest regularly decreasing, secondaries medium.

The tail regularly wedge-shaped, the feathers very narrow, the two central feathers projecting a long way but not attenuate.

The legs are short, the front of the tarsus showing five scutes, the back bilaminate.

The toes short, the claws small, the inner and outer toes subequal, the middle toe and claw longer than the hind-toe and claw, which, however, are stouter.

Order PASSERIFORMES.

No. 727.

Family GRACULIDÆ.

METALLOPSAR METALLICUS.

SHINING STARLING.

(PLATE 580.)

[LAMPROTORNIS METALLICUS Temminck et Laugier, Planch. Color. d'Ois., livr. 45° (Vol. III., pl 266), May 1st, 1824: Celebes. Extra-limital.]

Calornis purpurascens Gray, Handl. Gen. Sp. Birds Brit. Mus., pt. II., p. 26 (before Nov. 23rd), 1870: Cape York, Queensland.

Aplonis metallica Gould, Birds Austr. Suppl., pl. 33 (pt. 1), March 15th, 1851.

Calornis metallica Gray, Genera Birds, Vol. II., p. 327, 1846; Gould, Handb. Birds Austr., Vol. I., p. 477, 1865; Ramsay, Proc. Zool. Soc. (Lond.) 1875, p. 593, 1876; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; *id.*, Tab. List Austr. Birds, p. 12, 1888; Sharpe, Cat. Birds Brit. Mus., Vol. XIII., p. 138, 1890; Hall, Key Birds Austr., p. 48, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 475, 1901; Cochrane, Emu, Vol. III., p. 48, 1903 (N.Q.); Mathews, Handl. Birds Austral., p. 105, 1908; Jackson, Emu, Vol. VIII., pp. 256-263, 1909 (N.Q.); Macgillivray, *ib.*, Vol. X., p. 230, 1910 (N.Q.); Broadbent, *ib.*, p. 238; Barnard, *ib.*, Vol. XI., p. 29, 1911 (N.Q.); Le Souëf, *ib.*, Vol. XIV., p. 164, 1915 (N.Q.); Campbell and Barnard, *ib.*, Vol. XVII., p. 36, 1917 (N.Q.).

Aplonis metallica Macgillivray, Emu, Vol. XIII., p. 183, 1914 (N.Q.); *id.*, *ib.*, Vol. XVII., p. 209, 1918 (N.Q.); Campbell, *ib.*, Vol. XX., p. 65, 1920 (N.Q.).

Lamprocorax metallicus purpurascens Mathews, Nov. Zool., Vol. XVIII., p. 437, Jan. 31st, 1912.

Lamprocorax metallicus sapphire Mathews, Nov. Zool., Vol. XVIII., p. 437, Jan. 31st, 1912: Mount Sapphire, Queensland; *id.*, Austral Av. Rec., Vol. I., p. 64, 1912 (Eggs).

Metallopsar metallicus purpurascens Mathews, List Birds Austr., p. 308, 1913; *id.*, South Austr. Orn., Vol. II., p. 61, 1915.

DISTRIBUTION. North Queensland (New Guinea, Papuan and Aru Islands).

Adult male. Lores, top of the head and ear-coverts shining purple; lengthened feathers of the back of the neck glossy bottle-green; mantle shining purple, bordered above by a patch of bluish-green feathers; wing-coverts, lower back, rump and upper tail-coverts shining bottle-green; innermost secondaries dull purplish-blue; primaries and outermost secondaries black, glossed on the outer webs with steel-blue; tail-feathers black, glossed with steel-blue, the middle pair long and narrow;

SHINING STARLING.

sides of the face, chin, throat and fore-neck shining bottle-green; sides of the chest and a broad band across the breast, extending on to the sides of the body, shining purple; middle of the breast and belly, thighs and under tail-coverts bottle-green; under wing-coverts bottle-green; under-surface of wing black with a slight gloss. Eyes red, bill and feet black. Total length 224 mm.; culmen 18, wing 109, tail 101, tarsus 24. Figured. Collected on Mt. Sapphire, near Cairns, North Queensland, on the 6th of November, 1899, and is the type of *sapphire*.

Adult female. Similar to the adult male.

Immature male. Feathers of the top of the head glossy purple; collar round the hind-neck bottle-green; mantle shining purple; lower back, rump, upper tail-coverts bottle-green, strongly glossed with purple; tail black, glossed with steel-blue, the middle pair long and narrow; wings and secondaries brownish-black, with one or two metallic-blue feathers making their appearance; throat and fore-neck white with broad shaft-streaks of black; chest and sides of the body white with broad black centres to each feather; middle of the chest, breast, belly and under tail-coverts white; under wing-coverts and axillaries smoky-brown, margined with white; under-surface of wing blackish-brown with a slight gloss. Eyes scarlet, bill and feet black. Figured. Collected at Cape York, North Queensland, on the 31st of December, 1912.

Immature male. Feathers of the top of the head shining purple; a glossy metallic-green collar round the hind-neck; mantle glossy purple with a metallic-blue patch in the centre; lower back and rump bronze-green slightly shaded with purple; upper tail-coverts shining bottle-green; middle tail-feathers long and very narrow and steel-blue in colour, outer tail-feathers black glossed on the outer web with shining green; wing-coverts like the back; primaries and secondaries black, glossed on the outer web with steel-blue; throat and chest smoky-white with black shaft-streaks; chest and belly creamy-white with glossy steel-blue centres to each feather; abdomen yellowish-white; under tail-coverts steel-blue fringed with white; under-surface of wings dull smoky-black. Eyes red, bill and feet black. Collected at Cape York on the 31st of December, 1912.

Nestling. Feathers of the whole of the under-surface of the body creamy-white with black shaft-stripes; head dull smoky-black; a broad line of feathers down the middle of the back and another down each side of the back, widening out on the lower back as well as the rump; upper tail-coverts and tail black; secondaries and primaries black, bordered on the outer web with rufous. Collected at Cape York on the 10th of February, 1913.

Eggs. Three to four eggs form the clutch. A clutch of four eggs taken at Lockerbie, Cape York, North Queensland, on the 22nd of November, 1910, is of a very pale bluish-white ground-colour, spotted and speckled (chiefly at the larger end) with reddish-brown, dull purple, and dull purplish-grey. Ovals in shape. Surface of shell fine, rather smooth, but not very glossy. 28-29 by 20-21 mm.

Nest. A large structure, domed over with entrance on one side, usually at the thickest part, and is suspended from the limb of a tree, usually in or close to the tropical scrub or jungle. Constructed chiefly of the hard twisted tendrils of creeping plants, rather oval in shape, lined with portions of palm leaves, and a quantity of hair-like fibre, etc. At Lockerbie, Cape York, as many as 200 of these large nests were counted hanging from the limbs of one tree. Dimensions over all: Length 8 to 10 inches, circumference 24 to 26 inches; entrance of nest $1\frac{1}{2}$ to nearly 2 inches across. The nests are placed at a variety of heights, and often up as high as 50 to 60 feet or more.

Breeding-months. August to December.

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THIS is one of Macgillivray's discoveries at Cape York, whose notes are quoted by Gould as follows: "During the early part of our last sojourn at Cape York, this bird was often seen passing rapidly over the tops of the trees in small flocks of a dozen or more. In their flight they reminded me of the Starling's, and, like them, made a chattering noise while on the wing. One day a native took me to a breeding-place in the centre of a dense scrub, where I found a gigantic cotton tree standing alone, with its branches literally hung with the pensile nests of this bird; the nests, averaging two feet in length and one in breadth, are of a somewhat oval form, slightly compressed, rounded below and above, tapering to a neck, by the end of which they are suspended; the opening is situated in the centre of the widest part; they are almost entirely composed of portions of the stem and the long tendrils of a climbing-plant (*Cissus*), matted and woven together, and lined with finer pieces of the same, a few leaves (generally strips of *Pandanus* leaf), the hair-like fibres of a palm (*Caryota cereus*) and similar materials; the eggs, usually two, but often three in number, are an inch long by eight-tenths of an inch broad, and of a bluish-grey, speckled with reddish-pink, chiefly at the larger end; some have scarcely any markings, others a few minute dots only. The note of the bird is short, sharp and shrill, and resembles 'twee-twee,' repeated, as if angrily, several times in quick succession. On the tree above mentioned the nests were about fifty in number, often solitary, but usually three or four together in a cluster—sometimes so closely placed as to touch each other. The bird appears to enjoy a wide range. During the progress of the expedition two were shot at the Duchatean Isles, in the Louisiade Archipelago, and I saw a specimen on board H.M.S. 'Meander,' which had been procured at Carteret Harbour in New Ireland. The stomachs of those examined contained triturated seeds and other vegetable matter."

The second Macgillivray's observations follow: "Numerous at Cape York from August until March. They usually come early in August and soon take possession of their nesting trees. We first arrived at Lloyd's Island at midnight. On the following morning we were witnesses to the great numbers of Shining Starlings that left the mangroves for the mainland. The Lorikeets are the first to make off to be soon followed by the Shining Starlings, who leave in larger and more compact flocks, which whirl up and down and round before making off to the mainland. Their flight is very rapid, and before all have left the Pigeons begin to leave also. The way in which they leave the island is, however, not to be compared to the curious and wonderful manner of their return, which we were witnesses of on a later visit to the island. We first noted these birds nest-building on the 6th November in a tall, deciduous scrub tree on which was a deserted nest of the Red-backed Fish-Eagle. The tree

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usually chosen for the purpose is a tall one in the scrub. Here on the Claudie the tree is usually one that loses its leaves in the late winter and spring, which corresponds to the dry season, and comes into flower before the leaves are put out at the commencement of the wet season. Such trees are also the favourite nesting sites of *Eclectus pectoralis macgillivrayi*, *Cacatua galerita*, and *Astur novæhollandiæ*. The Starlings are noisy creatures, keeping up an incessant chatter when building and flying to and fro to their nests. We could always tell when a Goshawk was returning to its nest by the sudden cessation of the chattering, which would not be resumed until the Hawk has either settled on its nest or taken its departure. The ground under these trees is carpeted with wild nutmegs from which the mace has been digested by the birds, and also by the stones and seeds of many other fruits. Even when in a nutmeg or other feeding tree the same constant chatter is kept up, the birds darting rapidly through the trees and frequently quarrelling with one another. On our next visit to Lloyd's Island, on the 29th November, Mr. McLennan directed our attention to the manner of their return to their roosting-place in the mangroves at nightfall. It happened just before dark, after the main body of Pigeons and Parrots had passed over, and in a way that has earned for this bird the local name of the 'Whirlwind-Bird.' We first notice a quickly-moving, dark cloud-like body on the horizon over the whirlwind. The cloud, a compact mass of these birds, moves high up into the sky, then down and forward with a rush, upwards and backwards again in ever-changing form. At first a compact body, it lengthens out into the sinuous form of a snake, then closes up again to assume the shape of an aeroplane with two outspread wings and a central body, then as a spiral, going rapidly upwards like a willy-willy of the plains, to gather together again as a dumb-bell or some other fantastic shape, or to spread out until the whole mass becomes diaphanous and invisible, instantly to become a concrete form again. Going through these performances, the flock has come high up over the sea, and when within measurable distance of the island it dives down to the level of the water and rushes with incredible rapidity towards the mangroves, into which it seems to hurl itself to roost. Whilst this is happening to one flock, others of larger or smaller dimensions have appeared on the horizon, and all go through the same evolutions before finally seeking a resting place in the mangroves. Shining Starlings are not wholly fruit-eaters, as we noticed a number of them busily engaged in capturing flying insects in open forest. When at Raine Island on the 10th December, one of these birds was found sheltering in the tower."

Another delightful account, with a lot of excellent data, has been provided by Dr. E. J. Banfield of Dunk Island, from which a little only can be

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quoted: "For many years past notes have been taken of the dates of arrival and departure at Dunk Island; they come from regions nearer the equator early in August and fly to warmer regions later in March. Though they have not, so far, been observed earlier than August, on two occasions during twenty years casual and embarrassed flocks have lingered after March, one being seen well on in April and another towards the end of May. This season the first appearance of the heralds was recorded on 8th August, during anything but welcoming weather. The atmosphere was cool and dull, with high winds and driving rain—just such conditions as seem to be abhorrent to sun-loving birds seeking rest and refreshment after long and turbulent flight. The Starlings darted in droves through the forest, shrieking distractedly, and disappeared. Two days after, when the sun began to resume control of local meteorological affairs, the Starlings came again, to forthwith tear in haste and flurry the fragments of last year's nests attached to the Moreton Bay ash tree in the forest. Many new nests were built with all possible speed, and the love-making in the tall, slim tree which has been time out of mind the headquarters of the most neighbourly colony showed off the sprightly and beautiful birds in most engaging and fantastic attitudes. On 26th September dozens of broken egg-shells were found under the tree. There will be successive broods until the end of January."

Campbell recorded McLennan's note from Moa Island, Torres Straits: "18/11/19: Hear Shining Starlings singing and mimicking calls of other birds—Drongos, Fig-Bird, Yellow-spotted and Lesser Spotted Honey-eaters. 11/12/19: Strike an open pocket, at the edge of which Shining Starlings have built. Some broken egg-shells on the ground beneath show that the young are hatched. 20/12/19: Large colony of Starlings building in a tall white mangrove. Later, found another colony of the birds building in a similar tree. 19/1/20: Have a look at the colony of Starlings noted. 20/12/19: Several small limbs with nests attached are lying on the ground; each contains eggs, majority broken by the fall."

Previously, Campbell and Barnard had written in connection with Rockingham Bay birds: "These socialistic birds with Starling-like activity arrived shortly after our appearance in the district, and subsequently a breeding-tree here and there in the scrubs was observed, notably at Deep Creek crossing and on 'Crescent Lagoon' Farm on the Upper Murray. The first young were hatched 10th October. [During a collecting trip to Cape York Peninsula in 1896, these birds were observed flying from a northerly direction in large and small flocks during September. They came across the open sea, and landed in the scrubs at the extreme end of the peninsula.—H.G.B.] According

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

I separated the Cairns bird on account of its thicker bill, which was very noticeable, but for the present I am not admitting it, but later it is quite possible it may be proved that, as in so many other cases of migratory birds, the breeding colonies are distinguishable as they may migrate to different places.

GENUS—PTILONORHYNCHUS.

PTILONORHYNCHUS Kuhl, Beitr. Vergl. Anat.,
p. 150, (pref. April 9th) 1820. Type (by
monotypy)

P. holosericeus Kuhl=
Pyrrhocorax violaceus Vieillot.

Also spelt—

Ptelenorhynchus Temminck, Trans. Linn. Soc. (Lond.), Vol. XIII., pt. I., p. 108, 1821.

Ptilorhynchus Temminck et Laugier, Planch. Color d'Ois, text to 67^e livr., 1826.

Ptylonorhynchus "Boie" Gray, Cat. Gen. Subgen. Birds, p. 65, 1855.

Kitta Temminck et Laugier, Planch. Color
d'Ois, 67^e livr. (Vol. IV., pl. 395),
July 12th, 1826. Type (by original
designation)

P. holosericeus Kuhl=
P. violaceus Vieillot.

Also spelt—

Citta Wagler, Systema Avium Ptilono. Additamenk, 1827.

LARGE stoutly built "Bower-Birds" with flat heads, satin male plumage, short, very stout bill half hidden by frontal feathering, long wings, short tail, long strong legs and feet.

The bill is really about as long as the head, but the projecting frontal feathers encroach about half-way, leaving visible a very stout exposed bill only about half the length of the head proper.

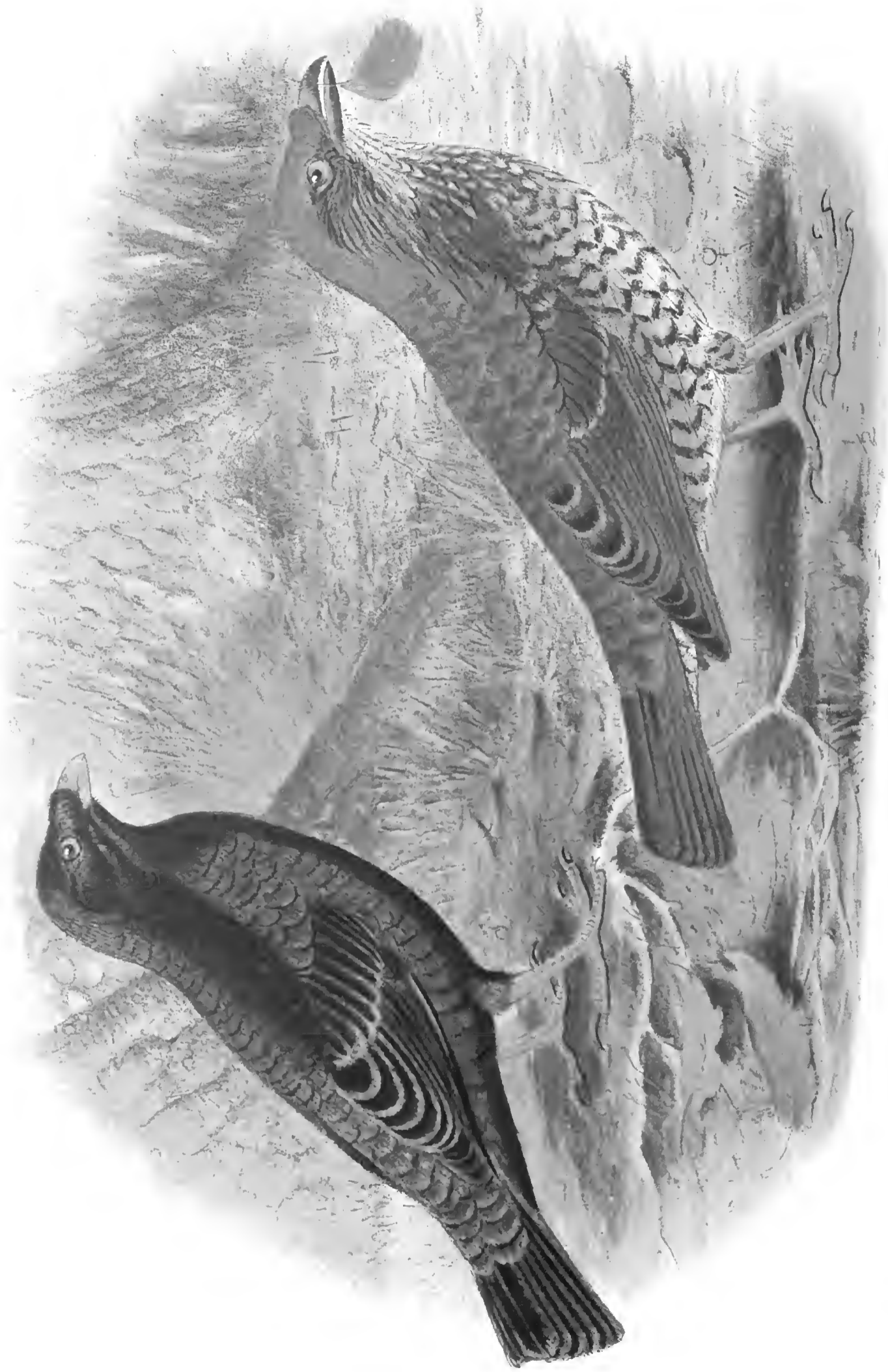
The exposed culmen is strongly arched, semi-keeled, nearly triangular, sides a little convex; the nostrils are circular holes in the fore-part of the nasal groove, but are entirely hidden by frontal feathering; the lateral edges of the upper mandible are straight towards the tip, then descending obscurely serrate with a notch in front of curved sharp tip; under mandible almost as stout as upper, interramal space feathered, nearly half the length of the bill, gonys a little ascending.

The wing has the third, fourth, fifth and sixth primaries subequal and longest, the second about equal to the eighth and a little longer than the secondaries; the first primary half the length of the third.

The tail is square, feathers broad, upper and under tail-coverts long.

The feet very long and strong, seven scutes in front, bilaminate behind; the toes are long, the inner and outer toes subequal, the inner toe and claw shorter than the middle toe alone, claws long and sharp; the hind-toe a little longer than inner toe, claw longer and stouter, but hind-toe and claw less than middle toe and claw.

TATIONAL M. JEFFIM M. P. ROISONE



H. Gronvold, del.

PTILONORHYNCHUS VIOLACEUS
(SAYIN BOWMER - BIRI)

Witherby & Co

Order PASSERIFORMES.

No. 728.

Family PTILONORHYNCHIDÆ.

PTILONORHYNCHUS VIOLACEUS.

SATIN BOWER-BIRD.

(PLATE 581.)

PYRRHOCORAX VIOLACEUS Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. VI., p. 569,
Dec. 14th, 1816 : New South Wales.

Pyrrhocorax violaceus Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. VI., p. 569, 1816.

Ptilonorhynchus holosericeus Kuhl, Beitr. Vergl. Anat., p. 150, (pref. April 7th) 1820 :
ex Robert Brown MS. : Port Hacking, New South Wales ; Gould, Birds Austr.,
pt. iv. (Vol. IV., pl. 10), Sept. 1st, 1841 ; *id.*, Handb. Birds Austr., Vol. I., p. 442,
1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878 ; Campbell, Emu,
Vol. XIII., p. 68, pl. xi., 1913 (Eggs) ; Agnew, *ib.*, p. 97 (Q.) ; S. A. White, *ib.*,
Vol. XIV., p. 144, 1915 (Mallee) ; Campbell, *ib.*, p. 174, 1916 (N.Q.) ; Ramsay, *ib.*,
Vol. XV., p. 48, pl. x., 1916 ; Cook, *ib.*, p. 53 (Vic.) ; Chisholm, *ib.*, Vol. XVI., p. 54,
1916 ; S. A. White, *ib.*, Vol. XIX., p. 220, 1919 (Q.).

Corvus squamulosus "Illiger" Kuhl, Bertr. Vergl. Anat., p. 150, (pref. April 7th) 1820,
in synonymy of *holosericeus*.

Indigo Crow Latham, Gen. Hist. Birds, Vol. III., p. 36, 1822 : New South Wales.

Ptilonorhynchus niger Stephens in Shaw's Gen. Zool., Vol. XIV., pt. i., p. 72 (end), 1826 :
New Holland=New South Wales ; based on Satin Grakle Latham.

Ptilonorhynchus violaceus Stephens, *ib.* : "South Sea Islands"=New South Wales.

Kitta holosericea Temminck et Laugier, Planch. Color d'Ois., Vol. IV., livr. 67, pl. 395,
1826.

Ptilonorhynchus macleayi Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 263,
Feb. 17th, 1827 : (Port Hacking) New South Wales (same bird as Kuhl described).

Ptilonorhynchus squamulosus Wagler, Syst. Av. Ptilono., sp. 2, (Oct.) 1827 : New South
Wales.

Ptilonorhynchus rawnsleyi Diggles, Ornith. Austr., pt. xv., 1867 : Brisbane, Queensland
(aberration or hybrid) ; Gould, Suppl. Birds Austr., No. v., p. 43, 1865.

Ptilonorhynchus violaceus Elliot, Monogr. Parad., pl. xxviii., 1873 ; Sharpe, Cat. Birds
Brit. Mus., Vol. VI., p. 381, 1881 ; Ramsay, Tab. List Austr. Birds, p. 11, 1888 ;
Sharpe, Mon. Paradis., Vol. 2, pt. 19, 1891 ; Hall, Key Birds Austr., p. 21, 1899 ;

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- Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 191, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 36, 1901; Rothschild, Parad. Tien., Leif 2, p. 4, 1898; Hill, Emu, Vol. II., p. 164, 1903 (Vic.); Mulder, *ib.*, Vol. V., p. 43, 1905; Batey, *ib.*, Vol. VII., p. 6, 1907 (Vic.); Mathews, Handl. Birds Austral., p. 105, 1908; Cole, Emu, Vol. IX., p. 236, 1910 (Vic.); Batey, *ib.*, p. 244 (Vic.); Gilbert, *ib.*, Vol. X., p. 45, 1910 (N.S.W.); Ford, *ib.*, p. 50 (N.S.W.); Ingle, *ib.*, p. 123 (Vic.); Broadbent, *ib.*, p. 238 (N.Q.); Ramsay, *ib.*, Vol. XIX., p. 6, 1919 (N.S.W.); Edwards, *ib.*, p. 206, 1920 (N.S.W.); Jackson, *ib.*, Vol. XX., p. 207, 1921 (Q.); Nubling, *ib.*, Vol. XXI., p. 11, 1921 (N.S.W.).
- Ptilonorhynchus violaceus violaceus* Mathews, Nov. Zool., Vol. XVIII., p. 438, 1912; *id.*, List Birds Austr., p. 308, 1913; Beleher, Birds Geelong, p. 364, 1914.
- Ptilonorhynchus violaceus dulciæ* Mathews, Nov. Zool., Vol. XVIII., p. 438, Jan. 31st, 1912; Queensland.
- Ptilonorhynchus minor* Campbell, Emu, Vol. XII., pt. 1., p. 19, July 1st, 1912 (ex Bull. Roy. Austr. Ornith. Union, No. 3, May 21st, 1912. Unpublished); Herberton, Queensland; H. L. White, *ib.*, p. 20 (Eggs); Campbell, *ib.*, Vol. XIII., p. 68, pl. XI., 1913 (Eggs); *id.*, *ib.*, Vol. XIV., p. 174, 1915.
- Ptilonorhynchus violaceus minor* Mathews, List Birds Austr., p. 309, 1913.
- DISTRIBUTION. East Australia from the Herberton district, North Queensland, to Northern Victoria.
- Adult.* Feathers covering the base of the culmen, head, neck, back, rump, upper tail-coverts and wing-coverts black, beautifully glossed with violet-purple; secondaries black, widely tipped at the extremity and fringed on the sides with glossy violet-purple; primaries and outermost secondaries black, slightly glossed with purple round the margins; tail similar to the wings; entire under-surface like the back; under-surface of the wings dull black. Total length 345 mm.; culmen 19, wing 171, tail 106, tarsus 53. Figured. Collected in Queensland and is the type *dulciæ*.
- Adult (female?)*. Feathers covering the lores, head, neck, mantle, lower back, rump and upper tail-coverts greenish-olive, each feather margined with bluish-green; innermost secondaries and tail bronze-brown; primaries and outermost secondaries blackish-brown; outer webs bronze-brown and the inner webs broadly margined with yellowish-white; ear-coverts deep olive with yellowish-buff shaft-streaks; feathers of the chin and throat yellowish-buff, margined with olive-brown; sides of the neck and chest greenish-olive, each feather with an oval spot of yellowish-buff and whitish shaft-streaks; remainder of the under-surface of the body rich creamy-yellow, each feather with concentric markings of black; thighs tinged with ochraceous; under-surface of wings brownish-olive, widely margined with golden-yellow. Total length 315 mm.; culmen 20, wing 170, tail 116, tarsus 53. Figured. Collected at Gosford, New South Wales, in June, 1894.
- Male starting change into the black stage.* Feathers of the head, neck and mantle, back and rump, dull green, shaded with light greyish-blue; a patch of purplish-blue feather on the lores, top of the head, encircling the eyes, ear-coverts, and on the throat; primaries and secondaries olive-brown with the outer webs brownish-olive, and the inner web very widely margined with golden-yellow; tail olive-brown, darker on the outer web; throat greenish-olive with the shafts streaked and spotted at the extremity with yellowish-white; remainder of the under-parts yellowish-white with concentric markings of brownish-black on each feather, with a greenish-tinge

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over the whole under-surface, especially on the chest; under-surface of the wings brownish-olive, widely margined on the inner web with golden-yellow. Collected Cambewarra, New South Wales, in June, 1879.

Changing into the black stage. Feathers of the head, back, rump, upper tail-coverts, wing-coverts and entire under-surface black at the base and strongly glossed with violet-purple; mantle and a few of the shorter scapulars light brown, shaded with greenish-blue; the two outermost primaries blackish-brown on the inner webs and olive-brown on the outer web; innermost secondaries olive-brown, basally margined on the inner web with pale yellow; remainder of the wing black; tail black with the outer webs and tips glossed with purple, entire surface black, margined and tipped with violet-purple, one or two feathers scattered over the lower surface yellowish-white, marked with concentric bands of black. Collected at Long Long, Victoria, on the 14th of February, 1906.

Eggs. Two to three eggs form the clutch, usually two, rarely three. A clutch of two eggs taken at Tyringham, near Grafton, Clarence River, New South Wales, on the 4th of November, 1898, is of a dark cream ground-colour, spotted and blotched (particularly towards the larger end) with dark olive-brown, cinnamon-brown, and slaty-grey. Ovals in shape. Surface of shell fine and smooth and rather glossy. 44-45 by 29-30 mm.

Nest. An open and rather shallow structure, composed of thin sticks and twigs, usually lined with Eucalyptus leaves, those of the Bloodwood Eucalyptus frequently being used for the purpose. Dimensions over all: 8 to 10 inches across by 4 to 5 inches in depth. Egg cavity, 1 to 1½ inches deep by 5½ to 6½ inches across. Sometimes the nest is nearly 2 inches deep inside; a great deal depends upon the position in which it is built as regards the depth of the egg cavity, as well as the size of the nest. It is generally situated in a bushy portion of a tree, or tall bush, and often built in a thick clump of Mistletoe (*Loranthus*) growing in a tree, situated at heights varying from 15 to 50 feet or more.

Breeding-months. October to end December.

THIS beautiful bird was first described by Vieillot as a species of *Pyrrhocorax*, and then by Kuhl, who proposed for it a new generic as well as specific name.

Vigors and Horsfield then catalogued the specimens in the collection of the Linnean Society, which had been described by Latham as the Satin Grackle, and wrote: "Mr. Caley says that 'the male of this species is reckoned a very scarce bird, and is highly valued. The natives call it *Cowry*, the colonists *Satin Bird*. I have now and then met with a solitary bird of this species; but I once saw large flocks of them on some newly-sown wheat, from whence they fled, on being scared, into a neighbouring brush; when all was again quiet, they soon returned to the wheat. They did not leave the brush above a few yards. There were no black ones among them, nor can I affirm that they were feeding on the wheat.' It is singular that this beautiful and well-known bird should never have as yet received a specific name. Although it has been made the type of a genus by M. Kuhl, and published as such by M. Temminck in his 'Manuel,' we nowhere have met with a scientific name for the species. We are happy to have the

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opportunity of uniting with Dr. Latham in designating so distinguished a bird by the name of the late respected Secretary of this Society," the name being "*Ptilonorhynchus macleayi* Lath. MSS." It is curious that they should not have known that when Kuhl proposed the genus he also well described and named the species.

Apparently Coxen was one of the first to observe the bower-building habits of this bird, as Gould has recorded: "The extraordinary bower-like structure first came under my notice in the Sydney Museum, to which an example had been presented by Charles Coxen, Esq., of Brisbane, as the work of the Satin Bower-Bird. The localities frequented by the Satin Bower-Bird are the luxuriant and thickly foliaged brushes stretching along the coast from Port Philip to Moreton Bay and the cedar brushes of the Liverpool range. So far as is at present known, it is restricted to New South Wales; certainly it is not found so far to the westward as South Australia, and I am not aware of its having been seen on the north coast, but its range in that direction can only be determined by future research. It is a stationary species, but appears to roam from one part of a district to another, either for the purpose of varying the nature, or of obtaining a more abundant supply of food. Judging from the contents of the stomachs of the many specimens I dissected, it would seem that it is altogether frugivorous, or, if not exclusively so, that insects form but a small portion of its diet. Independently of numerous berry-bearing plants and shrubs, the brushes it inhabits are studded with enormous fig-trees, to the fruit of which it is especially partial. It appears to have particular times in the day for feeding, and when thus engaged among the low shrub-like trees I have approached within a few feet without creating alarm, but at other times the bird was extremely shy and watchful, especially the old males, which not unfrequently perch on the topmost branch or dead limb of the loftiest tree in the forest, whence they can survey all round, and watch the movements of their females and young in the brush below. In the autumn they associate in small flocks, and may often be seen on the ground near the sides of rivers, particularly where the brush descends in a steep bank to the water's edge."

Mr. E. J. Christian has written me: "These birds are common in the mountains east of Melbourne at Lilydale, and I saw one on the 17th September, 1906, in the Melbourne Botanical Gardens, supposed to be the first time observed in the city. Their favourite playgrounds are placed on the ground, and into these they bring stones, glass, paper, rags, bones, and any object which attracts them."

Mr. E. Ashby has written: "I have met with this lovely bird in several places in Gippsland and in the Dandenong Ranges in Victoria."

SATIN BOWER-BIRD.

Mr. F. E. Howe has sent a note: "Saw about thirty of these beautiful creatures at Whittlesea, Victoria, Easter 1900, and in the flock there were about three of the blue birds. They were feeding in the willows and fruit trees close to a homestead."

A note by Mulder may be quoted: "A small party of Satin Bower-Birds has built a bower in a pine tree over my kitchen at Bambra (Vic.) (Oct. 10th, 1892). They are very interesting and amusing in their habits, and make such strange noises, sometimes like a cat snarling, and sometimes a whirring noise like an Owl; then again they imitate other birds so closely as to deceive anyone who did not know, and make one think there were five or six different birds in the tree. When watching these birds they were continually jumping about from one branch to another, and appeared to be playing together. As there were no black ones among them, I concluded that most of the birds were females or young males. The bower, which had a passage right through it, was composed of a lot of broken pine branches, laid across other limbs of the tree and built close to the trunk. In flying from one place to another the birds appeared to move off in a succession of small flights. Two or three of the flocks fly to a neighbouring tree; as soon as they alight, two or three more start. The first lot go on, then two or three more fly out from the first tree. The birds in the second tree go to the third, those in the third fly to a fourth tree, and so on until the whole flock has gone."

C. F. Cole has given a note regarding the plumage changes, from which I quote: "The adult male has been called the king of the flock, owing, no doubt, to the fact that one of these dark-plumed birds is nearly always accompanied by a flock of the 'green' birds. As far as my experience goes, Satin Bower-Birds nearly always choose the slopes to a creek fairly thickly covered with undergrowth, or a tree growing in the bed of a creek containing permanent water, for their building place, and return year after year to the same locality to nest. The egg of this species is considered to be fairly rare by collectors, but I attribute this to the want of knowledge of the nesting sites. The bird is plentiful enough. I have never known more than two eggs to a clutch. About five months, August to December, cover the breeding-season; I have known eggs to be taken in both these months. Last December (1909), in Southern Gippsland, I found ten old nests about 100 yards apart, along the slopes and bed of a creek. The birds have built annually in this particular spot for some years now. In captivity the change in the male starts about the third or fourth year, the change being extended over a period of three years, when the perfect plumage is attained. Often I have been able to closely observe this bird in its wild state, and find that as soon as the change of plumage takes place in the males they become shy, seldom exposing themselves. The

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females keep them partly supplied with food. With most birds that possess this 'feeding' habit it is generally the males that attend to the females, as in Wrens, Cuckoos, Collared Crow-Shrikes, etc. Some years ago, in Eastern Gippsland, while sitting upon a fallen tree in the bed of a densely wooded creek bordering an orchard, my attention was attracted by hearing a bird make, every now and again, a soft purring noise, besides mimicking other species. Creeping towards the edge of the scrub I saw a full-plumaged male Satin Bower-Bird basking in the sun upon the branch of a blackwood tree. The rays of the sun played upon the purplish feathers and the beautiful sapphire-blue eyes flashed. The bird kept spreading its tail, drooping its wings, and mimicking all birds common to the district—Lyre-Bird included. Then suddenly it would break into the purring note, and a 'green' bird with a strawberry in its bill would join it. Upon the male bird taking the gift the other would fly off. Suddenly several green-plumed birds made their appearance, and one, settling close to me, gave a warning note, when they all disappeared in the scrub. Satin Bower-Birds are very fond of fruit, early morning and evening being their favourite times for raiding orchards. The owner of the orchard mentioned informed me that the birds were a great nuisance, but it was a very rare thing to see a black-plumed bird out feeding in the open with the 'green' ones, and that the 'green' birds kept carrying fruit into the scrub. Other orchardists have told me the same thing. I have heard it stated that the male Satin Bower-Bird does not live long after it attains the dark plumage. I have kept a caged bird five years after the change. It then accidentally gained its liberty, and after staying about the house for a few weeks disappeared."

Gilbert (the second) has lately noted: "On the Cambewarra Mountain I had under observation two female Satin Bower-Birds which were building. One was closely watched for several days, and in no instance did I see the male assisting in the construction of the nest, or even observe him in the immediate vicinity until the work was finished."

Chisholm has published an account of the dance of this bird and how the bird builds its bower: "There is nothing more fascinating, when the Bower-Bird is at play, than its crazy dancing. A spirit seems to take possession of the bird at irregular intervals. Then, without any preparatory exercise, its wings go up almost straight above its back, the primaries almost touching. Holding them thus, it bows gracefully, emits the saw-like 'wheeze,' and hops about in a most fantastic fashion, occasionally in the bower, but more often round and about it. Better still is the performance in which the bird minces about the bower *on the tips of its toes*. Sometimes this is done while the wings are raised, but the bird does not appear to be capable of sustaining itself in such a position for more than half a minute or so."

SATIN BOWER-BIRD.

Capt. S. A. White says : " A common bird over parts of Victoria, N.S.W. and Southern Queensland. The greatest number the writer has ever seen in one place was at the Bunya Mountain during the R.A.O.U. Camp, but the season was an exceptionally dry one over the surrounding country, and many hundreds of these birds had congregated upon the waters in the mountains. They came out of the great scrubs on every side, morning and evening, to feed on the green grass growing around the springs in the open patches ; there were hundreds comprising both sexes hopping about in search of food. A bower was built quite close to our camp and, although we were quite a number, and our camp a large one, the two birds continued to visit their playground. At Tamborim Mountain I met with three birds many years ago ; they were very tame and nested in the tall trees right over the camp. Insects, fruits, green vegetation, all form this bird's living.

Ramsay (the son) has recently written from the Upper Clarence River District : " Satin Birds were common at both camps, feeding in company with Cat-Birds, Pigeons, etc., on lilly-pillies, fig and other berries. Of five bowers examined, not one contained anything beyond twigs and a few fresh leaves ; not even a single shell was observed. Possibly they were new bowers, the others having been destroyed by fire."

H. V. Edwards has written upon the Colour Sense in Satin Bower-Birds, wherein a bower was ornamented with " scraps of blue glass, paper and rag, purple-blue blossoms from the common flag or iris, and the wild plant known as the ' deadly nightshade ' (*Solanum semiarmatum*), over a dozen blue-bags filched from neighbouring laundries, and blue tail-feathers from the Crimson Parrot. . . . I hung some scraps of scarlet serge on twigs near the bower, but although these were pulled down, they were not added to the decorations. Red and yellow flowers and feathers, too, were just as easily available, but the birds passed them by, faithful to their chosen colour."

Recently Nubling has contributed a long and complete account of this bird and he has noted : " The birds of both bowers show a decided preference for blue and yellowish-green as regards their decorations, the only exceptions being perhaps the brownish snail shells, yellowish-brown Cicada larval shells, and the more olive-green puffballs. . . . Leaving some pieces of blue paper in the vicinity of the bower. . . . I noticed seven pieces of blue paper which the bird must have put there whilst I was seraping my billy." The complete account must be referred to, as it does not readily bear condensation or quotation.

This beautiful bird was collected simultaneously by the French voyageurs and by the English explorers, but was not described for almost twenty years afterward. Then Vieillot described a specimen in Paris and Kuhl named the

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specimen collected by Robert Brown; another specimen in Berlin had been named previously in MS., but its origin I do not know at present. The British bird received two or three more names about the same time, published a little later, and then the bird became fairly well-known under Kuhl's name, although it was known that Vieillot's earlier name referred to the same bird. When Elliot published his *Monograph of Paradise Birds*, in which he included Bower-Birds, he revived Vieillot's name, and this being accepted in *The Catalogue of the Birds in the British Museum* has been used ever since.

When I prepared my "Reference List" I separated the South Queensland form as

Ptilonorhynchus violaceus dulciæ.

"Differs from *P. t. violaceus* in its shorter wing—166 mm.; typical birds 170–173 mm."

Almost simultaneously Campbell characterised as new:—

"*Ptilonorhynchus minor*. The discovery of a second but smaller species. The new bird is from that rich region the Herberton Range (the peculiar home of such novelties as *Scenopoëtes* and *Prionodura*) and is about half the bulk of its more southern representative, *P. violaceus*. Two mature males secured possess the same lustrous, deep, blue-black plumage as that of the larger Satin Bower-Bird. The following are the comparative dimensions in inches of the two birds:

<i>P. violaceus</i> , length	13	;	wing	6·5	,	tail	5	,	tarsus	2	,	culmen	0·9.
<i>P. minor</i>	10·5			5·75			4			1·75			0·8."

I considered this was only of subspecific rank and it was so given in my 1913 "List," where two subspecies only were recorded and these can still be recognised.

GENUS—SCENOPOËETES.

- SCENOPOËETES Coues, Auk, Vol. VIII.,
 p. 115, Jan. 1891. New name for
Scenopæus Ramsay. Type (by mono-
 typy) *Scenopæus dentirostris* Ramsay.
- Scenopæus* Ramsay, Proc. Zool. Soc.
 (Lond.), 1875, p. 591, April 1st, 1876.
 Type (by monotypy) *S. dentirostris* Ramsay.
- Not—
Scenopæus Agassiz, Index Univers., 12mo ed., p. 963, 1848.
- Tectonornis* Sharpe, Monogr. Paradis., pt. 1
 (end), 1891. New name for *Scenopæus*
 Ramsay

LARGE "Bower-Birds" with short, stout, falcon-like bills, long wings, medium tail and short legs and feet.

The bill is shorter than the head, stout, as broad as deep; culmen rounded and strongly arched, tip strongly decurved and sharp, posteriorly notched, the notch deep and coarse forming a succeeding tooth, the lateral edges of the mandible thence straight; a groove along each side of the mandible running from the notch to the nasal depression; this nasal depression shows the nasal apertures as round and open, not hidden by frontal feathering, which otherwise fills the depression; nasal bristles long, reaching over the nostrils but not covering them; rictal bristles few; the under mandible stout, large interramal space broad, rounded, and sparsely feathered; rami stout; the gonys half the length of the mandible, semi-keeled and ascending to the notch of the upper mandible.

The wing is long with the fourth and fifth primaries longest, the third and sixth subequal and very little shorter, the second longer than the seventh; the first primary shorter, more than half the length of the third, but shorter than the broad secondaries.

The tail is square, the feathers broad.

The legs are short and stout, the scutes on the front of the tarsus obscure so that the tarsus appears almost booted, the back bilaminat; the mid-toe

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thin and longest, the inner and outer subequal, with claw only equal to the middle toe alone; the hind-toe stouter but short, equal to the inner, all claws sharp, well curved and short, the hind-claw not much longer than the others but stouter.

Jackson concluded from field observations hereafter given that the birds were "Cat-Birds," and from structural features they are undoubtedly more closely allied to the "Cat-Birds" than to any other forms in this peculiar association of playground-frequenting birds.

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Witherby & Co

SCENOPEETES DENTIROSTRIS
(TOOTH BILLED BOWER-BIRD)

Order PASSERIFORMES.

Family PTILONORHYNCHIDÆ.

No. 729.

SCENOPOËETES DENTIROSTRIS.

TOOTH-BILLED BOWER-BIRD.

(PLATE 582.)

SCENOPOËUS DENTIROSTRIS Ramsay, Proc. Zool. Soc. (Lond.) 1875, p. 591, April 1st, 1876: 4,000 feet up, on Bellenden Ker Range, North Queensland.

Scenopœus dentirostris Ramsay, Proc. Zool. Soc. (Lond.) 1875, p. 591, 1876; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Gould, Birds New Guinea, pt. x. (Vol. I., pl. 43), Sept. 1st., 1879; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 394, 1881; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Hall, Key Birds Austr., p. 22, 1899; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 68, 1902; (Cornwall, Emu, Vol. II., p. 223, 1903 (N.Q.)); *id.*, Vol. III., p. 188, pl. xi., 1904 (N.Q.); Smith, *ib.*, Vol. V., p. 211, 1906.

Scenopoëetes dentirostris Coues, Auk, Vol. VIII., p. 115, Jan. 1891; Rothschild, Parad. Tien., Leif. 2, p. 8, 1898; Mathews, Handl. Birds Austral., p. 105, 1908; Jackson, Emu, Vol. VIII., pp. 225-279, pls. XXI-III., XXXII-IV., XXXVIII., 1909; Green, *ib.*, Vol. IX., p. 247, 1909; H. L. White, *ib.*, p. 265; Jackson, *ib.*, Vol. X., p. 81, 1910; Broadbent, *ib.*, p. 238; Mathews, Nov. Zool., Vol. XVIII., p. 438, 1912; *id.*, List Birds Austr., p. 309, 1913; *id.*, South Austr. Orn., Vol. II., p. 61, 1915; Campbell, Emu, Vol. XIII., p. 68, 1913 (Eggs); North, Austr. Mus. Spec. Cat., No. 1, Vol. IV., p. 415, 1914; Campbell and Barnard, Emu, Vol. XVII., p. 36, 1917.

Tectonornis dentirostris Sharpe, Mon. Paradis., Vol. 2, pl. 40, 1891.

Scenopoëetes dentirostris minor Mathews, Austral Avian Record, Vol. II., pt. 7, p. 132, Jan. 28th, 1915: Johnstone River, North Queensland.

Scenopoëetes dentirostris dentirostris Mathews, *ib.*

DISTRIBUTION. North Queensland (Bellenden Ker Range district).

Adult male. Entire upper-surface of the body, including the wing-coverts and secondaries, brownish-olive; wings brownish-black, with the outer web brownish-olive; tail dull brownish-olive, indistinctly rayed with brownish-black; lores dusky; cheeks and ear-coverts dull olive-brown with buff shaft-stripes; throat and sides of the face brownish-white; remainder of the under-surface of the body creamy-white, each feather margined all round with deep brownish-olive, producing a streaked

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appearance; flanks and thighs olive-brown; under tail-coverts brownish-white with concentric markings of olive-brown; under wing-coverts buff, barred with dusky-brown; under-surface of wings ash-brown, broadly margined on the inner web with yellowish-buff. Eyes dark brown, bill dark horn, feet dark grey. Total length 274 mm.; culmen 23, wing 150, tail 102, tarsus 34. Figured. Collected at Atherton, near Cairns, North Queensland, in September, 1908.

Adult female. Similar to the adult male.

Eggs. Two eggs usually form the full clutch, although occasionally only one egg is found; but there is no record of a three-egg clutch ever having been taken. A clutch of two eggs, taken in the Tinaroo jungle, Barron River Valley, North Queensland, on the 22nd of December, 1908, is of a rich creamy-brown, resembling the eggs of *Alurædus maculosus* and *Alurædus viridis*, except that they are of a much more distinct brownish colour, and when placed side by side the difference is very marked, not only in the colour, but also in the general structure of the shell. Ovals in shape. Surface of shell fine, smoothly granulate and glossy. 42 by 27 mm.

Nest. Is a very frail, open, shallow structure, composed of thin dry sticks, lined inside with thin dry twigs, upon which the eggs rest. It is so loosely put together that great care must be exercised in removing it from the tree; it is entirely a different kind of structure to that made by the *Alurædus*. Nest is built in a thick mass of foliage or clump of vines in a tree, at heights varying from 15 to nearly 80 feet up from the ground. Dimensions over all: Vary according to the position in which the nest is built; an average specimen measures 6 to 7½ inches across over all, by 2 to nearly 2¾ inches in depth over all. The egg cavity is very shallow, and often only simply a platform, resembling the flimsy, flat, stick nest built by some of the Fruit Pigeons.

Breeding-months. October, November and December.

WHEN Ramsay described this new genus and species the only field-notes he could give read: "This species is not as yet known to build a bower; but like the Cat-Birds it clears a large space under the brushwood some 9 or 10 feet in diameter, and ornaments the cleared part with tufts and little heaps of gaily tinted leaves and young shoots."

Mr. Thos. P. Austin has written me: "I found this species very common in the scrubs of the Upper Barron River, North Queensland, while I was upon a visit there in 1907. Their playgrounds were very numerous, and were formed by clearing a large space, most of which were about five feet across, from which every dry leaf and stick is removed, leaving the ground perfectly bare, upon which they place freshly gathered large leaves of one particular kind of tree. These leaves are usually about forty in number, sometimes many more, according to the number of birds frequenting the playground; as these leaves dry, they are carried away and fresh ones are gathered to take their place."

Cornwall's notes read: "On the 28th December, 1902, I had the opportunity of inspecting five playgrounds, all within a few miles of Kuranda. No. 1. was situated in a dense tangle of lawyer-cane, and the loud call of the bird was heard long before we reached the locality, but, though we crawled as silently

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as possible, towards our objective, the bird was disturbed by our approach. We lay down within a few feet of the playground, and in a few minutes our friend came back and perched on a twig about two feet above the chosen spot. We were then treated to a wonderful display of the bird's powers of mimicry, and by the way he stretched and peeped in our direction one judged that he was quite aware that he had an interested audience. The first effort was the whistle of the Rusty Shrike-Thrush, which he imitated really well, though one might notice that though the note was strong it lacked the melody and roundness of the original. Then came the rolling note of the Black Butcher-Bird, a call very much resembling that of the Chongh, and which might be an imitation of either or both. After that the scream of the Blue-bellied Lorikeet was reproduced, followed by that of the Spotted Cat-Bird. Although the last-named call was a splendid imitation, it seemed to require a considerable effort to produce it, and was followed by a low after-note, to hear which one had to listen carefully. Perhaps the bird's masterpiece was the call of the Drongo-Shrike, a harsh, grating note. Possibly he gave us that just to prove that his repertoire was a varied one. After watching and listening to the bird for a considerable time, we reluctantly disturbed him, as we wished closely to examine the playground. The cleared space was about six or seven feet long by four wide, and was swept as clean as one could do it with a broom. Twenty-five large leaves, all fresh, were placed irregularly about it, all turned upside down. A careful inspection disclosed five distinct varieties of leaves, samples of which were taken for future reference. At No. 2 we had no opportunity of watching the bird, as he left at our approach, and seemed reluctant to return to treat us to a sample of his musical abilities. Here the leaves were of a different variety to any of those previously found, being with one or two exceptions those of the native ginger. No. 3 was a very much more extensive ground, being ten or twelve feet long, but pinched at the middle like a figure 8. Possibly it was a sort of combination playground and belonged to two birds, and it might have proved of interest if we had waited for the bird or birds to return. The leaves were all of one kind (native ginger) and were about twenty in number. Soon after leaving No. 3 a call led us to No. 4, and there we had opportunity of watching the bird again, though at a greater distance. His songs were not so varied, though the quality was good. An examination of his playground disclosed a rather sad state of things. The bird was either a poor housekeeper or had slept late that morning, for the floor was littered with dead leaves of the previous day's gathering, only two or three fresh ones being amongst them. No. 5 was situated close to a timber-getter's track, and, being in slightly more open scrub, was made the subject of a photo. The leaves were twenty-four in number, and excepting four or five, were those

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of the native ginger. Mr. W. T. White told me of the following interesting trick he played on one of these birds. Finding one of their playgrounds, he removed all the leaves and replaced them with others closely resembling, but of a different variety. Returning a few hours later, he found that the bird had thrown out all the leaves he had put there and replaced them with others of his own choosing."

Later, one of his photos was published with the note: "You will see it was situated amongst a dense tangle of lawyer-palms, and we had to clear one side to get at it with the camera. The playground was large, very clean, and I counted seventy-five leaves on it, all fresh. At the back, amongst the sticks, may be noticed some of the withered leaves which had been thrown out. The following note may be of interest. In the morning all the birds were noticed low down amongst the scrub, quite close to their playground, whilst towards sundown they were invariably perched high up amongst the topmost branches of the trees, but still in the immediate neighbourhood of the playground. They were always very noisy."

An interesting note by A. F. Smith reads: "On 17th September I found a playground of this bird about two hours walk from Hambledon Mill, and decided to spend some time, later on, watching it, in hopes of getting some clue to the position of the nest. So on 22nd October I seated myself near the bower and watched the bird from ten till twelve. As his cries seemed to be answered by another bird not far away, I then followed the sound and found another playground about 100 yards away, which I watched from twelve till three. Only one bird was at each bower, and, as their antics were the same, one description will do for both. Throughout the time I watched only one bird was at the playground, and he appeared to have no interest in anything but his collection of leaves. He would fly away occasionally for another leaf or some fruit, returning in two or three minutes, when he would place the leaf in position, upside down, have a look at the others to see if they were all right, but at no time played with them—and then fly away to a twig about eight feet above the leaves, and there perform; but his repertoire was very limited, his favourite number being the harsh, scolding note of the Drongo (*Chibia bracteata*). Occasionally he would imitate the Rifle-Bird and the Little Thrush (*Collyriocincla parvissima*), and he would frequently give a short, piercing whistle, which seemed to be his natural call. There is a mystery about these birds that will take some explaining. How is it that throughout the three hours that I watched him no other bird put in an appearance? If the owner of the playground had a mate, it seems strange that she did not show herself. If his performance is to attract a mate, he is certainly a most persevering but unfortunate suitor, as he has been hard at it for two months to my knowledge,

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and the birds are not scarce in the scrub about there, as I have seen them several times. Perhaps his mate was sitting, or he may have been a confirmed old bachelor collecting leaves for a hobby."

Broadbent's notes read: "This interesting species has been obtained by me on the Tully River, twenty-four miles from Cardwell, at Cairns, at Herbert Gorge, and on Sea View Range, as far above the level of the sea as the scrubs extend, but always on the mountains, stray individuals only descending below 2,000 feet. It excels all other Bower-Birds as a mimic, and may be fitly termed the master mocking-bird of Australia. Not only will it imitate the note of every bird in its neighbourhood, but so closely does it do so, that they are drawn to it as to one of their own kind. This is especially the case during the breeding-season, and in May I have remained at one spot in the Herberton scrubs by the half-hour listening with wonder to its changeful utterances. Its bower, or dancing-ground, is of a unique description, a small portion of the ground of the scrub being rendered perfectly square for the space of a square yard or so, save the presence of seven to nine large leaves, which the bird has placed therein, and with which it plays. These leaves, which are those of a particular kind of tree, it renews every morning."

As an extra part to the *Emu*, Vol. VIII., was published an account entitled "In the Barron River Valley, North Queensland," by S. W. Jackson, dealing in detail with his investigations into the nesting and other habits of this bird, and this must be referred to by all students. I can only quote a few items in this place. Thus, Jackson suggests "that the object of the bird in placing the leaves face down was to prevent them (as long as possible) from curling, as is the habit of leaves, towards the upper side. . . . I proved my theory to a certain extent by experimenting with the same kind of leaves, when I found that, placed right side up, they soon curled out of shape and symmetry, whilst those which were reversed, in spite of extreme heat, remained flat for some time. Some ornithologists have thought the disposing of the leaves in this fashion to be due to an æsthetic preference on the bird's part for the softer colour of the under-side of the leaf. This, of course, may be the case, but the other theory seems more feasible."

Jackson noted: "I never saw these birds perched in the trees, though of course in such dense foliage they might be there without being visible; still, the fact remains that I never heard their note that day anywhere save at their playgrounds. It is also strange that these grounds are apparently frequented by only one bird, which will sit all day in seemingly self-satisfied contemplation of its artistic arrangements, and enlivening the solitude with a babble of harsh and unmusical sounds, with an occasional clear and beautiful reproduction of the notes of other scrub-birds; but each performance would

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be wound up with the recurrent and loud 'chuck,' which seemed to be a sort of 'amen' to the whole affair. . . . When engaged in what one must indulgently suppose it regards as its own special song, the mouth is often opened to almost gaping width, and the head thrown well back—a feature often noticeable when the note is harsh and unmusical."

Later, Jackson found them perched in trees; and concluded that as the breeding-season approached they left their playing grounds to frequent the trees, and that when they were breeding the grounds were deserted. "I noticed numbers of dead, ringbarked scrub trees, known locally as Johnstone River hardwoods, and in these, high up amongst their dead and leafless tops, I both heard and observed quite a number of Toothbills. They were all busy rendering various cries in conjunction with their own loud and sudden characteristic 'chuck.' The procedure was something quite novel for me, and I came to the conclusion that these birds were collecting the small dead twigs from the tops of these tall trees for the purpose of nest construction. They frequently flew from the trees into the scrub about a quarter of a mile away. This was the first time I had ever seen these birds out of the scrub proper. I presume that this would be their habit after they had all won mates and started upon the important responsibility of nesting. Their playgrounds in the adjacent scrub revealed to me sufficient proof that it was now the height of their breeding-season, as nearly all those examined were untidy and unoccupied.

"Toothbills now all very silent, and more especially those which possess nests. . . . When flying they usually make a swooping and heavy flapping sound. In hopping about on the ground and in trees they are expert. I have observed one commence from the ground, then alight upon a suspended vine, and by a rapid succession of 'hops' arrive at the top of the tree."

Two subspecies can be admitted:

Scenopoëtes dentirostris dentirostris (Ramsay).

4,000 feet up Bellenden Ker Range.

Scenopoëtes dentirostris minor Mathews.

Johnstone River (sea-level).

GENUS—AILURÆDUS.

AILURÆDUS Cabanis, Mus. Heine.,
 Vol. I., p. 213 (note), after Oct.
 23rd, 1851. Type (by mono-
 typy) *Ptilonorhynchus smithi* Vigors & Horsfield
 = *Lanius crassirostris* Paykull.

Also spelt—
Allurædus "Bonaparte" Gray, Cat. Gen. Subgen. Birds, p. 65, 1855.
Aelurædus

Chlorokitta "Kaup" Gray, Cat.
 Gen. Subgen. Birds, p. 148,
 before April 18th, 1855. As
 synonym of *Ailurædus* Cabanis.

LARGE Bower Birds with longish stout bills, long wing, long tail, and medium stout legs and feet.

The bill is stout, nearly as long as the head, laterally compressed, deeper than wide at the base; culmen arched, semi-keeled; tip decurved and pointed, notably notched posteriorly; lateral edges of upper mandible sinuate; nostrils open circular apertures basally in the deep depression half hidden by the encroaching frontal feathering and prominent nasal bristles extending over them; rictals minute, scarcely discernible; under mandible stout, nearly as strong as the upper; interramal space rounded, short and broad, gonys ascending about three-fourths the length of the bill.

The wing is long with the fourth and fifth primaries subequal and longest, the third and sixth subequal and a little shorter, the second about equal to the eighth; the first primary short, about half the length of the fourth and shorter than the long secondaries.

The tail is long and square in shape, the feathers broad.

The legs medium in length and stout, seven scutes in front, bilaminate behind; the toes stout, inner toe and claw less than outer toe and claw and equal to middle toe alone, claws sharp, hind-toe stout and the claw longer, but the hind-toe and claw shorter than the middle toe and claw.

Ailurædus buccoides (Temm. & Laugier) differs in colour, is smaller, has a longer weaker bill, more open nostrils, more rounded wings and weaker feet with shorter toes. It constitutes a good subgenus which I name *Buccokitta*.

Key to the Species.

Ear-coverts and chin black, feathers on under-surface with
 uniform darker edges *maculosus*.
 Ear-coverts and chin not black, feathers on under-surface
 with light centres *crassirostris*.

Order PASSERIFORMES.

No. 730.

Family PTILONORHYNCHIDÆ.

AILURÆDUS CRASSIROSTRIS.

CAT-BIRD.

(PLATE 583.)

- LANIUS CRASSIROSTRIS PAYKULL, Nov. Act. Reg. Soc. Sci., Upsal., Vol. VII., p. 283, 1815: "Nouvelle Hollande" = New South Wales.
- Lanius crassirostris* Paykull, Nov. Act. Reg. Soc. Sci., Upsala, Vol. VII., p. 283, 1815.
- Coracina viridis* Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. VIII., p. 9, March 15th, 1817: New South Wales.
- Kitta virescens* Temminck et Laugier, Planch. Color. d'Ois., Vol. IV. (67^e livr., pl. 396), July 12th, 1826: New South Wales.
- Ptilonorhynchus viridis* Stephens in Shaw's Gen. Zool., Vol. XIV., pt. I., p. 71 (end), 1826: "South Sea Islands" = New South Wales; Wagler, Syst. Avium Ptilono., sp. 3, (Oct.) 1827: "Nova Hollandia."
- Ptilonorhynchus smithii* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 264, Feb. 17th, 1827: (Watham's River) New South Wales; Gould, Birds Austr., pt. XXI. (Vol. IV., pl. 11), Dec. 1st, 1845.
- Ailurædus* smithii* Cabanis, Mus. Heine., Vol. I., p. 213, 1851; Gould, Handb. Birds Austr., Vol. I., p. 446, 1865; Ramsay, Emu, Vol. XIX., p. 7, 1920; S. A. White, *ib.*, p. 220 (Q.).
- Ælurædus viridis* Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 385, 1881; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Sharpe, Mon. Paradis., Vol. 2, pl. 36, 1891; Hall, Key Birds Austr., p. 21, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 196, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 70, 1902; Mathews, Handl. Birds Austral., p. 105, 1908; Mellor, Emu, Vol. X., p. 208, 1910 (Q.); Jackson, *ib.*, Vol. XX., p. 207, 1921 (Q.).
- Ailurædus crassirostris crassirostris* Mathews, Nov. Zool., Vol. XVIII., p. 438, 1912.
- Ailurædus crassirostris blaauwi* Mathews, *ib.*, p. 439, Jan. 31st, 1912: Richmond River, New South Wales.
- Ailurædus crassirostris* Mathews, List Birds Austr., p. 309, 1913.
- DISTRIBUTION. South Queensland, New South Wales.

* Also spelt *Aelurædus*.



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AILUROEDUS MELANOTUS
 (SPOTTED CAT-BIRD)
 AILUROEDUS CRASSIROSTRIS
 (CAT-BIRD.)

NATIONAL BUREAU OF STANDARDS

CAT-BIRD.

Adult male. Feathers of the top of the head dull olive-green; hind-neck of the same colour as the head, but each feather with a small greyish-white spot near the extremity; inner-secondaries, wing-coverts, back, mantle, rump and upper tail-coverts deep grass-green, the edges of the feathers slightly lighter; two central pairs of tail-feathers deep grass-green; outermost pairs with innermost webs smoky-brown shaded with green and the outer webs of the same colour as the middle pairs, all but the central pairs tipped with white; secondaries and secondary-coverts each with a spot of white at the tip; primaries blackish-brown, the five outermost margined on the outer web at the base with grass-green and towards the tip with pale lavender-blue, the remainder of the wing and secondaries margined with grass-green; checks and sides of the face golden-green at the tip and dusky at the base; throat dull greenish-olive, becoming lighter on the chest and sides of the body, each feather with a white spot which is prolonged into a white shaft-streak on the sides of the body; middle of the belly yellowish-green. Eyes chestnut, bill creamy-white, feet dark grey. Total length 313 mm.; culmen 30, wing 175, tail 125, tarsus 51. Figured. Collected on the Richmond River, Northern New South Wales, in October, 1905.

Adult female. Similar to the adult male.

Nestlings covered with black down.

Eggs. Two to three eggs form the clutch, usually two, very seldom three. A clutch of two eggs taken at Booyong, Richmond River, New South Wales, on the 29th of October, 1899, is of a dark cream-colour. Rather oval in shape. Surface of shell fine, rather smooth and glossy. 43-44 by 30 mm.

Nest. A rather bulky, open and deep structure, composed of large dead leaves, compactly worked in together with bark, moss, ferns, etc.; the outside of which is surrounded with small sticks and twigs. The nest is lined with thin twigs and often roots. Dimensions over all, 9 to nearly 12 inches across by 6 to 7 inches in depth. Egg cavity, 5 to 5½ inches across by 3 to nearly 3½ inches deep. The size of the nest depends very much upon the place in which it is built. The most usual position is in the top portion of a tall bushy sapling or small tree, where it is well hidden from view, and usually about 8 to 25 feet up from the ground. Then again, the nest is often built at the head of a Tree Fern, at heights varying from 6 to 15 feet or more from the ground.

Breeding-months. September to end December.

ABOUT the year 1826 this species received three names from three different writers, but sixteen years previously it had been named by Paykull in a Swedish periodical.

No field-notes were given by any of these authors, so that Gould's notes are the earliest, as follows: "So far as our knowledge extends, this species is only found in New South Wales, where it inhabits the luxuriant forests that extend along the eastern coast between the mountain ranges and the sea; those of Illawarra, the Hunter, the Macleay, and the Clarence and the cedar brushes of the Liverpool range being, among many others, localities in which it may be found; situations suitable to the Regent- and Satin-Birds are equally adapted to the habits of the Cat-Bird, and I have not unfrequently seen them all three feeding together on the same tree. The wild fig, and the native cherry,

THE BIRDS OF AUSTRALIA.

when in season, afford an abundant supply. So rarely does it take insects, that I do not recollect ever finding any remains in the stomachs of those specimens I dissected. In its disposition it is neither a shy nor a wary bird, little caution being required to approach it, either when feeding or while quietly perched upon the lofty branches of the trees. It is at such times that its loud, harsh and extraordinary note is heard; a note which differs so much from that of all other birds, that having been once heard it can never be mistaken. In comparing it to the nightly concerts of the domestic cat, I conceive that I am conveying to my readers a more perfect idea of the note of this species than could be given by pages of description. This concert is performed either by a pair or several individuals, and nothing more is required than for the hearer to shut his eyes to the neighbouring foliage to fancy himself surrounded by London grimalkins of house-top celebrity. While in the district in which this bird is found, my attention was directed to the acquisition of all the information I could obtain respecting its habits, as I consider it very probable that it might construct a bower similar to that of the Satin-Bird, but I could not satisfy myself that it does, nor could I discover its nest, or the situation in which it breeds; it is doubtless, however, among the branches of the trees of the forest in which it lives."

Mr. Edwin Ashby has written me: "These birds are very common in the Blackall Ranges, Queensland. Its strange, mew-like note was heard continually in the thick tropical brush or scrub, but the birds were not easy to see, their green plumage harmonizing with the rich green foliage of the trees."

Campbell has written: "During my visit (1891) to the 'Big Scrub' of the Richmond River district, the peculiar voice of this bird was heard everywhere throughout the locality. The cry is a real cat-like 'mew-mew,' with a strong accent on the second 'mew,' as if someone had trodden on a cat's tail. I happened to observe a pair of birds 'caterwauling' about a nest, which was situated some fifteen feet from the ground, in a small tree on the bank of Pearce's Creek. I climbed to the nest, only to be disappointed in finding a pair of young, clothed in down as black as ink, instead of a set of shapely, cream-coloured eggs."

Capt. S. A. White writes: "Those who enter the great scrubs of New South Wales and Queensland for the first time are puzzled by the strange calls of this bird, which go echoing through the forest; it is a strange cry, and more like that of a quadruped than a bird. Very wary and generally keep to the top of the great forest trees, living upon the fruits which abound upon vines or trees at all times of the year in those great tropical scrubs."

Jackson has recently written from the Macpherson Range, South Queensland: "Cat-Birds were plentiful, and did not call much until about the end

CAT-BIRD.

of October. The cry resembles that of a domestic cat, and at times reminds one of the delicate little cry of a young baby."

It is curious that so little is known of this comparatively well-known bird, while so much has been written of rarer forms of "Bower-Birds."

The technical history is almost as scanty as though it received five names upon its first receipt in Europe, where it was sent as the female of the Satin Bower-Bird; it has since received little attention, and its range and sub-specific forms are unknown.

Order PASSERIFORMES.

No. 731.

Family PTILONORHYNCHIDÆ.

AILURÆDUS MELANOTUS.

SPOTTED CAT-BIRD.

(PLATE 583.)

[PTILONORHYNCHUS MELANOTIS Gray, Proc. Zool. Soc. (Lond.) 1858, p. 181, July 13th: Aru Islands. Extra-limital.]

Ælurædus maculosus Ramsay, Proc. Zool. Soc. (Lond.) 1874, p. 601, April 1st, 1875: Rockingham Bay, Queensland.

Ælurædus maculosus* Ramsay, Proc. Zool. Soc. (Lond.) 1874, p. 601; *id.*, *ib.*, 1875, p. 591; *id.*, Proc. Linn. Soc. N.S.W., Vol. II., p. 187, 1878; Gould, Birds New Guinea, pt. I. (Vol. I., pl. 38), Dec. 1st, 1875; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 385, 1881; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Sharpe, Mon. Paradis., Vol. 2, pl. 35, 1891; Hall, Key Birds Austr., p. 21, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 195, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 73, 1902; Mathews, Handl. Birds Austral., p. 105, 1908; Jackson, Emu, Vol. VIII., p. 238, pl. XXIV., 1909; Shufeldt, *ib.*, Vol. XI., p. 200, 1912; Campbell and Barnard, *ib.*, Vol. XVII., p. 36, 1917 (N.Q.); Macgillivray, *ib.*, p. 210, 1918 (N.Q.).

Ailurædus melanotus maculosus Mathews, Nov. Zool., Vol. XVIII., p. 439, 1912; *id.*, List Birds Austr., p. 310, 1913; *id.*, South Austr. Orn., Vol. II., p. 61, 1915.

Ailurædus melanotus fairfaxi Mathews, Austral Avian Record, Vol. II., pt. 7, p. 132, Jan. 28th, 1915: Bellenden Ker, Queensland.

DISTRIBUTION. North Queensland.

Adult female. Feathers of the top of the head and neck rusty-buff, each feather margined with brownish-buff; wing-coverts, back, mantle, rump and upper tail-coverts grass-green, slightly glossed; innermost secondaries grass-green tipped with white; primaries and outer secondaries brownish-black with the entire outer web grass-green; central pair of tail-feathers uniform dull grass-green, outer pairs of tail-feathers slightly glossed on the outer web with dull green; second and third pairs with the entire outer web green; fourth and fifth pairs with the green colour extending on to the inner web, all but the central pair tipped at the extremity of both webs with white; lores dusky; ear-coverts brownish-black, margined above with whitish; chin dusky; sides of the face, throat, chest, breast and sides of the body yellowish-white, bordered with dull green and rufous, producing a scaled

* Also spelt *Ailurædus*.

SPOTTED CAT-BIRD.

appearance; middle of the belly, abdomen and under tail-coverts white, tinged with yellowish-green; under-surface of wings ash-brown, shaded with grey towards the base. Eyes chestnut, bill creamy-white, feet dark grey. Total length 290 mm.; culmen 28, wing 158, tail 110, tarsus 48. Figured. Collected at Atherton, near Cairns, North Queensland, in September, 1908.

Adult male. Similar to the adult female.

Eggs. Two to three eggs form the clutch, usually two. A clutch of two eggs, taken at Atherton, North Queensland, on the 4th of December, 1908, is of a cream colour, and not so dark as is the case with those of *A. crassirostris*. Ovals in shape. Surface of shell rather smooth, fine and glossy. 40-41 by 29 mm.

Nest. A large, open, comparatively deep structure, composed of large leaves (both dead and green) and twigs, roots, etc., and lined with thin twigs, tendrils, etc. Closely resembles the nest of *A. crassirostris*. Dimensions over all, $8\frac{1}{2}$ to $9\frac{1}{2}$ inches across by 4 to about $5\frac{1}{2}$ inches in depth. Egg cavity, $5\frac{1}{2}$ to 6 inches across by 2 to $2\frac{1}{2}$ inches deep. Nest is generally placed near the top of a bushy sapling or small tree in the dense scrub, and at heights varying from 8 to 20 feet or more.

Breeding-months. September to end December.

WHEN Ramsay described this new species he gave a note: "Its note resembles that of *Æ. smithi*, but has not so distinct a cry, and less bat-like, clearer, and more of a whistle. They assemble in small flocks of from ten to twenty in number, and frequent the plains and native fruit trees in company with *Ptilonopus superbus* and *Carpophaga assimilis*. They are also found feeding in the immense fig trees which abound in the scrub."

The next year, in his account of the birds, he re-wrote it thus: "This interesting species appears to take the place of the *Æ. smithi* of New South Wales. We found it feeding on the fruit of the native figs, in small families of four to eight in number. The note is more of a *whistle* than a *cry* of any kind."

Le Souëf has noted: "The curious harsh note (not resembling the cat-like cry of the southern bird) of the Spotted Cat-Bird was often heard in the scrub, and several nests were found. They appear to prefer building near the top of a slender tree, about fifteen feet from the ground, although on one occasion we found one within two feet, built on a creeper, but that was an exception."

Jackson records this species as common in the Barron River Valley and found many nests and eggs, but gives little information about their habits, writing: "It is distinctly noticeable that these birds seem to fancy the neighbourhood of the Tooth-billed Bower-Bird's bower for a nesting place; in fact, they seem to be first cousins. I noticed that the Spotted Cat-Bird utters three distinct kinds of notes, and one of these is a sound only occasionally given and resembling almost a faint sneeze, thus: 'Pit-pit-pit,' but the most common cry of the three is very like their native name 'Chigua-ah.' The third cry is a longer one."

THE BIRDS OF AUSTRALIA.

Campbell and Barnard simply wrote: "We observed Cat-Birds in the scrub by the sea (Cardwell) as well as in the mountains, where they were more numerous. They were laying during October."

Macgillivray has recorded: "We seldom saw the Spotted Cat-Bird in the scrub, but frequently heard its cat-like cries. When first we came to the Claudie, dozens of old nests were seen in the scrub, but it was not until after our return from the islands that we found a fresh one; this contained a pair of eggs on the 21st December, and was 15 feet up in a small scrub tree. The nest was open, constructed of sticks, and lined with bark fibre."

It will be seen that little has been recorded of this species of Cat-Bird also, but the range of this form is more restricted. When Ramsay described it as a new species, he did not know that the Aru Island bird would be similar, a quite unexpected result. This bird is not yet known from the Cape York district, yet it seems only subspecifically separable from the Aru Island species. It thus constitutes another remarkable case of the reappearance of Papuan forms in the Bellenden Ker district, without being present on the Cape York peninsula adjacent to the mainland of New Guinea. Two subspecies can be admitted:

Ailurædus melanotus maculosus Ramsay, Rockingham Bay.

Ailurædus melanotus fairfaxi Mathews, Bellenden Ker Range; 3,400 feet up.

NATIONAL MUSEUM AMBROSE

GENUS—CHLAMYDERA.

CHLAMYDERA Gould, Birds Austr. and Adj. Islands,
 pt. I., pl. 3, note, Aug. 1837. New name for
Calodera Gould. Type (by monotypy) .. *Calodera maculata* Gould.

Also spelt—

Chlamydoera Agassiz, Index Univers., p. 82, 1846.

Calodera Gould, Synops. Birds Austr., pt. 1, pl. (6),
 Jan. 1837. Type (by subsequent designation)
 Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 388,
 1881. *C. maculata* Gould.

Not—

Calodera Mannerheim, Mem. Ac. Imp. Sci., St. Petersburg, Vol. I. (5), p. 499, Feb., 1831.

Also spelt—

Callidera Agassiz, Index Univers., pp. 58-60, 1846.

IN an evolutionary scale this would be the most highly developed form of “*Chlamydera*,” having diverged from the ancestral style of inornate form in developing a spotted plumage and a lilac napeband in both sexes. In “*cerviniventris*” the development is not in size, but rufous coloration underneath and NO napeband at all. In “*nuchalis*” the rufous under-coloration has not been produced, but a larger size is reached and the male has a lilac napeband, but not the female. It is of course possible that the ancestral form was spotted and that in this group the spots are intensified, while in the others they have disappeared.

Compared with *Rogersornis*, which I have diagnosed in full, this group is composed of smaller birds, and curiously enough has the widest distribution. The bill is shorter, stouter, broader, almost as broad as deep at the base, and the tip is less noticeably notched.

The wing has the second primary longer than the seventh, the first shorter than the secondaries, the second about equal to the sixth. The tail-feathers are rather narrow. The front of the tarsus is heavily scutate; the inner and outer toes are subequal, the hind-toe and claw shorter than the middle toe and claw.

Order *PASSERIFORMES*.

Family *PTILONORHYNCHIDÆ*.

No. 732.

CHLAMYDERA MACULATA.

SPOTTED BOWER-BIRD.

(PLATES 584-585.)

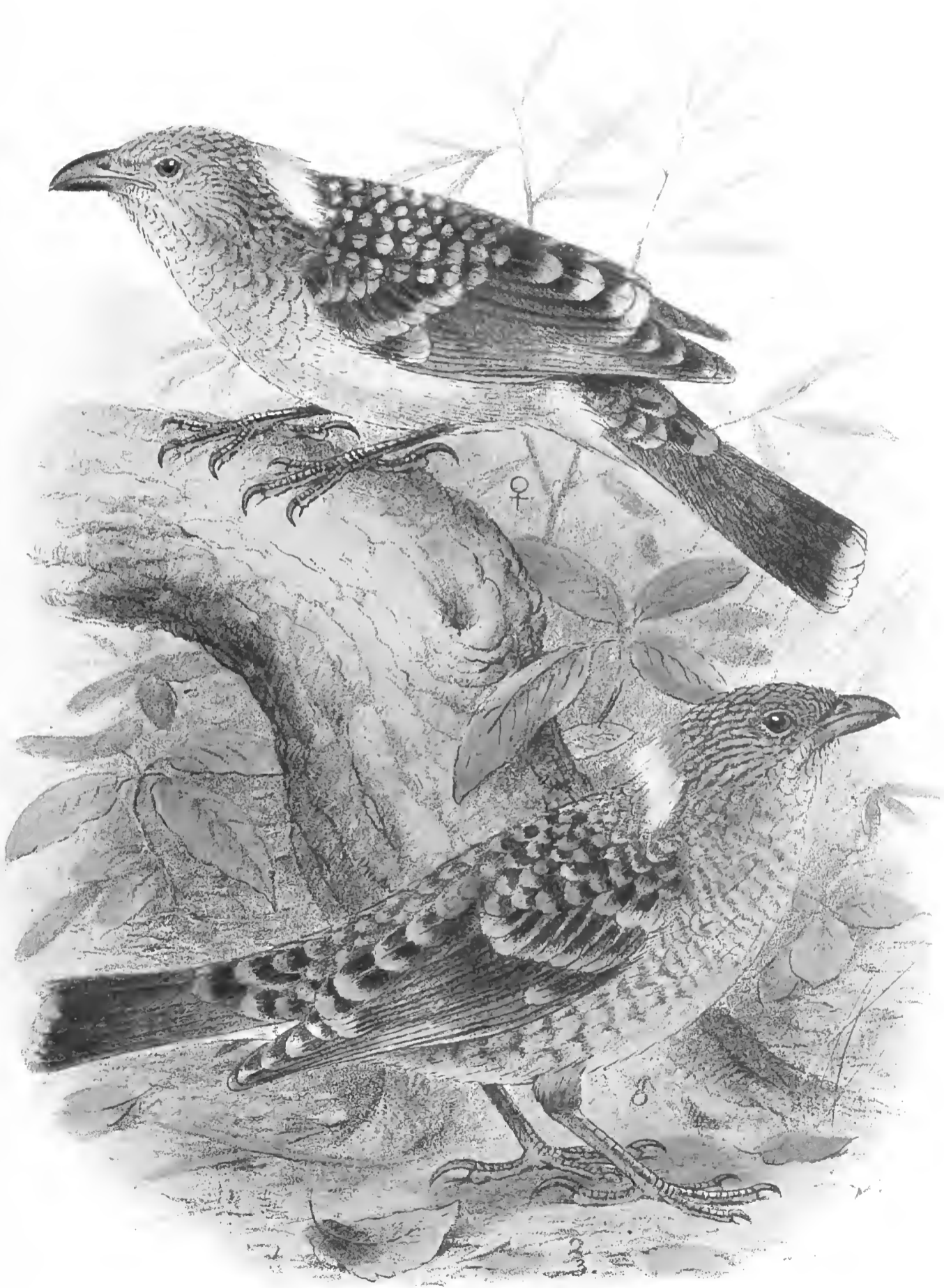
CALODERA MACULATA Gould, Synops. Birds Austr., pt. I., pl. (6), fig. I., Jan. 1837: Australia; Restricted to Northern New South Wales.

Calodera maculata Gould, Synops. Birds Austr., pt. I., pl. (6), Jan. 1837; *id.*, Proc. Zool. Soc. (Lond.), 1836, p. 106, Feb. 1837; *id.*, Birds Austr. and Adj. Islands, pt. I., pl. 3, Aug. 1837.

Chlamydera maculata* Gould, Birds Austr., pt. IV. (Vol. IV., pl. 8), Sept. 1st, 1841; *id.*, Handb. Birds Austr., Vol. I., p. 450, 1865; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 389, 1881; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Sharpe, Mon. Paradis., Vol. 2, pl. 28, 1891; Hall, Key Birds Austr., p. 22, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 198, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 41, 1902; Berney, Emu, Vol. V., p. 73, 1905 (Q.); Campbell, *ib.*, Vol. VI., p. 137, 1907; Mathews, Handl. Birds Austral., p. 105, 1908; Chisholm, Emu, Vol. VIII., p. 37, 1908 (Q.); Cleland, *ib.*, Vol. XII., p. 18, 1912 (Food); H. L. White, *ib.*, p. 22; Jackson, *ib.*, p. 65, pl. VI.; *id.*, *ib.*, p. 96, pls. XVI. and XVII.; Campbell, *ib.*, p. 286, 1913 (Eggs); H. L. White, *ib.*, Vol. XIII., p. 48 (Eggs); Campbell, *ib.*, p. 68, pl. XI. (Eggs); Macgillivray, *ib.*, p. 183, 1914 (N.Q.); Barrett, *ib.*, Vol. XV., p. 177, pl. XXVII., 1916 (Vic.); D'Ombraïn, *ib.*, Vol. XXI., p. 66, 1921 (N.S.W.); Gaukrodger, Queensl. Naturl., Vol. 3, pt. 4, p. 81, April 1922.

Chlamydera guttata Gould, Proc. Zool. Soc. (Lond.) 1862, p. 162, Oct. 1st: North-west Australia; *id.*, Handb. Birds Austr., Vol. I., p. 452, 1865; *id.*, Birds Austr. Suppl., pl. 35 (pt. IV.), Dec. 1st, 1867; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 390, 1881; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Hall, Key Birds Austr., p. 22, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 202, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 48, 1902, Carter, Emu, Vol. III., p. 36, 1903 (W.A.); Mathews, Handl. Birds Austral., p. 105, 1908; Whitlock, Emu, Vol. IX., p. 212, 1910 (W.A.); H. L. White, *ib.*, Vol. XII., p. 22, 1912 (Eggs); Campbell, *ib.*, Vol. XIII., p. 68,

* Also spelt *Chlamydodera*.



H. Grönvold del

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CHLAMYDERA MACULATA
(SPOTTED BOWER-BIRD)

NATIONAL MUSEUM WASHINGTON

SPOTTED BOWER-BIRD.

pl. XI., 1913 (Eggs); Alexander, *ib.*, Vol. XXIII., p. 94, 1923 (Q.); Whitlock, *ib.*, p. 278, 1924.

Chlamydoera occipitalis Gould, Annals Mag. Nat. Hist., Ser. IV., Vol. XVI., p. 429, Dec. 1st, 1875: North Queensland=Port Albany; *id.*, Birds New Guinea, pt. x. (Vol. I., pl. 45), Sept. 1st, 1879; Sharpe, Mon. Paradis., Vol. 2, pl. 29, 1891.

Chlamydera maculata maculata Rothschild, Ibis, 1911, p. 365; Mathews, Nov. Zool., Vol. XVIII., p. 439, 1912; *id.*, List Birds Austr., p. 310, 1913.

Chlamydera maculata occipitalis Mathews, Nov. Zool., Vol. XVIII., p. 439, 1912; *id.*, List Birds Austr., p. 310, 1913.

Chlamydera maculata guttata Rothschild, Ibis, 1911, p. 365; Mathews, Nov. Zool., Vol. XVIII., p. 439, 1912; *id.*, List Birds Austr., p. 310, 1913.

Chlamydera maculata clelandi Mathews, Nov. Zool., Vol. XVIII., p. 439, Jan. 31st, 1912: South Australia; *id.*, List Birds Austr., p. 310, 1913.

Chlamydera maculata subguttata Mathews, Nov. Zool., Vol. XVIII., p. 440, Jan. 31st, 1912: East Murchison, West Australia; *id.*, List Birds Austr., p. 310, 1913.

Chlamydera maculata macdonaldi Mathews, Austral Avian Record, Vol. II., pt. 4, p. 78, Dec. 29th, 1913: Macdonald (error for MacDonnell) Ranges, Central Australia.

Chlamydera maculata sedani Mathews, *ib.*: Cloncurry River, Queensland.

Chlamydera maculata macdonnelli S. A. White, Emu, Vol. XIV., p. 191, 1915.

Chlamydera maculata nova Mathews, Bull. Brit. Ornith. Club, Vol. XL., p. 76, Jan. 30th, 1920: North-west Cape, Mid-west Australia; Carter and Mathews, Ibis, 1920, p. 499, pl. XIV.

Chlamydera maculata carteri Mathews, Ibis, 1920, p. 499, footnote, April 9th, 1920; new name for preceding which is not *Alphachlamydera cerviniventris nova* Mathews, Austral Avian Record, Vol. II., p. 132, 1915: New Guinea.

DISTRIBUTION. Across Central Australia from east to west; not in extreme North Queensland, nor extreme Northern Territory, nor in extreme South-west or South Australia.

Adult (male ?). Feathers of the lores, fore-head, crown and sides of the face chestnut, margined with blackish and glossed with silvery-white; a large broad patch of lilac-pink feathers across the hind-neck, succeeded by a band of ash-brown feathers; back, rump, upper tail-coverts and wing-over-s blackish-brown, each feather with a chestnut spot at the extremity; primaries and secondaries blackish-brown, widely margined on the inner web with whitish-yellow and with a chestnut tip; tail similar to the wings, but with a chestnut bar across the extremity; feathers of the throat, chest and sides of the breast brownish-chestnut with concentric bars of blackish-brown; belly and under tail-coverts white; under-surface of wings olive-brown, widely margined on the inner web with light yellow. Bill yellow, feet brown. Total length 255 mm.; culmen 18, wing 150, tail 108, tarsus 42. Figured. Collected in South Australia (?) and is the type of *clelandi*.

Adult male. Feathers of the head brownish-black, each feather with a round spot of chestnut surrounded by glossy bronze; a large patch of lilac-pink feathers across the hind-neck; mantle, back, rump, upper tail-coverts, wing-over-s and secondary-coverts black, each feather with a large spot of golden-ruff at the extremity; primaries and secondaries brownish-black, margined on the outer web with straw-colour

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and widely margined on the inner web with whitish-yellow; tail brownish-black, widely margined on the inner web and at the tip with golden-buff; feathers of the sides of the neck and the throat black with rich buff middles to the feathers; chest, belly, abdomen and under tail-coverts creamy-yellow; sides of the body and thighs brownish with light shaft-streaks; under-surface of wings brownish-ash, widely margined on the inner web with buffy-yellow. Bill black, angle of gape yellow, eyes dark brown, feet and legs greenish-horn. Total length 257 mm.; culmen 23, wing 147, tail 88, tarsus 40. Figured. Collected in East Murchison, Mid-west Australia, on November 1st, 1909, and is the type of *subguttata*.

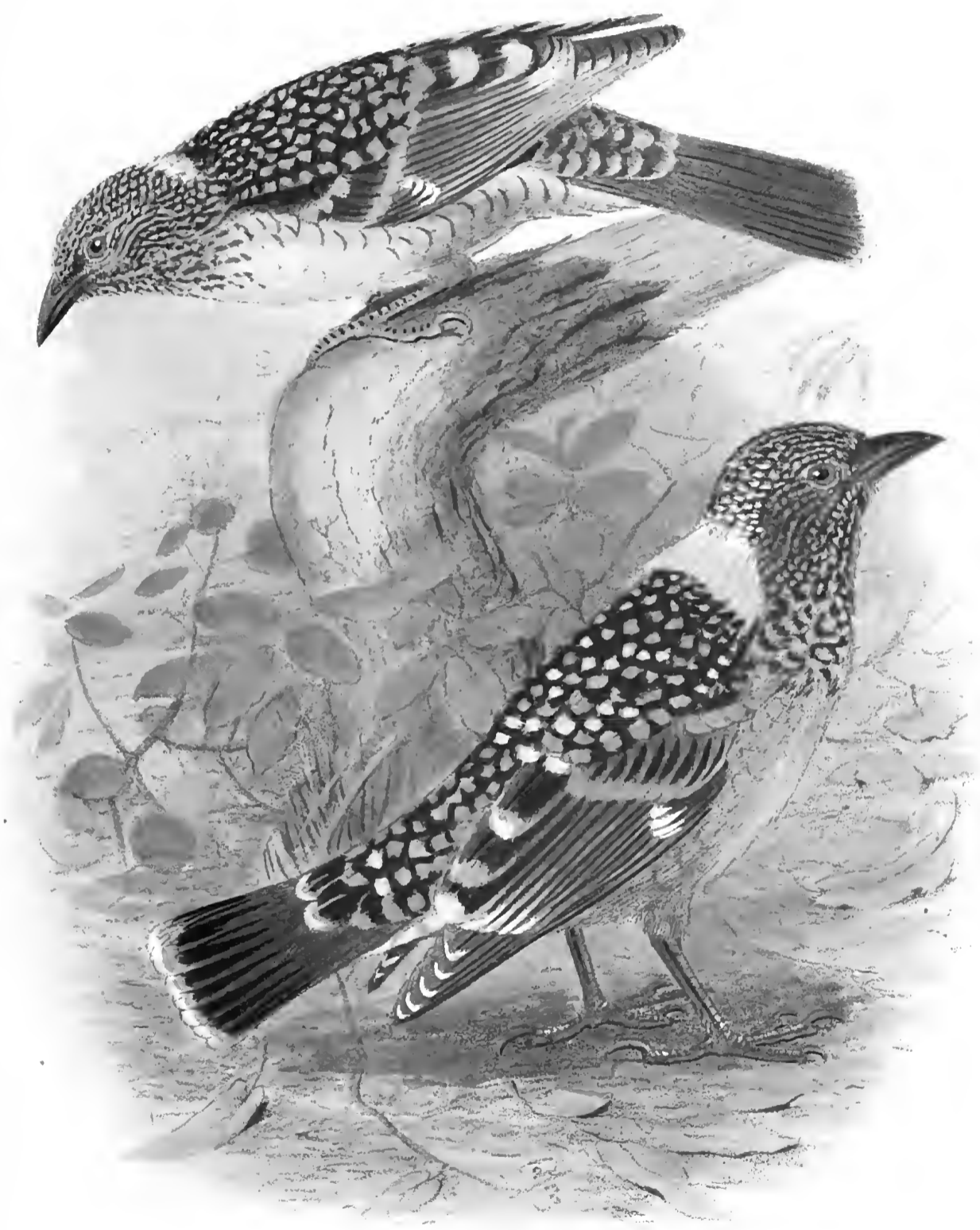
Adult female. Similar to the bird described above, but the general colour of the plumage much lighter and with the frill on the neck more pink. Eyes and legs brown, bill black. Total length 300 mm.; culmen 25, wing 143, tail 106, tarsus 40. Figured. Collected at Sedan on the Cloncurry River, North Queensland, on the 25th of February, 1910, and is the type of *sedani*.

Adult female. Chiefly differs from *C. m. subguttata* in being darker and in having a small bill. Eyes brown, feet slaty-black, bill black. Total length 250 mm.; culmen 20, wing 144, tail 95, tarsus 42. Figured. Collected in the Macdonnell Ranges, Central Australia, on the 3rd of September, 1913.

Adult female. Feathers of the head, throat and fore-neck brownish-black with a buffy-white centre to each feather, producing a strongly streaked appearance; mantle, back, rump and upper tail-coverts blackish-brown, each feather with a large spot of buffy-white at the extremity, and with a few darker, newly moulted feathers making their appearance; tail deep brownish-olive, margined on the inner web and tipped with white; primaries and secondaries deep olive-brown, margined and tipped with pale yellowish-white; chest, breast and belly yellowish-white; sides of the body and under tail-coverts with faint concentric markings of blackish-brown, more pronounced on the sides of the upper-breast; under wing-coverts and axillaries bright buff; under-surface of the wings dark olive, widely margined on the inner web with golden-yellow, shafts also golden-yellow. Bill black, angle of gape showing yellow edges, inside of gape yellow, eyes deep brown, legs and feet pale horn, tinted yellowish. Total length 275 mm.; culmen 20, wing 146, tail 100, tarsus 42. Collected in East Murchison, West Australia, on the 18th of September, 1909. This bird is probably less than a year old, the nuchal crest not being present.

Eggs. Two eggs form the clutch, very rarely three eggs being met with. A clutch of two eggs taken at Cambo Cambo, near Mogil Mogil, New South Wales, on the 9th of November, 1912, is of a pale greenish-yellow ground-colour, well marked with numerous lines of light to dark umber and blackish-brown, and even darker markings, some approaching to black. Appearing as if beneath the confused mass of line and hair-like labyrinth, peeping out here and there, are lines and small markings of pale purplish-slate. These all twist and bend about in all conceivable directions, resembling a badly tangled mass of threads of various thicknesses; but the bulk of them encircle the central portion of the egg, leaving rather an open space at each end. On some eggs the open or unmarked patches at each end are larger than is the case with the pair now under notice. Some eggs of this species in the Belltrees Collection are exceedingly beautiful, and have quite a hand-painted appearance. Ovals in shape. Surface of shell fine and smooth, and rather glossy. 39 by 26-27 mm. (*maculata*).

Nest. A rather flat and shallow saucer-shaped structure, though at times it is a little deeper, and not quite so shallow. Constructed of thin dead sticks and twigs—lined with fine dry twigs—and sometimes dead grass. Nests are rather frail structures, and frequently the eggs can be seen through the nest when looked up



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CHLAMYDERA MACULATA
(SPOTTED BOWER-BIRD.)

NATIONAL MUSEUM OF FRODO BAGGINS

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at from beneath. The size of the structure depends entirely upon the position or place in which it is built; very often only a small quantity of material is required to build the nest, as for example when it is placed in a clump of Mistletoe (*Loranthus*) and other such growths. Dimensions over all of a typical and normal sized nest, 10 inches across by 5 inches in depth. Egg cavity, nearly 5 inches across by $1\frac{1}{2}$ inches deep. Generally placed in a tree or sapling in forest country, and at heights varying from 7 to 30 feet or more.

Breeding-months. October to end of December, sometimes as late as end of February—it all depends on the rainfall. Some clutches in the Belltrees Collection were taken as late as the 28th of February (1924) soon after good rains had fallen, and following upon a dry period.

Eggs. Two eggs form the clutch. A clutch of two eggs taken near Alice Springs, Central Australia, on the 4th of December, 1912, is of a pale greenish-grey ground-colour, most beautifully marked and marbled with a network of lines, twisting and bending in all directions, but the bulk of which encircle the egg, both ends of each specimen (as is often the case with *C. maculata*) being very free of markings. The colours of the line and hair-like markings are much the same as those described in *C. maculata*; in fact, the eggs are very similar in the general colour, shape, and markings to those of *C. maculata*, except that they are smaller. Long ovals in shape. Surface of shell fine, smooth and rather glossy. 36 by 23 mm. (*macdonaldi*).

Nest. Similar in structure to that of *C. maculata*, and placed in a small or large tree at heights varying from six to twenty feet or more.

Breeding-months. October, November and December, but probably often later owing to weather conditions.

When Gould described this bird he was unable to furnish any notes of its habits, but he afterwards provided the following: "During my journey into the interior of New South Wales, I observed this bird to be tolerably abundant at Brezi on the river Mokai to the northward of the Liverpool Plains; it is also equally numerous in all the low, scrubby ranges in the neighbourhood of the Namoi, as well as in the open brushes which intersect the plains on its borders, and collections from Moreton Bay generally contain examples; still, from the extreme shyness of its disposition, the bird is seldom seen by ordinary travellers, and it must be under very peculiar circumstances that it can be approached sufficiently close to observe its colours. The Spotted Bower-Bird has a harsh, grating, scolding tone, which is generally uttered when its haunts are intruded on, and by which means its presence is detected when it would otherwise escape observation; when disturbed it takes to the topmost branches of the loftiest trees, and frequently flies off to another neighbourhood. In many of its actions and in the greater part of its economy much similarity exists between this species and the Satin Bower-Bird, particularly in the curious habit of constructing an artificial bower or playing-place. I was so far fortunate as to discover several of these bowers during my journey in the interior, the finest of which I succeeded in bringing to England; it is now in the British Museum.

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The situations of these runs or bowers are much varied. I found them both on the plains studded with Myalls (*Acacia pendula*) and other small trees, and in the brushes clothing the lower hills. They are considerably longer and more avenue-like than those of the Satin Bower-Bird, being in many instances three feet in length. They are outwardly built of twigs, and beautifully lined with tall grasses, so disposed that their heads nearly meet; the decorations are very profuse, and consist of bivalve shells, crania of small mammalia and other bones bleached by exposure to the rays of the sun or from the camp-fires of the natives. Evident indications of high instinct are manifest throughout the whole of the bower and decorations formed by this species, particularly in the manner in which the stones are placed within the bower, apparently to keep the grasses with which it is lined fixed firmly in their places; these stones diverge from the mouth of the run on each side so as to form little paths, while the immense collection of decorative materials are placed in a heap before the entrance of the avenue, the arrangement being the same at both ends. In some of the larger bowers, which had evidently been resorted to for many years, I have seen half a bushel of bones, shells, etc., at each of the entrances. I frequently found these structures at a considerable distance from the rivers, from the borders of which they could alone have procured the shells and small, round, pebbly stones; their collection and transportation must therefore be a task of great labour. I fully ascertained that these runs, like those of the Satin Bower-Bird, formed the rendezvous of many individuals."

Capt. S. A. White writes: "Once a very plentiful bird, but rapidly disappearing. During my trip down through N.W. Queensland and N.S.W. on the return from Darwin these birds were often seen. They could be easily distinguished by their flight. Upon one occasion when we were stopped by rain and were in camp for a couple of days these birds came on to our dining table and took the crumbs. The stocking of the country and destruction of the timber is all helping to exterminate them. Where this bird was once very plentiful on the River Murray in S.A. years ago there is not one to be seen now."
" *C. guttata*.

"Met with this bird in the MacDonnell Ranges in 1913 (see *Transactions Royal Society of S.A.*, Vol. XXXVIII., 1914, p. 437), also met with this bird in the Everard Ranges in 1914. Several bowers were seen, generally placed under a large native fig tree (*Ficus platypoda*) in the deep ravines of the range; in one instance quite a barrow load of bleached snail shells were arranged in front of the bower. The birds were very shy and seldom seen."

Whitlock, writing from Central Australia, says: "I was at once struck with its richer coloration in comparison with birds from the interior of Western Australia. The under-parts especially were of a much brighter yellow tint,

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the lilac feathers surrounding the brilliant pink of the nape actually shaded into a clear, distinct blue. . . . The playground was smaller and less substantial than usual. The materials used in construction were, however, the same as those employed in the west, and the inner lining was the stems of *Triodia* seed-sprays. . . . At one end of the platform flat pieces of white or grey limestone, at the other end bones of rabbits, rock wallabies and Euros. . . . often five birds were in the sheltering bush. . . . The performance was of the usual character, an excited bird with puffed-out feathers at either end of the inverted arch, apparently disputing over the seed-vessels and other objects lying between. Most perfect imitations of the notes and calls of other birds were uttered at the same time.

“The food of these Central Australian Bower-Birds appears to be a mixture of vegetable and insect life. The stomachs of one or two dissected showed plentiful remains of small beetles, seeds and the fruit of the wild fig, intermingled with grit.”

Mr. Thos. P. Austin has written me: “While on a visit to Multagoona Station, about eighty miles north from Bourke, during November 1910, I examined many playing-grounds of these extraordinary birds. One was quite close to the homestead, but the birds were extraordinarily shy, seldom seen anywhere unless I waited hidden near a playground, most of which were constructed beneath low bushes, such as lignum and native lemons. Wishing to catch a few of these birds to take home, I made a few twisted horse-hair snares, which I fastened on to a piece of string just long enough to reach through their playground, pegging it down tight at each end, then went away collecting for about an hour; when I returned most of the horse-hair snares were bitten into small pieces, so obtaining more hair from my horse’s tail, I made a few more snares and fixed them into position as before, than built a lean-to of green branches a short distance away to hide in. I had not been long waiting when there was a great row in the playground. Just for a few moments I could not think what it could be, as I had not seen the Bower-Bird arrive. I ran up to find a fine bird lying on its back, caught by both legs, and doing its best to get free by biting the horse-hair with its strong bill, at the same time making a most awful noise. Almost immediately I heard another most extraordinary noise above; looking up, I saw about half a dozen other Bower-Birds on the top of a few dead trees; then suddenly they all started imitating various cat calls. I just simply sat down and held the captured bird ere releasing it, to watch these birds, but in less than a minute they disappeared just as suddenly as they arrived. I had this same performance four times within an hour. It struck me as strange where they could have heard cats, because I was miles from the homestead, where, moreover, there were no cats during

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the time of my visit and there was no other house for many miles. These birds are wonderful mimics."

Mr. A. G. Campbell has written me: "In a belt of box (eucalypt) saplings, Lower Wimmera, October 1898, I examined a bower. The measurements were thirty-six inches in length and twenty-one inches in width externally, while the passage itself was only nine inches wide. Around the bower was a miscellaneous collection of pieces of rag, bits of lead (from a tea chest) and wire, while at either end were heaps of bones and numerous pieces of coloured glass and broken bottles. The floor of the bower was strewn with quite a number of short pieces of wire. The number of bones was found to be 334 and were nearly all the vertebræ of lambs. The most of them were placed at one end while the broken glass preponderated at the other. The birds had been very industrious in collecting the material, for the pieces of cloth and tea-chest lining must have been carried from the homestead, a distance of over half a mile."

Bernard has recorded from the Richmond district, North Queensland: "To be seen fairly frequently about scrubby districts. A 'playhouse' that I found was shortly after abandoned and dismantled, the best of everything being removed to a new site three or four hundred yards away."

S. W. Jackson contributed a lengthy and complete article to the *Emu* (Vol. XII., pp. 65-104, 1912) entitled "Haunts of the Spotted Bower-Bird," to which reference must be made by the student. I here can only quote a few items: "The Spotted Bower-Birds were about the camp at daylight this morning, and appeared very tame. When away from their playground and my camp, and in the bush, these birds appeared extremely shy, and it was really most difficult to get near them; but in contrast to this they would calmly and fearlessly hop and feed about within 5 or 6 feet of me as I sat at the front of my tent writing my notes or having my meals. Sometimes they had a peculiar habit of stretching their necks when they looked down from a tree near the bower or my camp, and thus assumed quite a stiff and rather lengthened appearance. The flight of these birds, though fairly rapid, appears at times somewhat flappy and laboured, the wings every now and then being closed against the body. The flight usually consists of a succession of long, wave-like swoops, and it is when the bird rises to these that the wings close, and the few flaps take place on the fall after each rise. When on the wing the birds generally travel in a very straight line, and seldom divert to the left or right, but keep straight ahead for the spot for which they are making. They are very difficult birds to follow (especially where timber is thick) owing to their direct flight, and they are soon lost to view. They are not high-fliers, and frequently keep just a little above the tree-tops. . . . When anyone is

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about, the Spotted Bower-Bird has a decided liking to fly up into a dead and absolutely leafless tree ; probably this is because a clear view of the surroundings can be obtained from such a position better than would be the case from a green or well-foliaged tree. When it came to nest building, however, the birds always were found to choose a green tree, so I recorded the conclusion that it was a case of dead and leafless trees for 'look-out,' and green trees for nest building. The proper or regular note of these birds is a harsh, guttural sound, closely resembling that produced by the Satin Bower-Bird, the Regent Bower-Bird, and others of the family. . . . It frequently uttered a deep, frog-like croak while feeding about and chasing one another in front of my camp, and when thus engaged they have a queer habit of hopping sideways rather than straight ahead. . . . One of them was making a peculiar 'Chucker-chucker-chucker' sound rapidly. This note, so far, I have only heard these birds make when they have a nest. The same applies to a note resembling 'Kurra-kurra-kurra-kurra,' quickly uttered. . . . Found an unusually neat nest of Bower-Bird in a green belah tree, and containing two young birds. They appeared only a few days old, and were covered with fine brown down. Mouths yellow inside, skin on head and body black. . . . Among the Bower-Birds which I shot and preserved were some females possessing the lilac nape, which hitherto I always understood were only on the males. The eyes are large and dark brown in colour, with a large black centre. . . . Altogether I found 95 nests, the bulk of which were very old, placed in no less than 17 different species of trees."

Macgillivray (the younger) has recorded: "Met with at Sedan. Mr. McLennan's note, made on 24th February, 1910, reads: 'Saw a bird in a thick bush. Could not get a clear look at it, so shot it; it proved to be a Bower-Bird. Its mate flew from a tree close by, and started to mimic all the birds of the district—Miner, Friar-Bird, Whistler, Magpie, Butcher-Bird, Red-throated Honeyeater—and ended with a marvellous imitation of a cat in a rage.' When at Cattle Creek, 50 miles west from Cloncurry, this note was made: 'While fixing up the horses I heard a Bower-Bird mimic the following birds: Black Cockatoo, Whistling Eagle, Brown Hawk, Kite, Butcher-Bird, Black-faced Cuckoo-Shrike, Whistler and Restless Flycatcher—all imitated to perfection; in fact I was trying to locate the three first-named birds when I saw the Bower-Bird. They were numerous round this camp.'"

D'Ombraïn noted from "The Watercourse," New South Wales: "Scattered through the district. Playgrounds in dry ridges of sandalwood. Usual assortment of bones, pieces of glass; the latter, chiefly lilac or amethyst colour in harmony with the bird's 'colour-patch.' Noted: The heavier articles, as nails, bolts, etc., are always placed in centre of the bower. Bowers less

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arehed over than those of the Satin-Bird. These birds are great fruit robbers."

Barrett has noted: "It is asserted that Bower-Birds are doing much damage in the orchards on some of the Murray blocks, and I was informed that many had been shot. The birds were reported to be plentiful at Piangil, and a settler complained that they had carried off a quantity of fencing staples which had been left along a line of newly sunk posts. I fear that, in the course of a few years, unless measures are taken for their better protection, the Spotted Bower-Bird will share the fate of the Mallee Fowls (*Leipoa ocellata*) in the Mallee country of Victoria."

Jackson also recorded: "At Collarenebri (North New South Wales) was surprised to see the numbers of Bower-Birds which were then frequenting a Chinese fruit and vegetable garden close to the town, eating grapes, peaches and other fruits. I counted thirty-five of the birds one morning. The proprietor of the garden informed me that the Bower-Birds were 'no good' and spoilt his fruit, and that he had shot as many as thirty one morning from a fig-tree. From this it would appear that these birds congregate here from the immediate district when the fruit is ripe."

Mr. Tom Carter first met with this bird in Western Australia on February 5th, 1892 (not 1902, as given in the *Emu*, Vol. III., p. 37, 1903), under the circumstances there recorded and shot the specimen at Tantabiddy, 10 miles S.W. of N.W. Cape. He has written me: "I believe this was only the second time this species was recorded for West Australia, the first being that obtained by Mr. T. F. Gregory in early exploration (1837) on the Glenelg and Prince Regent River district (Kimberly, W.A.) and mentioned in Gould's 'Handbook,' p. 452, as the type. Whether the birds seen by me were *Chlam. guttata*, or the subspecies *subguttata* found breeding by Mr. Whitlock in 1909 on the East Murchison, and where Mr. J. T. Tunney had previously obtained a specimen, can unfortunately never be ascertained. Lake Way is 550 miles S.E. from Point Cloates and the Prince Regent's River 900 miles N.E." I have introduced this as others may fall into the same error as Carter.

Gregory's bird was *not* procured until about 1861, being described at once in 1862, and it was suggested by Gould that it was the one which constructed the bowers described by Captain Gray in his "Travels," found near the Glenelg and Prince Regent's Rivers. The exact locality where Gregory's bird was collected is not known at present.

Whitlock published a fine account of the Lake Way bird (*Emu*, Vol. IX., pp. 212-219, 1901) which must be read in its entirety. I quote: "I soon got to recognise them by their flight, which is direct, very undulatory, and never at any height above the scrub. When they seek cover they appear to pitch

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headlong down, to make a dive, in fact. On the wing they have the outline of an *Oreoica* (Bell-bird), but their flight is much quieter, and with no whirring of wings whatever. Their tail looks much shorter in flight than that of a Shrike-Thrush, and the appearance is darker than that of either of the foregoing species. The most usual notes heard resemble the ordinary harsh sounds produced by the White-browed Babbler, and in calling up Bower-Birds I have often brought Babblers in their place. But the male Bower-Bird, and also, I think, the female, is a great mimic, and reproduces to perfection the notes of many surrounding birds. All the same, he seems to have a preference for harsh sounds, such as the alarm notes of the local Shrike-Thrush, Carter Honey-eater, White-browed Babbler, and the tremulous cries of young Hawks clamouring for food. I have heard the male imitate the notes of *Cracticus leucopterus* to perfection, and, again, a female gave a perfect rendering of those of *Cracticus picatus*. . . . There was a point to be cleared up concerning the plumage of the female. In Hall's 'Key'—compiled largely from the British Museum *Catalogue of Birds*—the female of *C. maculata* is said to have no lilac band, and as nothing is said to the contrary, in referring to the female of *C. guttata*, we may assume, too, that she in turn was thought to possess no lilac band. [Memo. The B.M. possessed no females.] I shot a bird with this so-called lilac band. Upon dissection she proved to be a fully adult female. Whilst on this subject, let me repeat that the colour of this nuchal band is not lilac, but in these East Murchison birds of a vivid pink, with just a suspicion of silvery-lilac when viewed in certain lights. In the female it is much smaller than in the male."

Mr. Tom Carter confirmed this, and a coloured figure of a female was given in the *Ibis*, 1920, p. 499, pl. xiv., which was procured at the North-west Cape.

H. L. White also recorded that he had received from various parts of Eastern Australia females with the lilac nape-bands, and also a female, *C. orientalis*, with a single pink feather at the back of the neck, and suggested that the females of *C. maculata*, *C. guttata* and *C. orientalis* when fully matured and breeding, sometimes assume the lilac neck-band.

The discovery of this fine species is shrouded in mystery, as when Gould described it before he went to Australia he did not know whence it came nor did he publish to whom he was indebted for the knowledge of it. As he later met with it himself in New South Wales that locality has been selected as the type locality. For geographical reasons he alone described another bird as a distinct species; the specimen regarded as the type in the British Museum is a young bird, as it has no nape-band, and in this genus both male and female acquire the nape-band about the first moult, and this appears to have been overlooked until quite recently, when Jackson and Carter independently noted the fact that females had lilac nape-bands in this species.

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Again, on geographical grounds, Gould named a third species as distinct, observing the long nape-band, and recording it from North Queensland, wrote: "In giving North Queensland as the habitat of this species, it must be taken in a general sense, for the precise locality is unknown to me."

A few years later, when he figured it in the *Birds of New Guinea*, he observed that he had been told by the seller that it came in a collection from Port Albany, North Queensland.

Ramsay allowed the two former as distinct species, but rejected the last, writing: "Gould's *C. occipitalis* is only a fine plumaged adult male of *C. maculata*, TYPE EXAMINED."

Consequently, the two species were admitted until a few years ago, when Rothschild regarded them as subspecies only, and I so considered them.

In my "Reference List" I revived Gould's *occipitalis* in a subspecific sense and added two other subspecies, making five subspecies in all, thus:

Chlamydera maculata maculata (Gould).

Queensland, New South Wales.

Chlamydera maculata occipitalis Gould.

(North) Queensland.

Chlamydera maculata clelandi Mathews.

"Differs from *C. m. maculata* in its smaller bill, which is light-coloured, its paler nuchal crest, and its redder abdomen."

South Australia.

Chlamydera maculata guttata Gould.

North-west Australia.

Chlamydera maculata subguttata Mathews.

"Differs from *C. m. guttata* in its much paler upper and lower coloration and especially in its grey head. East Murchison."

Mid-Westralia.

These were retained unchanged in my 1913 "List," but since I have added:

Chlamydera maculata macdonaldi.

"Differs from *C. m. subguttata* in being darker and in having a much smaller bill. MacDonald (*sic*) Ranges."

MacDonnell Ranges, Central Australia.

Chlamydera maculata sedani.

"Differs from *C. m. maculata* in being much lighter, and with the frill on the neck of quite a pinkish colour."

Cloncurry River, Queensland.

Chlamydera maculata nova.

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"Differs from *C. m. subguttata* Mathews in having the yellow on the breast and abdomen much deeper and richer, flank markings bolder, less black on the throat and upper chest and the bill smaller."

North-west Cape, Mid-west Australia.

Mr. W. B. Alexander has sent me the following note: "One of the most remarkable discoveries that has recently been made as to the habits of Bower-Birds is that some individuals decorate the inside walls of their bowers by painting the sticks or grass-stems of which the walls of the bower are composed.

"This was first noticed in some of the bowers of the Satin Bower-Bird (*Ptilonorhynchus violaceus*) in the National Park, Port Hacking, New South Wales, by Mr. E. Nubling, and was put on record by Mr. A. H. Chisholm in the Sydney *Daily Telegraph* (vide *Emu*, XXIV., p. 150, 1924).

"Mr. Nubling has since watched a male Satin Bower-Bird at work. With some soft black substance in its bill it laboriously blackened the sticks on the inside of the bower by running its bill up and down and smearing this substance along them.

"In company with Messrs. Nubling and Chisholm and other Sydney ornithologists, I have inspected a number of these painted bowers. In some instances every one of the hundreds of sticks composing the inner wall of the bower had been blackened from top to bottom on the inside. In Mr. Chisholm's words: 'The dye, drying flat, resembled soot, or the aftermath of fire, and superficial observation would have suggested that the sticks were burnt, had it not been that only the inside of the walls was thus treated.'

"The black substance used by the Satin Bower-Bird, the nature and origin of which has not yet been ascertained, is soon washed off by rain and must, therefore, be frequently renewed.

"In December, 1925, Mr. D. W. Gaukrodger, after examining scores of bowers of the Spotted Bower-Bird (*Chlamydera maculata*) near Blackall, Queensland, discovered one in which the grass-stems of the inner wall were coloured reddish-brown for a considerable part of their length. Part of the wall of this bower was brought back by him to Brisbane and is now in my possession. It will be deposited in the British Museum."

GENUS—ALPHACHLAMYDERA.

ALPHACHLAMYDERA Mathews, Austral
Avian Record, Vol. II., pt. 5, p. 112,
Sept. 24th, 1914. Type (by original
designation) *Chlamydera cerviniventris* Gould.

I DIAGNOSED this genus thus: "Differs from *Chlamydera* Gould in its peculiar coloration which resembles that of *Rogersornis*, but entirely lacks the erectile nuchal crest; in size it approaches nearly *Chlamydera*, but that genus also possesses a well-formed nuchal crest."

This form also occurs in New Guinea and is of the same size as *Chlamydera s. str.*, but has the bill like the succeeding form, while the legs are like those of *Chlamydera*.

The wing has the third, fourth, fifth and sixth primaries subequal and longest, the second equal to the seventh, the first shorter than the secondaries but more than half the length of the third.

The distribution of these "*Chlamydera*" may be noted here:

This form is restricted to North Queensland, also occurring in New Guinea; the next form occurs in North Queensland and Northern Territory to North-west Australia, while the preceding occurs all over Northern Australia extending down to the limits of the tropics on the west, right through the central regions and into New South Wales on the east.

A species named by Reichenow, *Chlamydera lanterbache* from New Guinea does not seem to have any near relationship to this series of true "*Chlamydera*," and in order to avoid confusion I have separated it as a distinct genus, for which I provided the new name *Pseudochlamydera* in the *Bulletin of the British Ornithologist Club*, Vol. XLVI., p. 60, Jan. 30th, 1926.

NATIONAL MUSEUM MEMORANDUM



H Grönvold, del

ALPHACHILAMYDRA CERVINIVENTRIS
(PAWN-BREADED BOWEN — UTRE)
ROGERSORNIS NUCIALLIS
(GREAT BOWEN — UTRE)

Witherby & Co

ALPHACHLAMYDERA CERVINIVENTRIS.

FAWN-BREASTED BOWER-BIRD.

(PLATE 586.)

CHLAMYDERA CERVINIVENTRIS Gould in Jardine's Contr. Ornith., 1850, p. (160) 106 : Cape York, Queensland.

Chlamydera cerviniventris* Gould in Jardine's Contr. Ornith., 1850, p. (160) 106 ; *id.*, Proc. Zool. Soc. (Lond.) 1850, p. 201, 1851 ; *id.*, Birds Austr. Suppl., pl. 36 (pt. III.), Sept. 1st, 1859 ; *id.*, Handb. Birds Austr., Vol. I., p. 454, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 393, 1881 ; Ramsay, Tab. List Austr. Birds, p. 11, 1888 ; Sharpe, Mon. Paradis., Vol. 2, pl. 28, 1891 ; Hall, Key Birds Austr., p. 22, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 206, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 58, 1902 ; Mathews, Handl. Birds Austral., p. 106, 1908 ; Macgillivray, Emu, Vol. X., p. 231, 1910 (N.Q.) ; Barnard, *ib.*, Vol. XI., p. 30, 1911 (N.Q.) ; Campbell, *ib.*, Vol. XIII., p. 68, pl. XI., 1913 (Eggs) ; Macgillivray, *ib.*, p. 183, 1914 ; *id.*, *ib.*, Vol. XVII., p. 210, 1918.

Chlamydodera recondita Meyer, Abh. Mus. Dresden. No. 10, p. 2, 1895 : German New Guinea.

Chlamydera cerviniventris cerviniventris Mathews, Nov. Zool., Vol. XVIII., p. 440, 1912 ; *id.*, List Birds Austr., p. 310, 1912.

Alphachlamydera cerviniventris cerviniventris Mathews, Austral Avian Record, Vol. II., p. 112, 1914.

Alphachlamydera cerviniventris nova Mathews, *ib.*, pt. 7, p. 132, Jan. 28th, 1915 : New Guinea.

DISTRIBUTION. North Queensland. (New Guinea.)

Adult male. Lores and fore-head pale ash-grey, mesially streaked with white ; top of the head, neck and upper mantle uniform pale ashy-grey ; upper back, rump and upper tail-coverts ash-brown with faint whitish shaft-streaks, and with a white spot at the tip of each feather ; tail ash-brown slightly margined on the inner web with whitish and tipped with white ; primaries ash-brown, lighter on the edge of the outer web ; secondaries ash-brown, margined on the inner web with whitish and broadly tipped with white ; chin, throat, fore-neck and cheeks smoky-white, margined with dusky ; remainder of the under-surface of the body rich tawny-buff, brightest on the belly and under tail-coverts. Eyes brown, feet olive, bill black. Total length 290 mm. ; culmen 23. wing 145, tail 112, tarsus 42. Figured. Collected at Cape York, North Queensland, on the 3rd of July, 1912.

* Also spelt *Chlamydodera*.

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The female differs in having the feathers on the top of the head tipped with white, and the feathers on the back more tipped with white than the male.

Adult female. Lores and top of the head brownish-ash, each feather with a buff shaft-streak widening out towards the extremity; back of the neck and upper mantle brownish-ash with white shafts to the feathers; wing-coverts, scapulars and back brownish-ash with whitish shafts and with a large white spot at the extremity; rump and upper tail-coverts similarly coloured but with buff spots at the extremity; tail ash-grey, tipped with white; primaries ash-brown, margined towards the base of the outer web with white, and with the entire margin of the inner web white; secondaries ash-brown, slightly margined with grey and with a white spot at the extremity; sides of the face, ear-coverts, chin, throat and upper-breast white, margined with brownish-ash; upper-breast tawny-buff obscurely margined with ash-brown; remainder of the under-surface of the body rich tawny-buff, brightest on the flanks and middle of the belly. Eyes brown, feet olive, bill black. Total length 280 mm.; culmen 23, wing 137, tail 117, tarsus 42. Collected at Cape York on the 7th of July, 1912.

Egg. One egg forms the clutch. An egg taken at Somerset, Cape York, North Queensland, on the 8th of November, 1909, is of a pale creamy-white ground-colour, well marked with a labyrinth of lines and hair-like markings which turn, twist, and zigzag in all directions, the majority of which completely encircle the egg and are of olive-brown, umber, purplish-slate, and blackish-brown; some approaching almost to black. Swollen oval in shape. Surface of shell fine, smooth and glossy. 40 by 29 mm.

Nest. Very similar to that of *C. maculata*, except that it is a much deeper structure. It is open and cup-shaped, with rather a deep egg-cavity. Composed of sticks, twigs and bark, and placed in a tree at heights varying from 10 to 30 feet or more. Dimensions over all, 8 to 10 inches across by 4 to 5 inches in depth. Egg cavity, 5 to nearly 6 inches across by 2 to nearly 3 inches deep.

Breeding-months. September to December.

At the Meeting of the British Association of 1850, Gould gave an account of Macgillivray's results as transmitted to him, and therein is the extract from Macgillivray's letter: "You will oblige me by comparing the *Chlamydera* from Cape York with the other members of the genus, as I have a strong suspicion that it may be different. I shot it while playing about a bower. I have sent it to the British Museum." Gould reported: "I have complied with Mr. Macgillivray's wish, and find the bird to be quite distinct, both from *C. nuchalis* and *C. maculata*, and have accordingly named it *cerviniventris*, from the colouring of the abdomen." The description was then attached, which Gould had read before the Zoological Society some time before.

This report was published by Jardine in his *Contributions to Ornithology* for 1850, and the *Proceedings of the Zoological Society* for 1850 were not published until well into 1851.

Macgillivray's full notes were published in the *Narrative of the Voyage of H.M.S. "Rattlesnake"* and quoted by Gould as follows: "Two days before we left Cape York, I was told that some Bower-Birds had been seen in a thicket

FAWN-BREASTED BOWER-BIRD.

or patch of low scrub, half a mile from the beach, and, after a long search, I found a recently constructed bower, 4 feet long and 18 inches high, with some fresh berries lying upon it. The bower was situated near the border of the thicket, the bushes composing which were seldom more than 10 feet high, growing in smooth, sandy soil without grass. Next morning I was landed before daylight, and proceeded to the place in company with Paidá, taking with us a large board on which to carry off the bower as a specimen. I had great difficulty in inducing my friend to accompany me, as he was afraid of a war party of Gomokudins, which tribe had lately given notice that they were coming to fight the Evans Bay people. However, I promised to protect him, and loaded one barrel with ball, which gave him increased confidence; still, he insisted upon carrying a large bundle of spears and a throwing-stick. While watching in the scrub, I caught several glimpses of the *tewingá* (its native name) as it darted through the bushes in the neighbourhood of the bower, announcing its presence by an occasional loud *churr-r-r*, and imitating the notes of various other birds, especially the *Tropidorhynchus*. I never before met with a more wary bird; and, for a long time, it enticed me to follow it to a short distance, then, flying off and alighting on the bower, it would deposit a berry or two, run through and be off again before I could reach the spot. All this time it was impossible to get a shot. At length, just as my patience was becoming exhausted, I saw the bird enter the bower and disappear, when I fired at random through the twigs, fortunately with effect. So closely had we concealed ourselves, latterly, and so silent had we been, that a kangaroo, while feeding, actually hopped up within fifteen yards, unconscious of our presence until fired at."

Barnard recorded *C. cerviniventris* from Cape York, giving comparisons with *C. orientalis*, and his note will be quoted under the next species.

Macgillivray (the younger) has written: "Fairly common at Cape York, but unevenly distributed. They were met with at Paira, Peak Point, and Somerset, on the Jardine River, and Escape River, and at Cape Grenville. Many nests were found, but only one contained the much-coveted eggs. Seven bowers were noted at Cape York. Some had a platform of sticks in front of the bower, and one had a square platform, also of sticks, about 6 feet from the bower, raised $1\frac{1}{2}$ inches from the ground. The only decorations about these bowers were bunches of green berries—no shells, flowers or leaves were noted. Berries were on all the bowers, and on the platforms in front. One bower was below high-water mark, in the mangroves, and was flooded by the high tide every fortnight. There was a shelly beach 3 yards away, but shells were never used for decoration, though so near at hand—always some kind of berry. When playing about the bowers the birds make a rustling noise with the throat.

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♂, irides brown, bill black, legs greenish-olive. Stomach contents, berries. Jardine River (12th March, 1911): ♀, irides greyish-brown, bill black, legs slate-colour. Stomach contents, seeds and skins of wild fruits and berries."

Later, from the Lloyd Bay district, Macgillivray added: "Fawn-breasted Bower-Birds are shy, and more often heard than seen. At the sandalwood landing an old disused bower was on the bank of the river right by our camp, with a still older one a few yards distant. Mr. McLennan found a new one a couple of hundred yards further back. It was a very compact structure of closely-interwoven sticks and twigs—so closely, that the inside walls were quite smooth, and so secured to the floor and platforms at either end that it could be moved *en masse*. On the platforms were collections of glossy green berries, and a number are also stuck along the top of the side walls. The old and withered berries had been removed to a place a couple of feet away from the bower, and formed quite a small heap. Every morning fresh leaves are brought to the bower and the withered ones are removed. Two days after finding this bower, Mr. McLennan and I, when out with two blacks looking for some wild bees' hives, heard a Bower-Bird calling, and found a fine new bower in a small clump of tea-trees in open forest country. It was very compactly built. The actual bower was 14 inches long by 13 inches wide; one wall was 6 inches high, the other 4. The passage was 3 inches in width, with perfectly smooth inside walls. The front platform was 14 inches by 12 inches, and was covered with fresh green berries, about 100 in all. These were also stuck in along the tops of the walls on the inner edge, and there were a few on the rear platform, which measured 10 inches by 7 inches. When at Cape Restoration, on the 13th January, we listened to one of these birds giving voice to a great variety of notes, and found that she had a fully-fledged young one with her. Mr. Kershaw had the first bower removed on the 9th January for transport to the Melbourne Museum. Seventeen days afterwards the birds had a fine new bower all complete a few feet from the old site."

This is the only "*Chlamydera*"-like bird which occurs outside Australia, a form living in New Guinea. Although the New Guinea form had been called by the name given by Gould to a Cape York specimen it was obviously a darker race and I named it *A. c. nova*, but Meyer had named it *recondita*. There is no technical history to this rare species.

Two races can be recognised:

Alphachlamydera cerviniventris cerviniventris (Gould).

Cape York, North Queensland.

Alphachlamydera cerviniventris recondita (Meyer).

New Guinea.

GENUS—ROGERSORNIS.

ROGERSORNIS Mathews, Austral Avian

Record, Vol. I., pt. 5, p. 117, Dec 24th,

1912. Type (by original designation) *Ptilonorhynchus nuchalis*

Jardine and Selby.

REGARDING this genus I wrote "Differs from *Chlamydera* in its stronger bill and stronger legs and feet, with longer wings and tail and proportionately longer first primary, while the third and fourth primaries are longest and subequal; in *Chlamydera* the third is longest."

This genus is separable from *Chlamydera* in that the females do not usually (if at all) acquire a nuchal crest.

Large Bower-Birds with long bills, long wings, long tail, long legs and feet and a lilac nape-band in the male only.

The bill is almost as long as the head, laterally compressed with not much basal expansion, culmen arched, semi-keeled tip sharp, hooked, only a small notch posteriorly, lateral edges of upper mandible curved; nasal groove nearly one-third the length of the bill, the frontal feathers encroaching thereon but not reaching nor obscuring the oral apertures, placed anteriorly in the groove; a few nasal bristles and minute rictal bristles; the interramal space feathered, narrow, about one-third the length of the mandible, the gonys almost straight.

The wing has the third, fourth and fifth primaries longest and subequal, the sixth little less, the second equal to the seventh, the first short but more than half the length of the third and equal to the long secondaries. The tail is long and square, the feathers broad.

The legs are long and stout, seven or eight scutes anteriorly, bilaminate posteriorly; the toes long, the inner toe and claw shorter than the outer toe and claw and equal to the middle toe alone; claws long, curved and sharp; the hind-toe with the claw long; the hind-toe and claw equal to the middle toe and claw.

Order PASSERIFORMES.

Family PTILONORHYNCHIDÆ.

No. 734.

ROGERSORNIS NUCHALIS.

GREAT BOWER-BIRD.

(PLATES 586-587.)

PTILONORHYNCHUS NUCHALIS Jardine and Selby, Illustr. Ornith., Vol. II., pl. ciii., Dec. 1830 : Australia=North Queensland.

Ptilonorhynchus nuchalis Jardine and Selby, Illustr. Ornith., Vol. II., pl. ciii., 1830.

Calodera nuchalis Gould, Synops. Birds Austr., pt. i., pl. 6, Jan. 1837.

*Chlamydera** *nuchalis* Gould, Birds Austr. and Adj. Islands, pt. i., Feb. 1837; *id.*, Birds Austr., pt. iv. (Vol. IV., pl. 9), Sept. 1st, 1841; *id.*, Handb. Birds Austr., Vol. I., p. 448, 1865 (N.W.A.); Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 391, 1881; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Sharpe, Mon. Paradis., Vol. 2, pl. 30, 1891; Hall, Key Birds Austr., p. 22, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 203, 1901; North. Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 51, 1902; Hall, Emu, Vol. I., p. 88, 1902 (N.W.A.); Le Souëf, *ib.*, Vol. II., p. 90, 1902 (N.T.); Kilgour, *ib.*, Vol. IV., p. 37, 1904 (N.W.A.); Ashby, *ib.*, Vol. VI., p. 73, 1906 (N.T.); Mathews, Handl. Birds Austral., p. 105, 1908; *id.*, Emu, Vol. IX., pp. 16-65, 1909 (N.W.A.); *id.*, *ib.*, Vol. X., p. 110, 1910 (N.W.A.); Crossman, *ib.*, p. 113 (N.W.A.); Hill, *ib.*, p. 290, 1911 (N.W.A.); *id.*, *ib.*, Vol. XII., p. 261, 1913 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 183, 1914 (N.Q.); Barnard, *ib.*, Vol. XIV., p. 50, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 230, 1917 (N.T.); Le Souëf, *ib.*, Vol. XXI., p. 294, 1922; Whitelock, *ib.*, Vol. XXV., p. 87, 1925 (N.W.A.).

Chlamydodera orientalis Gould, Annals Mag. Nat. Hist., Ser. V., Vol. IV., p. 74, July 1st, 1879 : North Queensland; *id.*, Birds New Guinea, pt. xi. (Vol. I., pl. 44), Feb. 1st, 1880; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 392, 1881; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Sharpe, Mon. Paradis., Vol. 2, pl. 31, 1891; Hall, Key Birds Austr., p. 22, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 204, 1901; North. Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 55, 1902; Mathews, Handl. Birds Austral., p. 106, 1908; Jackson, Emu, Vol. VIII., pp. 263-280, pl. xxxix., 1909; Broadbent, *ib.*, Vol. X., p. 238, 1910 (N.Q.); Barnard, *ib.*, Vol. XI., p. 29, 1911 (N.Q.); H. L. White, *ib.*, Vol. XII., p. 22, 1912; Campbell, *ib.*, Vol. XIII., pl. xi., 1913 (W.A.); Macgillivray, *ib.*, p. 183, 1914; Campbell and Barnard, *ib.*, Vol. XVII., p. 37 (N.Q.); Macgillivray, *ib.*, p. 210, 1918 (N.Q.).

* Also spelt *Chlamydodera*.



H Grönvold, del.

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ROGERSORNIS NUCHALIS
 (GREAT BOWER-BIRD)

NATIONAL MUSEUM OF BOSTON

GREAT BOWER-BIRD.

Chlamydera nuchalis nuchalis Rothschild, Ibis, 1911, p. 365; Mathews, Nov. Zool., Vol. XVIII., p. 440, 1912.

Chlamydera nuchalis orientalis Rothschild, Ibis, 1911, p. 365.

Chlamydera nuchalis oweni Mathews, Nov. Zool., Vol. XVIII., p. 440, Jan. 31st, 1912: Point Torment, North-west Australia; *id.*, Austral Av. Rec., Vol. I., p. 64, 1912.

Chlamydera nuchalis melvillensis Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 52, April 2nd, 1912: Melville Island.

Rogersornis nuchalis nuchalis Mathews, List Birds Austr., p. 311, 1913.

Rogersornis nuchalis melvillensis Mathews, *ib.*

Rogersornis nuchalis oweni Mathews, *ib.*; *id.*, South Austr. Orn., Vol. 3, p. 228, 1918.

DISTRIBUTION. Tropical Northern Australia.

Adult male. Feathers of fore-head, lores and top of the head whitish-grey; hind-neck similarly coloured, but each feather tipped with silvery-white; a bar of rose-lilac feathers across the hind-neck, bordered above and at the sides by the white tips of the upper neck-feathers; upper mantle ash-grey with whitish shaft-streaks; wing-coverts, back, rump and upper tail-coverts greyish-ash, each feather broadly edged with whitish-grey; tail-feathers ash-brown, bordered on the outer webs with olive and widely tipped at the extremity with white; primaries ash-grey with the outer web greyish-white and tipped with white; secondaries ash-grey, widely tipped with white, and faintly margined with grey; throat, chest, breast and sides of the body whitish-grey; middle of the belly and abdomen yellowish-white; under tail-coverts whitish with concentric bands of brownish-grey. Eyes brown, feet and tarsi brown, bill brown. Total length 405 mm.; culmen 30, wing 190, tail 158, tarsus 56. Figured. Collected at Point Torment, North-west Australia, on the 14th of March, 1911, and is the type of *C. n. oweni* (pl. 587).

Adult female. Lores, top of the head, cheeks and hind-neck silvery-grey; back of the neck and upper mantle greyish-ash; mantle and back brownish-ash margined with greyish-white; rump and upper tail-coverts lighter, widely tipped with white and with a penultimate spot of white on each feather; tail brownish-ash, margined on the sides with grey and tipped with white; primaries brownish-ash, with the outer web margined with whitish; secondaries darker and widely tipped with white; primary-coverts broadly tipped with white, forming a speculum; chin, throat, chest and breast and sides of the body brownish-grey; middle of the belly and abdomen creamy-white; under tail-coverts yellowish-white with concentric bands of brown; under-surface of tail whitish-grey. Eyes brown, feet and tarsi olive-brown, bill black. Total length 394 mm.; culmen 31, wing 188, tail 159, tarsus 51. Figured. Collected on Marngle Creek, West Kimberley, N.W.A., on the 3rd of June, 1911 (pl. 587).

Adult male. Feathers of the top of the head smoky-grey, indistinctly tipped with whitish-grey; a large patch of beautiful rose-lilac shaded towards the tips with lilac-blue across the back of the neck; hind-neck and upper mantle brownish-ash with pale shaft-streaks; wing-coverts, back, mantle, rump and upper tail-coverts ash-brown, each feather widely tipped with greyish-white, and the latter margined along the sides with the same colour; tail ash-brown, margined on the outer web with grey and on the inner web with whitish-grey; primaries smoky-brown, margined on the outer web with greyish-white and with the inner web widely bordered with whitish; secondaries ash-brown, margined on both webs with whitish-grey and tipped with white; chin, throat, chest, breast and sides of the body smoky-grey, darkest on the throat; middle of the belly and abdomen

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soiled white; under tail-coverts white with concentric bands of greyish-brown. Eyes light brown, feet olive, bill blackish. Total length 380 mm.; culmen 29, wing 180, tail 149, tarsus 52. Figured. Collected on the McArthur River, Gulf of Carpentaria, Northern Territory, on the 20th of September, 1913 (pl. 586).

Adult male. Lores, top of the head and sides of the face ash-grey, bordered with whitish; a bar of beautiful rose-lilac, shaded towards the extremity with lilac-blue, bordered above at the sides with the white tips of the upper neck; upper mantle brownish-ash with shaft-streaks of fawn-colour; lower mantle, back, wing-coverts, rump and upper tail-coverts ash-brown, each feather widely tipped with whitish-grey; tail ash-brown, margined on the outer webs with whitish-grey; primaries greyish-brown, with the outer webs whitish-grey; secondaries ash-brown, margined on both webs with greyish-white; chin, throat, chest and sides of the body uniform smoky-grey; middle of the belly and abdomen greyish-white; under tail-coverts white, each feather with concentric bands of greyish-brown; under-surface of wing glossed silvery-white. Eyes brown, feet and tarsus olive-brown, bill blackish. Total length 365 mm.; culmen 28, wing 171, tail 157, tarsus 48. Collected on Melville Island, Northern Territory, on the 13th November, 1911.

Adult female. Lores and feathers of the top of the head, nape and hind-neck ash-grey, the feathers with a median spot of brown; wing-coverts, upper mantle, back, rump and upper tail-coverts ash-brown, widely margined at the tip with greyish-white; tail ash-brown, tipped at the extremity with white; primaries ash-brown, becoming white towards the base of the inner web and margined on the outer web with brownish-white, all the feathers tipped with white; secondaries ash-brown, widely margined on the inner web with white, and the outer webs more narrowly fringed with white, and all tipped with white; chin, throat, chest and sides of the body smoky-grey; middle of the belly and abdomen yellowish-white; under tail-coverts white with narrow concentric bars of brown. Eyes brown, feet and tarsus olive-brown, bill blackish-brown. Total length 355 mm.; culmen 28, wing 167, tail 130, tarsus 44. Collected on Melville Island, Northern Territory, on the 14th of May, 1912.

Nearly adult male. Feathers of the lores, fore-head and crown ash-brown, spotted at the extremity with greyish-white; a band of glistening lilac-pink feathers across the back of the neck, hind-neck uniform ash-brown; mantle, wing-coverts, back, rump and upper tail-coverts ash-brown, each feather margined with greyish-white, producing a spotted appearance; tail-feathers ash-brown, darker towards the tip which is broadly white; primaries ash-brown, becoming white towards the base of the inner web; the outer web margined with white; primary-coverts deep ash-brown, widely tipped with white; secondaries dark ash-brown, margined on the inner web with whitish and on the outer with grey; chin, cheeks, throat, chest and sides of the body ash-grey; middle of the belly and abdomen white; under tail-coverts white with concentric bars of brownish. Eyes brown, feet dark grey, bill dark brown. Total length 355 mm.; culmen 29, wing 170, tail 135, tarsus 48. Collected on Inkerman, North Queensland, in September, 1907. The lilac feathers on the crown are fanned out and forward like a rosette while the bird is displaying (dancing).

Immature female. Feathers of the top of the head greyish-brown, each feather with whitish shaft-streaks and spotted at the extremity with whitish; hind-neck and mantle smoky-grey with indistinct grey shafts; wing-coverts, back and scapulars deep smoky-grey, each feather with a large white spot at the extremity; rump and upper tail-coverts smoke-grey with a greyish-white spot near the tip; tail ash-brown, margined on the outer webs with olive-grey and widely tipped with white; primaries brownish-grey, outwardly margined with olive-grey and with the margins

GREAT BOWER-BIRD.

of the inner web whitish-grey; secondaries greyish-brown, widely margined at the tip with white, and with a small spot of greyish-white near the tip; chin and throat smoke-grey; chest, breast and flanks whitish barred with ash-brown; belly and under tail-coverts greyish-white, the latter with concentric bars of greyish-brown. Eyes brown, feet and tarsus light olive-brown, bill dull black. Collected on Melville Island on the 11th of November, 1911.

Eggs. One egg usually forms the clutch, sometimes two. When two are laid they are not so large as when only the single egg is deposited for the clutch. An egg taken at Anson Bay, near Port Darwin, Northern Territory, on the 1st of November, 1910, is of a pale greyish-green ground-colour, well covered with a mass of lines and hair-like markings of olive-brown, amber, blackish-brown, and purplish-slate, turning and twisting in all directions, though a great many encircle the egg. The lines are about the thickness of that made by a firm stroke of an ordinary writing-pen, and the hair-like or smaller lines are in many instances finer than hair. Both ends of the eggs are rather free of markings. The eggs of this species vary considerably, and the line markings on some are very thick, some lines being well over the 16th of an inch wide. Oval in shape. Surface of shell fine and smooth and rather glossy. 45 by 29 mm.

Nest. Very similar to that of *C. maculata*, but very often much more carelessly built. It is generally composed of a few sticks placed in a thick bunch of twigs in a tree, and situated at heights varying from 8 to 30 feet.

Breeding-months. September to February.

THE first note of the economy of this Bower-Bird appears to be the item recorded by Captain Stokes in his *Discoveries in Australia*, thus: "I found matter for conjecture in noticing a number of twigs with their ends stuck in the ground, which was strewn over with shells, and their tops brought together so as to form a small bower; this was $2\frac{1}{2}$ feet long, $1\frac{1}{2}$ feet wide at either end. It was not until my next visit to Port Essington that I thought this anything but some Australian mother's toy to amuse her child; upon being asked, one day, to go and see the 'birds' playhouse,' I immediately recognised the same kind of construction I had seen at the Victoria River, and found the bird amusing itself by flying backwards and forwards, taking a shell alternately from each side, and carrying it through the archway in its mouth."

Mr. J. R. Rogers has written me from North-west Australia: "At Marngle Creek between the 19th and 30th May a few of these birds were seen and these always at the camp, doubtless the same birds. When I left Marngle on my way to Jegurra Creek I followed the Fitzroy River for about eighteen miles and here these birds were numerous. After leaving the Fitzroy I went up Jegurra Creek and saw few of these birds; the furthest point south any were seen was ten miles up from the Fitzroy. None were seen at Mungi and Knowla Downs Station. In the middle of July I returned to the Fitzroy and found these birds very numerous along the banks of the river. When collecting for Mr. R. Hall in 1900 these birds were in large numbers around the base of the Grant Ranges, West Kimberley. These birds are found all over West

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Kimberley, usually near the waters, and are most numerous in localities where the small black native fig grows ; they are also very fond of tomatoes, particularly the small kind which grows about the size of a small plum." From Melville Island, Rogers wrote : "Coopers Camp, Nov. 20, 1911 : These birds are numerous on the creeks and also on the outer edges of the mangroves. I have found several bowers in the last-named position just above high-water (springtide) mark. This bird appears to differ slightly from the Derby one ; there are no faint bars on the under-surface here. On the north side of the island these birds are numerous, but I consider that they are not so plentiful as near Cooper's Camp."

Rogers also sent from the north-west a series of descriptions of bowers and young, which may be here given as : "Sept. 16th, 1908 : Bower placed under a few dry sticks, the remains of what had been a thick patch of scrub. This spot had been used by the birds for some years ; there was the remains of an old bower about four feet from the present one ; it looked three or four years old. The scrub was originally a thick one, but had died away and the birds persisted in using the old site. Another peculiarity noticed was that the position was on a stony range, and not on a flat or creek bank. This entailed a lot of work as the birds had to put down a foundation from the old bower of twigs from $\frac{1}{2}$ inch to 6 inches long. There was an immense quantity of bones, many of which were much decayed. I counted two hundred and fifty, mostly Kangaroo bones, some broken, two pieces of glass and some nuts.

"Total length of foundation, 54 inches ; height of bower outside 15 inches.		
width	26 inches ; length	18
depth	6 inches ; width	20

"Thickness of walls at thickest part (centre), $7\frac{1}{2}$ inches ; height inside 10 inches ; width inside 5 inches. Material used, fine bauhinia twigs, which were interwoven at the top of the bower, forming an arch. In all others I have seen the hollow in the centre was filled with rubbish ; in this there were no stones, etc. I have never seen such a quantity of bones, stones, etc., outside. While I was examining the bower one of the birds came and was very inquisitive, coming within four feet of me. Other bowers later examined varied in size and structure and quantity of material, but in all essentially similar. Dec. 19th, 1908 : Nest found contained one young, which had the quills of all feather-tracts except the head well out ; all tracts are covered lightly with down, except that down the back of the neck and between the scapulars, on which there is no down ; eyes open. The nest bowl-shaped and loosely built of coarse twigs lined with fine twigs and was placed in the forks of the lowermost branch of a large bauhinia about six feet from the ground. The parent bird flew from tree to tree in the vicinity of the nest, but kept

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out of range. The tree is in a patch of open country. Could see the young bird through the nest. Jan. 28th, 1909: Young gone."

Rogers' notes from the Derby district were published by Hall and I here quote them: "I am camped in a gorge at the foot of the Grant Range, some three miles from Levuringa station. Ten yards from the tent is a huge bower. Each morning a large number of this species visit it at the same time. I counted ten birds. The birds are now leaving the river (28/2/00) and the bowers have assumed quickly a ragged appearance. I am of opinion they are leaving the river for breeding purposes. A few days later than making this note I again visited the river to see if the birds were still there. I found they had all left, and the bowers had fallen as if they had been deserted for months. To-day (8/6/00) I saw a male bird pulling a bower to pieces. He took each twig in his beak and dragged it out. At the pulling away of the bower he worked for nearly an hour. On 27th December, 1899, I found a nest and egg. The nest was placed about 12 feet from the ground in a bauhinia tree. The bird was very shy, and although I watched the tree, I only saw the bird go on to the nest once; but it was always on the nest when I visited the tree. She used to slip off silently and hop and fly away on the side that had the tree between us. External dimensions of the nest, 10 by 10 by 5½ inches; internal dimensions, 6 by 5½ by 2½ inches. The egg could be seen through the nest from the ground. The nest was loosely constructed of coarse twigs, lined with fine bauhinia twigs. The bower within a few yards of my present camp is still frequented (31/12/99) by a large number of birds. They come about 6.30 a.m. and stay some thirty minutes. In the evening they return for one hour, just prior to sunset. They have the bower built under a small 'freshwater' mangrove, the leaves of which are falling at present each morning in great numbers. The leaves that have fallen during the night are picked up one by one and carried away in their beaks, going all the time with a peculiar sidling dance motion. With the heads turned on one side, they look very knowing. In a place known as Fourteen-Mile Gorge they are still very plentiful (13/1/00) and may often be seen in the small caves of the sandstone hills. Here I saw a black bird with a yellow eye, and it reminded me of a Satin Bower-Bird. To-day I shot a male bird hardly in moult (16/1/00). On 9/3/00 I noted that some few birds were on the river again, but the majority were still in the hills. On 8/4/00 I saw a large number at a bower. One male in full plumage spread out the pink ruff on his neck until the feathers resembled a widely-extended fan, almost forming a circle. What appears to be the male bird (judging by the plumage) plays for hours with bones, etc., at one end of the bower, uttering strange noises. One resembles a piece of silk while being crumpled and shaken. The usual call is a harsh and scolding one.

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The female is much quieter, preferring to hop quietly about or sit in a bush."

Kilgour wrote from the Ord River, North-west Australia: "The Great Bower-Bird was to be seen close to the (Six Mile) hotel, and also several bowers. One, newly made, was beautifully constructed. The actual bower was about 2 feet through, of small twigs, closely woven; height 16 inches. Stones, shells, and glass were laid to a distance of 2 feet from each end of the bower, and some were also placed in a depression in the centre. This model is always followed. I have never seen any brilliant objects, such as feathers, used, and the stones are always water-worn, generally limestone. The birds nest during the wet season, in common with the majority of birds in the district. The nest is placed in the forks of a bauhinia—sometimes, though rarely, in a river gum; it is placed at a height of about 10 or 12 feet, roughly constructed of twigs, with a few eucalyptus leaves for lining, and adjacent to water. One egg is laid, very seldom two."

Whitlock writing from the Fitzroy River, North-west Australia, says: "I found them rather shy, less noisy and not such good mimics as *guttata*. On the Fitzroy their favourite food seems to be the fruit of the wild fig which grows abundantly, apparently all the year round, on the main arms of these fine trees (*Ficus globerosa*). They also feed on the fruit of the wild plum, in company with the Crimson-winged Lory. At Leopold Downs, in passing the meat-house, I surprised five Bower-Birds which had found their way inside through a hole in the netting. They were feeding on fragments of meat on the chopping-block. They were a bit of a nuisance in the hotel garden at times, they carried off both ripe and green chillies and also damaged the tomatoes . . . it was very rare to see a male showing the pink feathers on the nape. I only saw a single bird possessing this beautiful feather, despite the fact that I examined all I came near with the aid of a small field-glass.

"The play-grounds were nearly always near water, and though the creek was dry, the double play-ground I found was on its banks. They were substantial structures of dry twigs, firmly fixed in the foundation below. . . The finished structure in some cases formed a complete arch, and I found the walls differed in thickness to a considerable extent in the different play-grounds.

"Mr. Edward Delaney missed his spectacles. They were eventually found close to the play-ground. I was curious to estimate the number of objects at the above play-ground. The result exceeded 700 stones, etc., and these were being constantly added to, until there were quite a thousand present.

"The Great Bower-Bird was one of the few species that bred during the rainy season of 1924–1925. I found four more or less accessible nests. They

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were frail structures, the egg in two cases being visible from beneath. Only twice did I see the female on the nest. When a nest has been robbed no further attempt at breeding appeared to be made. Eggs were found during January."

From Borroloola, Northern Territory, Hill wrote: "A fairly common bird in all localities. The bowers are generally built under or near isolated shady trees or bushes, and are made more conspicuous by the piles of bleached land-shells at each end of them. January and February appear to be the nesting months."

Barnard's long note from Cape York is here introduced: "Nowhere plentiful, but a few playgrounds were observed under low, black, tea-tree bushes in forest country. Until my recent observations proved to the contrary, it was believed that one species of Bower-Bird (*Chlamydodera cerviniventris*) only inhabited the Cape York country. I have now proved that two species are living in close proximity, but that *C. orientalis* is the more generally distributed. A low range of hills, running generally east to west, cuts off a strip of country, roughly about 10 miles long by 2 miles wide, at the northern extremity of Cape York Peninsula. This strip is fringed by mangroves, along the coast line, the back land being mostly low, and covered with white tea-tree (*Melaleuca*) rising rather abruptly into the range. Here *Chlamydodera cerviniventris* makes its home, and I did not succeed in finding a single specimen to the south of the range. I noted the bird upon many occasions, securing both skins and eggs. I found *C. orientalis* in open-forest country only, while I saw *C. cerviniventris* only in the mangroves or tea-trees bordering same. I found several old nests in tea-trees. As *C. orientalis* is common about Cooktown and Townsville, and the same class of country extends on the west from near Cape York to these places, it is reasonable to presume that the bird will be found throughout the whole area. Whether *C. cerviniventris* is to be found to the east of the range, which starts from Orford Bay, south of Somerset, and cuts off a strip of country similar to that at the extreme north of the peninsula, remains to be proved. The bower of *C. orientalis* is composed of small sticks, forming a strongly-built arch about 12 inches high inside, 15 inches outside, length of run about 2 feet, inside of run raised about 3 inches above the ground with sticks placed horizontally. For a space of about 2 feet right round the bower all grass and leaves are cleared away. One end only of the bower on the cleared ground is decorated by sea-shells, a few large land-shells (*Helix*) and large berries coloured red or black. The bower is usually placed under a low bush. The birds are very noisy while using the bower to play in. The bower of *C. cerviniventris* is made of small sticks, not so strongly built as that of *C. orientalis*, nor do the sticks meet in a complete arch. Height about

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12 inches (outside), length about 15 inches, with a platform of sticks 1 inch high right through. Very little clearing round, but at one end of the bower, and about 1 foot away, is a platform, a foot in diameter, of twigs placed horizontally to a depth of 3 inches. The birds use this platform to play on. A few bunches of small green berries, about six in a bunch, are placed between the platform and the end of the bower. The birds make very little noise at the bower. *C. orientalis* is an expert mimic, while *C. cerviniventris* was not heard to imitate any sound."

Barnard also confirmed Hill's note, recording from Borroloola: "This is a very common bird all through the coastal fall, and many nests were found; each contained a single egg. These birds started to rebuild their playgrounds in September, but it was not till November that eggs were found."

Macgillivray (the younger) recorded from North Queensland: "*C. nuchalis*. Seen on the Gregory River, and at Brook Hotel, 20 miles from Burketown. They are considered to be a nuisance in the hotel garden, destroying the fruit, especially the grapes. ♂ irides brown, bill blackish-brown, legs olive. Stomach contained seeds and portions of green vegetable matter (wild figs). *C. orientalis*. Numerous at Lockerbie in 1910, but fewer in 1911. Their bowers are decorated with the shells of land-snails. ♂, length $13\frac{1}{2}$ inches; irides brown, bill blackish-brown, legs olive-green, feet a darker shade. Stomach contents, wild fruits."

Later, he added: "*C. orientalis*: Was fairly plentiful on the Archer River. In July Mr. McLennan found a bower in a small patch of scrub. Length 2 feet; breadth 18 inches, height 15 inches; roofed over with a thin layer of twigs, forming a tunnel-like run 9 inches high by 6 inches wide, decorated with *Helix* shells and pieces of a white clayey stone. In the centre of the run was a circular depression about 4 inches in diameter filled with fresh and rotting green fruit, $\frac{3}{4}$ -inch long by $\frac{1}{2}$ -inch in diameter."

H. L. White has published McLennan's notes: "Morningside Island, 30/7/15: Some birds seen and heard near the mission station. Macarthur River, 8/8/15: Noted along river. Bickerton Island, 23/8/15: Two seen. Liverpool River, 21/9/15: Seen and heard by river. King River: Occasional birds in mangroves and in small patch of scrub. Often observed in sandstone ranges. Port Bradshaw, 5/2/16: Heard in patches of scrub. Stomach, small berries."

Broadbent observed: "Shot specimens of this bird at Herbert Vale, and on the River Herbert, at Craig's, but it is only a casual visitor. The east coast, about Cardwell and Cairns, is not its locality. Common out from Townsville, and at Kimberley, Gulf of Carpentaria. It is very common on all the rivers on the Gulf.

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Campbell and Barnard confirmed this: "Only one bird made its presence known. It used to frequent a thick tree in the street near the post office, Cardwell, where it sometimes mimicked cries of the Whistling Eagle."

Gould wrote: "This fine species was first described and figured in the *Illustrations of Ornithology* by Sir William Jardine and Mr. Selby, from the then unique specimens in the collection of the Linnean Society; but neither the part of Australia of which it is a native, nor any particulars relative to its habits were known to those gentlemen; it is now clearly ascertained that it is an inhabitant of the north-west coast, a portion of the Australian continent, that has, as yet, been but little visited. I am indebted for individuals of both sexes to two of the officers of the 'Beagle,' Messrs. Bynoe and Dring; but neither of these gentlemen furnished me with any account of its economy."

I have quoted this as some time later Gould, receiving specimens from North Queensland, named these *Chlamydocherys orientalis*, overlooking the necessity of re-investigating the original locality.

This altogether misled Ramsay, who elaborated the mistake thus: "*Chlamydocherys orientalis* Gould is allied to *C. nuchalis*, being its representative in North-eastern Australia, Port Denison, and Rockingham Bay districts. The type of *C. nuchalis* was first found in North-west Australia, probably during Leichhardt's Expedition, by Gilbert or Elsey near Port Essington. The type of *C. orientalis* Gould came from Port Denison, and was previously recorded by me as *C. nuchalis*; the upper-surface is more mottled with silvery-grey and the spots are larger."

This mis-statement was accepted without examination until I rectified it by examination of the coloured figure and comparison with specimens. It is a matter of great interest, as also explaining Gould's mistake, that this was the last Australian bird described by him, and he only named a couple of Humming Birds afterwards, being well over the allotted span of threescore years and ten at this time.

I thus in my "Reference List" in 1912 allowed

Chlamydocherys nuchalis nuchalis (Jardine and Selby).

North Queensland.

Of this *C. orientalis* Gould is a synonym.

Chlamydocherys nuchalis oweni Mathews.

"Differs from *C. n. nuchalis* in its larger size and paler coloration, especially on the head, which is uniform, not speckled with white. Point Torment, North-west Australia."

North-west Australia, Northern Territory.

I then added

Chlamydocherys nuchalis melvillensis.

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“ Differs from *C. n. oweni* in its smaller size and darker colour above; wing 175 mm. (Type of *C. n. oweni*, 190 mm.).”

Melville Island, Northern Territory.

I introduced the genus *Rogersornis* for this fine form, and in my 1913 “ List ” admitted :

Rogersornis nuchalis nuchalis (Jardine and Selby).

North Queensland.

Rogersornis nuchalis melvillensis (Mathews).

Northern Territory.

Rogersornis nuchalis oweni (Mathews).

North-west Australia.

GENUS—SERICULUS.

SERICULUS Swainson, Zool. Journ., Vol. I.,
pt. 4, p. 476, Jan. 1825. Type (by
monotypy) *Meliphaga chrysocephala* Lewin.

Also spelt—

Sericula Voigt, Das Thierreich (Cuvier), Vol. I., p. 505, 1831.

APPARENTLY of no relationship to the other birds with which it is now associated, mainly on account of its bower-building habits.

Smaller "Bower-Birds" of distinct coloration, with long thin bill, long wings, long tail, and long legs and feet.

The bill is quite unlike that of any of the preceding members of this "family," being typically Thrushlike in form, long and thin, laterally compressed with little basal expansion, the culmen little curved, the nostrils as open linear ovals, operculate in a nasal groove which extends one-third the length of the bill, the tip slightly decurved with a small posterior notch; the bill is about as wide as deep at the base, the lower mandible being about as deep as the upper; no nasal or rictal bristles noticeable; the interramal space feathered, triangular, about one-third the length of the bill.

The wing has the third and fourth primaries longest, the fifth a little shorter, the second equal to the sixth and the first about half the length of the third; the secondaries about equal to the eighth primary and much longer than the first; secondaries broad, primaries narrow.

The tail is long, emarginate, the feathers rather narrow.

The legs long and thin, about eight scutes in front, bilaminate behind; the toes are long, the outer longer than the inner, but with claw shorter than the long middle toe without its claw; the hind-toe stouter and longer than the inner toe; the hind-claw stoutest and longest, but the hind-toe and claw shorter than the middle toe and claw.

Order PASSERIFORMES.

Family PTILONORHYNCHIDÆ.
No. 735.

SERICULUS CHRYSOCEPHALUS.

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(PLATE 588.)

- MELIPHAGA CHRYSOCEPHALA Lewin, Birds New Holland, pl. vi., 1808 : New South Wales.
Meliphaga chrysocephala Lewin, Birds New Holland, pl. vi., 1808.
King Honey-sucker Lewin, Birds New South Wales, pl. 6, 1822.
Golden-crowned Honey-eater Latham, Genera Hist. Birds, Vol. IV., p. 184, 1822.
Oriolus regens Quoy et Gaimard, Voy. de "l'Uranie et Physic.," Zool., p. 105, Sept. 18th, 1824 : New South Wales.
Paradisæa imperialis Sieber, Isis, 1825, Beylage No. 1 ; new name for "*Oriolus regens* Lesch," i.e., Q. & G.
Mel[iphaga] auricapilla Stephens in Shaw's Gen. Zool., Vol. XIV., pt. 1., p. 262 (end), 1826 : name for "Golden-crowned Honey-sucker Lewin, pl. 16, i.e., 6 : Latham *ante*."
Sericulus chrysocephalus Swainson, Zool. Journ., Vol. I., pt. 4, p. 478, Jan. 1825 ; Gould, Birds Austr., pt. xxvi. (Vol. IV., pl. 12), March 1st, 1847 ; Diggles, Ornith. Austr., pt. xiii., 1867.
Meliphaga regia "Lewin" Voigt, Das Thierreich (Cuvier), Vol. I., p. 505 (pref. Easter), 1831 : in synonymy of *regens*.
Sericulus magnirostris Gould, Synops. Birds Austr., pt. iv., App., p. 2, April 1st, 1838 : "Tasmania" error = New South Wales.
*Sericulus melinus** Strickland, Ann. Mag. Nat. Hist., Vol. XI., p. 336, 1843 ; Gray, Genera Not *Turdus melinus* Latham, Index Ornith. Suppl., p. xliv., 1801.
Birds, Vol. I., p. 232, 1845 ; Gould, Handb. Birds Austr., Vol. I., p. 456, 1865 ; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878 ; Sharpe, Cat. Birds Brit. Mus., Vol. VI., p. 395, 1881 ; Ramsay, Tab. List Austr. Birds, p. 11, 1888 ; Sharpe, Mon. Paradis., Vol. 2, pl. 27, 1891 ; Hall, Key Birds Austr., p. 22, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 208, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 60, 1902 ; Coles, Emu, Vol. III., p. 187, 1904 (Q.) ; Gilbert, *ib.*, Vol. X., p. 44, 1910 (N.S.W.) ; Shufeldt, *ib.*, Vol. XV., p. 230, 1916 (Eggs).
Sericulus chrysocephalus Sharpe, Hist. Coll. Brit. Mus. Nat. Hist., Vol. II., p. 132, 1906 ; Mathews, Handl. Birds Austral., p. 106, 1908 ; Campbell, Emu, Vol. XIII., p. 68, pl. xl., 1913 (Eggs) ; Gilbert, *ib.*, p. 101 ; Campbell, *ib.*, Vol. XIV., p. 173, 1915

* Also spelt *Mellinus*.



H Gronvold del.

Witherby & Co

SERICULUS CHRYSOCEPHALUS
(REGENT-BIRD)

NATIONAL MUSEUM OF BUREAU

REGENT-BIRD.

(N.Q.); S. A. White, *ib.*, Vol. XIX., p. 220, 1920; Jackson, *ib.*, p. 267; *id.*, *ib.*, Vol. XX., p. 207, 1921 (Q.).

Sericulus chrysocephalus chrysocephalus Mathews, Nov. Zool., Vol. XVIII., p. 440, 1912; *id.*, List Birds Austr., p. 311, 1913.

Sericulus chrysocephalus rothschildi Mathews, Nov. Zool., Vol. XVIII., p. 441, Jan. 31st, 1912: Blackall Ranges, South Queensland; *id.*, List Birds Austr., p. 311, 1913.

DISTRIBUTION. New South Wales, Queensland.

Adult male. Lores, top of the head, neck and upper mantle golden-yellow tinged with carmine, especially on the fore-head and crown, the feathers being of a thick plush-like texture; lower mantle, back, rump, upper tail-coverts, tail and wing-coverts glossy-black with bluish reflections; two outermost primaries uniform black, the next three pairs for the greater part yellow, but widely tipped and with the outer webs black; innermost primaries and secondaries bright orange-yellow, narrowly tipped with black; feathers in front of the eye and a narrow line above the eye and the entire under-surface of the body glossy black. Eyes light yellow, legs and feet black, bill yellow. Total length 235 mm.; culmen 25, wing 134, tail 90, tarsus 40. Figured. Collected on the Richmond River, Northern New South Wales, in October, 1907.

In the form from the Blackall Ranges the black is of a more intense glossy black; the wing is also shorter.

Adult female. Lores and fore-head brownish-white faintly bordered with black; crown purplish-black, an indistinct collar of dull white feathers margined with ash-brown round the hind-neck; mantle and back olive-brown, each feather with a wide concentric marking of dull white with a spot of olive-brown in the middle; lower back, rump and upper tail-coverts brownish-olive, the former with a few spots of yellowish-white near the extremity; tail-feathers olive-brown, margined on the outer webs with brighter olive; primaries and secondaries olive-brown, slightly margined with greenish-olive; ear-coverts yellowish-white strongly suffused with deep brown; chin dull white; throat with a patch of black feathers making their appearance, remainder of the under-surface of the body dull white, each barred and fringed at the extremity with olive-brown; under-surface of quills olive fringed on the inner web with golden-olive. Eyes dusky, feet and legs grey, bill black. Total length 253 mm.; culmen 23, wing 137, tail 106, tarsus 39. Figured. Collected on the Tweed River, Northern New South Wales, on the 10th of August, 1912.

Eggs. Two eggs form the clutch, very rarely three. A clutch of two eggs taken at Teven's Creek, near Lismore, Richmond River, New South Wales, on the 7th of December, 1908, is of a pale yellowish-stone ground-colour, most beautifully and delicately marked and marbled with lines and hair-like markings of olive-brown, blackish-brown and dull purplish-slate, which turn and twist in all directions, the greater portion of them encircling the egg, and resembling coloured thread carelessly wound upon it. The markings are most numerous at the central or widest part of each egg, on up to the larger end; while the smaller or pointed ends are much less marked. In many instances the eggs of this species are free of markings at both ends, and as is often the case with *Chlamydera maculata*, and the eggs of other species of the *Chlamydera* group. Beautiful ovals in shape. Surface of shell fine and smooth and rather glossy. 39-40 by 27 mm.

Nest. A rather deep saucer-shaped structure, composed of thin dry sticks and twigs, and sometimes the yellowish dried stems of climbing plants and tree orchids. It is not unlike the nest of *Chlamydera maculata*. Dimensions over all, 10 to 12

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inches across by 3 to 4 inches in depth. Egg cavity, 4 to 5 inches across by $1\frac{1}{2}$ to nearly 2 inches deep.

Breeding-months. October to end of January.

THIS beautiful bird was first figured and described by Lewin, but it may be of interest to record that the British Museum (Natural History) have recently acquired, through my investigation, a large series of drawings formerly in the possession of Latham, among which is a fine painting signed "F. Davies Delin, 1805."

Gould's notes read: "This beautiful species, one of the finest birds of the Australian Fauna, is, I believe, exclusively confined to the eastern portion of the country; it is occasionally seen in the neighbourhood of Sydney, which appears to be the extent of its range to the southward and westward. I met with it in the brushes at Maitland in company, and feeding on the same trees, with the Satin- and Cat-Birds and the *Mimeta viridis*; it is still more abundant on the Manning, at Port Macquarrie, and at Moreton Bay; I sought for and made every inquiry respecting it at Illawarra, but did not meet with it, and was informed that it is never seen there, yet the district is precisely similar in character to those in which it is abundant, about two degrees, to the eastward; while encamped on Mosquito Island, near the mouth of the River Hunter, I shot several, and observed it to be numerous on the neighbouring islands, especially Baker's Island, where there is a fine garden, and where it commits serious injury to the fruit crops. Although I have spoken of this bird as abundant in the various localities referred to, I must mention that at least fifty out of colour may be observed to one fully-plumaged male, which, when adorned in its gorgeous livery of golden-yellow and deep velvety-black, exhibits an extreme shyness of disposition, as if conscious that its beauty, rendering it a conspicuous object, might lead to its destruction; it is usually therefore very quiet in its actions, and mostly resorts to the topmost branches of the trees; but when two gay-coloured males meet, conflicts frequently take place. To obtain specimens in their full dress, considerable caution is necessary; on the other hand, females and immature males are very tame, and, when feeding among the foliage, appear to be so intent upon their occupation as not to heed the approach of an intruder; and I have occasionally stood beneath a low tree, not more than fifteen feet high, with at least ten feeding voraciously above me."

Mr. Edwin Ashby has written me: "These birds were common in the Blackall Ranges wherever a scrub called inkweed was growing in any quantity. The birds were very fond of these berries (which have a most acid taste), the

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juice of which is the colour of red ink, and when I shot the birds they emptied out of their stomachs quantities of this crimson fluid. The only note I heard them make was almost like a growl, or perhaps more like the word 'tear' pronounced loudly and drawn out."

Mr. A. G. Campbell sent me a note: "It is a sight to be remembered to watch a flock of perhaps a dozen Regents feeding in the Richmond River district, New South Wales. There may be three or four gorgeous males among them, the greater number, however, are drab- and grey-mottled females and immature males. The female is always distinguished by having the fore-head and nape of neck black. It is supposed that the young male is three seasons old before it dons its full livery. Occasionally a bird may be noticed that is undergoing the change and on the head and neck and in the wings the yellow is beginning to appear. In flight the perfect male can be at once distinguished by the brilliant yellow patches on the wings. The Regent builds itself a bower or playhouse on the ground, and one I saw (Jan. 1900) was situated in a circle of lawyer-cane roots—a clear space about four feet in diameter. The walls of the bower, which were eight inches long and six inches high, were fixed into a layer or bed consisting of small pieces of stick so tightly trampled down that they were quite compact. This bed was in the form of an oval, measuring twenty-two inches across one way and nineteen inches in the other. I may mention that this is quite an unusual addition, as the sticks of the wall are usually fixed into the ground. When first noticed there were three birds, all drab-coloured, playing in this bower; each carried an empty snail's shell and in turn went into the bower and, after bobbing up and down a few times with half-opened wings, would toss its shell out over the wall. The two birds remaining outside performed various antics and brushed the ground with their wings, as a result of which the soil within the enclosure of cane-roots was quite bare. I visited the bower several times subsequently, but the birds were not at home. Three or four purplish-tinted leaves were placed in the centre and the three shells were laid near by. I could see that each day the withering leaves were replaced by freshly plucked ones. The only calls the Regent-Birds have are a single whistle and a squeaky 'whit-whit' when alarmed."

Gilbert recently (not Gould's Gilbert) has recorded: "At Ourimbah, Oct. 3rd, 1909: Several pairs of Regent-Birds were seen flying to and fro in search of food, and probably on the lookout for a nesting-site. They were observed feeding peacefully upon the berries of vines. The brilliant orange-yellow and sheeny-black plumage of the male was in marked contrast to the sombre verdure of the undergrowth, as the sun's rays fell upon him whenever the foliage above permitted. The female, being more secretive in her movements, invariably kept well within the

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undergrowth. Nov. 15th: Several female birds were observed, but, owing to the density of the vegetation, it was not ascertainable whether they were nesting. No males. I found another nest, placed much higher than the one containing eggs, but in growth less dense; height took the place of seclusion. This nest was the temporary habitation of two nestlings, apparently eight or nine days old, and covered with a dull-greyish down. I noted that they sat in the nest with their heads pointing south, and as I had watched the parent-bird fly in several times from a southern peripheral point, I concluded that they were wont to look for their guardian in that direction. Previous to nidification, Regent-Birds are to be seen in pairs around Ourimbah, but once incubation has commenced the male seems to retreat, leaving that function entirely to the female. Neither does the male seem to participate in nurturing the young. His brilliant plumage would, no doubt, betray the whereabouts of the female and her nestlings, where the female's plumage harmonizes with her surroundings, and that, together with her shy habits, enables her to move about obscurely."

Later, Gilbert added: "I remarked that probably the female alone built the nest. I have since confirmed that deduction by actual observation. At Ourimbah (12/11/11) I watched a female Regent-Bird commencing her nest, and observed that she returned with material every three minutes. I spent some considerable time watching her movements, and am convinced that she alone constructs the nest. On 26/11/11 the nest contained one fresh egg; the female glided off as I approached."

Captain S. A. White recorded from the Bunya Mountains, S. Queensland: "Strange to say, although many of these birds were seen—in fact they were fairly numerous—yet only one or two full-plumaged males were met with. It is quite possible, through the dryness of the season, they had not nested, therefore the males had not put on their nuptial dress. Dr. Cleland gives the following: 'Iris greenish-yellow, with brown specks; bill rich brown, culmen paler brown; legs dark greyish-brown; gape and pharynx orange-yellow.' (These notes evidently pertain to a bird out of plumage, for the writer did not see a full-plumaged bird taken)."

Jackson has given the soft parts as "Adult ♂; bill yellowish wax-colour; eyes golden-yellow; legs brownish-horn. Adult ♀; bill blackish-brown; eyes golden-yellow mottled with brown; legs, feet and claws blackish-horn; skin at gape of mouth rich golden-yellow."

The technical history of such a striking species should be very simple, and the only complication seems due to an inexplicable error.

Lewin figured and named this species *Melipha chrysocephala*, and Quoy and Gaimard described it as new. Two other synonyms were added by mis-

REGENT-BIRD.

reading or disregarding these, and then Gould added as a new species a bird supposed to have come from Tasmania, purely on geographical grounds. This was rectified as soon as Gould found out it did not live in Tasmania.

Then the Lambert drawings came to light and a figure of *Turdus melinus* Latham was not determined by Gray, but Strickland and Gould conjectured it to be an immature of this species.

I here quote Latham's description :

"Yellow-Bellied Thr(ush). Size of a *Missel Thrush*; bill pale red; tongue bristly; legs pale red; head, hind-part of the neck and sides of the breast dusky-black; back and wing-coverts greenish-brown; breast and belly olive-yellow; chin, fore-part of the neck and vent white; quills olive-brown, the lesser ones barred with black; tail olive above and pale beneath; at the back of the neck are transverse black marks, and between that and the sides of the breast a few sagittal marks. Inhabits *New South Wales*; is migratory, coming in the spring for the purpose of incubation, and departing in autumn."

On account of the high authority of Gould the name *melinus* was used for this bird, though apparently scarcely a word applies to any specimen yet seen. When Sharpe examined the Watling drawings he at once rejected the name from the examination of the figure and revived Lewin's name, and there can be no question as to the correctness of this conclusion. As noted in this work, Vol. IX., p. 168, 1921, Campbell has written: "There seems no doubt that Watling's figure (of *Turdus melinus* Latham) was intended for the Yellow-bellied Fig-Bird (*Sphecotheres flaviventris* Gould)."

No subspecies were named until in my "Reference List" in 1912 I arranged :

Sericulus chrysocephalus chrysocephalus (Lewin).

New South Wales.

Sericulus chrysocephalus rothschildi Mathews.

"Differs from *S. c. chrysocephalus* in the richer orange-red coloration of the head and the brighter colour on the wings, and the blue-black coloration of the back and under-surface. Blackall Ranges, South Queensland."

Queensland.

These were unchanged in my 1913 "List," but in 1915 Campbell wrote: "Mr. E. M. Cornwall, R.A.O.U., presented me with a skin of a male Regent-Bird (*Sericulus chrysocephalus*) taken above the line of Capricorn, in the mountain range behind Mackay. The furthest north recorded for this species is the Mackenzie River (Rockhampton district). Mr. Cornwall states that Regent-Birds are fairly numerous in the locality just mentioned. In comparing the specimen with birds from New South Wales, it will be observed that the former

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has the dark plumage blacker and the yellow parts slightly more intense in colour, which naturally would be the case of the same species of a southern bird found within the tropics," so that we have two subspecies:

Sericulus chrysocephalus chrysocephalus (Lewin).

New South Wales.

Sericulus chrysocephalus rothschildi Mathews.

Queensland.

GENUS—PRIONODURA.

- PRIONODURA De Vis, Proc Linn. Soc. N.S.W.,
 Vol. VII., p. 561, April 1883. Type (by
 monotypy) *P. newtoniana* De Vis.
Corymbicola De Vis, Brisbane "Curier,"
 Oct. 4th, 1889. Type (by monotypy) *Corymbicola mestoni* =
Prionodura newtoniana De Vis.

SMALLER Bower-Birds with short stout bills, medium rounded wing, tail long, square in female, longer and double wedged in male, small legs and feet. The male has a short full crest on the top of the head.

The bill is about half the length of the head, laterally compressed, deep, width at the base less than the height, culmen arched and keeled, tip hooked, posteriorly notched, lateral edges of upper mandible straight, nasal groove long, nearly half the length of the bill hidden by encroaching frontal feathering which entirely conceals the oval nostrils, no distinguishable nasal bristles; under mandible stout, more than half as deep as the upper; interramal space short, feathered; gonys long, semi-keeled, ascending.

The wing has the fourth and fifth primaries longest, the third and sixth subequal and little shorter, the first primary more than half the length of the second but less than half the length of the third; the secondaries long and broad, equalling the second primary in length.

The tail in the female is regularly square, feathers broad; in the male the two central feathers have remained normal, the next two a little longer, and as they approach the outside they become narrower, the two outside longer than the central, but the third from the outside longest.

The legs are short and not very stout, indistinctly scutate in front, bilaminate behind; toes delicate, middle toe longest and thin, outer longer than inner; inner toe with claw equals middle toe alone, hind-toe stoutest, but hind-toe and claw shorter than middle toe and claw; claws sharp and short.

This is one of the most remarkable birds found in Australia, as it is very distinct, and no allies are known either in Australia or New Guinea. The female seems very like *Colluricincla*, and it is possible that this may have evolved from an ancestral ally of that group, but at present there is no knowledge of the anatomy or osteology of passeriform birds to enable any guess at the relationships from internal features. The bower-building habits seem to be imitative and adaptive, and as far as I can judge do not indicate close relationship, four very distinct groups being easily recognisable, with probably three sources without affinity.

Order PASSERIFORMES.

Family PTILONORHYNCHIDÆ.

No. 736.

PRIONODURA NEWTONIANA.

GOLDEN BOWER-BIRD.

(PLATE 589.)

PRIONODURA NEWTONIANA De Vis, Proc. Linn. Soc. N.S.W., Vol. VII., p. 562, April 1883 :
Tully River Scrubs, North Queensland.

Prionodura newtoniana De Vis, Proc. Linn. Soc. N.S.W., Vol. VII., p. 562, 1883 ; Ramsay,
Tab. List Austr. Birds, p. 11, 1888 ; De Vis, Proc. Roy. Soc. Queensland, Vol. VI.,
p. 245, 1889 ; Sharpe, Mon. Birds Paradis., pt. I., pl. 7 (Vol. 2, pl. 24), 1891 ; Hall,
Key Birds Austr., p. 9, 1899 ; Campbell, Nests and Eggs Austr. Birds, Vol. I.,
p. 212, 1901 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 65, 1902 ; Mathews,
Handl. Birds Austral., p. 106, 1908 ; North, Proc. Linn. Soc. N.S.W., Vol. XXXIII.,
p. 799, 1909 ; Jackson, Emu, Vol. VIII., pp. 225-233, 260, and pls. xxviii. and
xxix., 1909 ; Mathews, Nov. Zool., Vol. XVIII., p. 441, 1912 ; *id.*, List Birds
Austr., p. 312, 1913 ; North, Austr. Mus. Spec. Cat., No. 1, Vol. IV., p. 413, 1914.

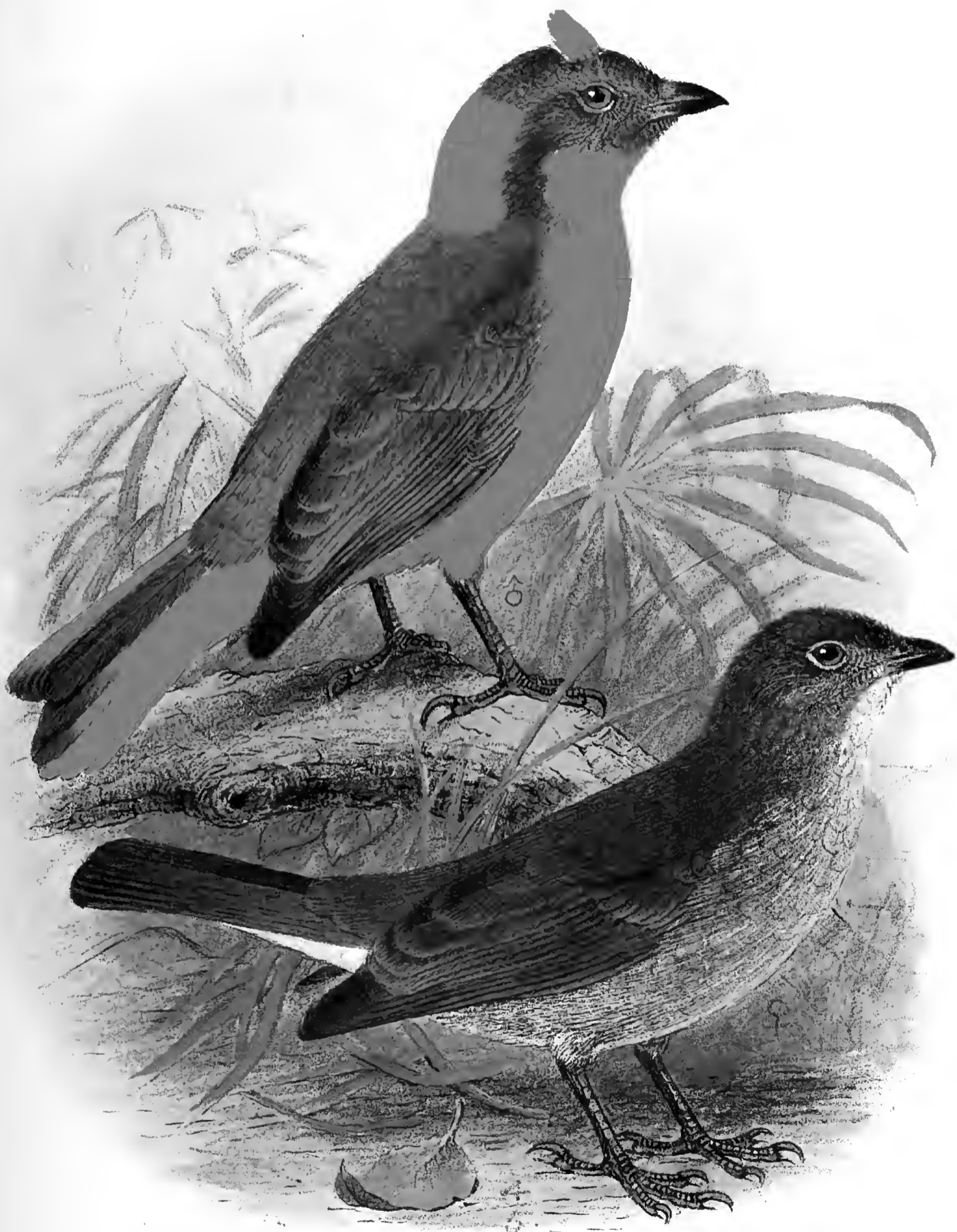
Corymbicola mestoni De Vis in the "Curier," Brisbane, Queensland, 1889 (Oct. 4th),
Bellenden Ker (5,000 ft.); Meston, Rep. Gov. Sci. Exped. Bellenden-Ker Range,
N.E. Queensland, 1889 (after Oct. 7th), p. 120.

Prionodura newtoniana fairfaxi Mathews, Austral Avian Record, Vol. II., pt. 7, p. 133,
Jan. 28th, 1915 : Bartlefrere, Queensland (3,800 feet up).

DISTRIBUTION. North Queensland.

Adult male. Feathers covering the nostrils golden-orange ; chin, sides of the face, lores,
top of the head and lower part of the head rich golden-olive ; a large patch of
golden-orange feathers on the crown ; back of the neck shining golden-orange ;
mantle, back, rump, upper tail-coverts and wing-coverts golden-olive ; middle
pair of tail-feathers brownish-olive, the three outermost pairs of tail-feathers
uniform golden-orange, the fourth and fifth pairs tipped and margined with brownish-
olive ; entire under-surface of body beautiful golden-orange, brightest on the chest
and dullest on the sides of the body ; primaries olive, margined on the outer web
with golden-bronze and on the inner web with pale yellow ; under wing-coverts
and axillaries orange. Total length 250 mm. ; culmen 15, wing 122, tail 113,
tarsus 30. Figured. Collected on Mount Bartlefrere (3,800 feet), North Queens-
land, on the 17th of April, 1909, and is *P. n. fairfaxi*. It is not so reddish-yellow
on the under-surface as the typical bird from the Tully River.

Adult female. Entire upper-surface of the body dull olive, slightly paler on the rump
and upper tail-coverts ; tail slighter brighter olive with glistening brown shaft-



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PRIONODURA NEWTONIANA
(GOLDEN BOWER-BIRD.)

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GOLDEN BOWER-BIRD.

streaks; sides of the face and ear-coverts olive-grey with whitish shaft-streaks; primaries and secondaries smoky-brown on the inner web, widely margined with golden yellow and with the outer webs greenish-olive; chin, throat and remainder of the under-surface of the body smoky-white tinged with grey, darkest on the sides and flanks. Eyes dirty yellow, legs blackish, bill black. Total length 223 mm.; culmen 15, wing 119, tail 87, tarsus 30. Figured. Collected in the Evelyn Scrub, North Queensland, on the 6th October, 1911.

Juvenile. Top of the head covered with long down-like feathers of a smoke-brown colour; upper back, mantle, lower back, rump, scapulars and wing-coverts dull greenish-olive; upper tail-coverts a little brighter than the back; primaries and secondaries (in quill) blackish-brown, with the outer web olive; throat devoid of feathers; remainder of the under-surface white, shaded with dusky, especially on the chest and breast. Collected in the Herberton Range, North Queensland, in December, 1900.

Head covered with long silk-like filaments of a smoke-brown colour; sprouting feathers of the back and wings dark olive; under-parts dirty white. Collected at the same time and place as the other, but is much smaller.

Eggs. Two eggs form the clutch; sometimes only one egg is found; no record of three having been taken. A clutch of two eggs taken at Evelyn Scrub, on the Herberton Range, North Queensland, on the 28th of November, 1908, is of a very pale creamy or warm white. Compressed ovals in shape. Surface of shell fine and smooth and rather glossy. 36-37 by 25-26 mm.

Nest. An open cup-shaped structure, composed of dead leaves (some very large), thin strips of bark, skeleton leaves, small sticks, moss, etc., and lined with thin roots and twigs. In the construction of some nests great quantities of the sections of old dead and skeleton leaves of the Stag-Horn Ferns are used. The small sticks on the outside portion of the nest are often fastened or glued together, and to the structure, by means of a dead and dried-up growth of slimy fungus. Dimensions over all, 6 to 7 inches or more in diameter by 3 to 4 inches in depth. The egg cavity measures $3\frac{1}{2}$ to nearly 4 inches across by 2 to nearly $2\frac{1}{2}$ inches deep. The nest is usually placed in an opening, ledge, or hollow portion of a tree, or such sheltered position in dense jungle, and often within 3 or 4 feet of the ground.

Breeding-months. October, November and December.

BROADBENT discovered this beautiful species and his account reads: "This bird was first obtained by me in September, 1882, in the Tully River scrubs, though I only secured then an immature specimen, coloured uniformly olive-brown upon the upper-surface. This—the type—Mr. De Vis described. Whilst pursuing my official duties at Herberton in the months of March to May, 1889, I met with several examples of a bird which I at once detected to be Newton's Bower-Bird, and amongst them some gaily-coloured, full-plumaged cocks, which instead of exhibiting the sombre hues of youth, are largely bright yellow-coloured, they being, as it is said, 'one of the three handsomest birds in Australia.' This rediscovery on my part was announced in an official communication dated from Herberton, 30th March, 1888. At the commencement of February of the same year, Mr. A. Meston, during his first exploration of Mount Bellenden Ker, procured a single specimen of a very handsome bird, which, at

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its receipt at the Museum on the 25th March, was pronounced to be a new bird, and, as such, received the name of Meston's Bower-Bird (*Corymbicola mestoni*); my discovery that it was only the full-plumaged male of Newton's Bower-Bird (*Prionodura newtoniana*), and the specimens and written observations which I forwarded in support of this conclusion, not having been then received in Brisbane. . . . The male Golden Bower-Bird is a splendid mocker, imitating all the birds of his locality, as well as the creaking noise of tree-frogs. The note of the female resembles that of the Queensland Cat-Bird in a sharper and shriller key."

De Vis wrote: "*Prionodura* is emphatically a Bower-Bird. Both its observers in nature met with its bowers repeatedly, and agree in representing them to be of unusual size and structure. From their notes and sketches (Broadbent and Meston) it would appear that the bower is usually built on the ground, between two trees, or between a tree and a bush. It is constructed of small sticks and twigs. These are piled up almost horizontally round one of the trees in the form of a pyramid, which rises to a height varying from four feet to six feet. A similar pile of inferior height—about eighteen inches—is then built around the foot of the other tree. The intervening space is arched over with stems of climbing plants, the piles are decorated with white moss, and the arch with similar moss, mingled with clusters of green fruit resembling wild grapes. Through and over the covered run play the birds, young and old, of both sexes. A still more interesting and characteristic feature in the playground of this bird remains. The completion of the massive bower so laboriously obtained is not sufficient to arrest the architectural impulse. Scattered immediately around is a number of dwarf, hut-like structures—gunyahs they are called by Broadbent, who says he found five of them in a space of ten feet diameter, and observes that they give the spot exactly the appearance of a miniature blacks' camp. These seem to be built by bending towards each other strong stems of standing grass, and capping them with a horizontal thatch of light twigs. In and around the gunyahs, and from one to another, the birds in their play pursue each other to their hearts' content."

Little has since been written about this interesting species, as when Jackson wrote up the account of the investigation of the Tooth-billed Bower-Bird entitled *In the Barron River Valley, North Queensland*, he intimated: "I might also be able to find the nest and eggs of the Golden Bower-Bird, thus gaining information regarding the two remaining species of the Bower-Bird family of the nidification of which full particulars had not yet been recorded." He later wrote: "The bower of the Golden Bower-Bird which I photographed covered an area of 14 feet by 6, and in the centre the pile of sticks was over 4 feet high. The whole structure appeared to have no symmetry at all, most of the sticks

GOLDEN BOWER-BIRD.

being piled up about the upright stems of small trees. In the decorations there were large quantities of a long, stringy forest moss, varying in colour from a yellowish-green to a rich rust. I also saw numbers of open pods, each containing a black seed, the latter in most cases being covered with a red skin, which was, however, in a state of decortication. In front of the bower, and close to the ground, hung a vine (*Vitus*) in swing form, and this in all probability afforded a swing for these beautiful birds during their play at the bower." There seems to be nothing else regarding their habits.

Two subspecies can be admitted :

Prionodura newtoniana De Vis.

Tully River.

Prionodura newtoniana mestoni (De Vis).

Bellenden Kerr (5,000 ft. up).

GENUS—PTILORIS.

PTILORIS Swainson, Zool. Journ., Vol. I., pt. 4,
p. 479, Jan. 1825. Type (by monotypy) . . . *P. paradiseus* Swainson.

Also spelt—

Ptilorhis Agassiz, Index Univrs., 12mo, p. 913, 1848.

Ptilornis Gray, Handl. Gen. Sp. Birds, Vol. I., p. 104, 1869.

THIS and the next two genera are placed among the Birds of Paradise—a series of Papua-Australian birds of extraordinary variability in size and structural features, only agreeing in the development of wonderful adornments in the males, the females being comparatively plain-coloured normal birds.

Paradise Birds with long curved bills, rounded wings, medium square tails, and short stout legs and feet.

The bill is long and curved, longer than the head, laterally much compressed, basally little expanded; culmen well arched, semi-keeled, tip decurved, edges of upper mandible semi-serrate; nostrils basal, linear in a groove filled by encroaching frontal feathering which almost entirely hides the apertures; neither rictals nor nasal bristles noticeable; bill at the base is deeper than broad; interramal space very small and narrow, gonys very long and a little decurved, the feathers of the loreal region approaching on sides of lower mandible, gape large and fleshy.

The wing very rounded; the male has the second primary equal to the eighth, third a little longer, and the fourth, fifth and sixth subequal and longest but little exceeding the others; the first primary is short and a little more than half the length of the second: the first primary is narrow and strongly falcate, the second is less narrow and less falcate, while the third is broad with a square-cut tip; the secondaries are very broad and long with square ends, a little shorter than the second primary; the female has the wing a little different, the first primary equal to half the length of the third, the second a little shorter than the third, both first and second falcate, first narrow, second a little broader, the third broader with the edge of the outer web at the tip rounded falcately but as long as the fourth and fifth, which are very broad with square tips, the others broad and a little shorter successively inwards; the secondaries are long and very broad, nearly equalling the second primary in length.

PTILORIS.

The tail is square, the feathers broad.

The legs are short and stout, the front showing obscurely scutes, the sides of the hinder portion, which is bilaminate, also, however, showing the scute formation, in young specimens clearly, in older ones more indistinctly; the toes are stout, the hind-toe longest and stoutest, the hind-claw also longest and strongest; the outer toe longer than the inner, the middle toe longer than either, but the inner with claw exceeding middle toe alone.

Key to the Species.

Smaller: Female sparsely spotted on under-surface	<i>victoria</i>
Larger: Female heavily marked on under-surface	<i>paradisea</i>

PTILORIS PARADISEA.

RIFLE-BIRD.

(PLATE 590.)

PTILORIS PARADISEUS Swainson, Zool. Journ., Vol. I., pt. 4, p. 481, Jan. 1825: North, New South Wales.

*Ptiloris** *paradiseus*† Swainson, Zool. Journ., Vol. I., pt. 4, p. 481, 1825; Gould, Birds Austr., pt. xxvii. (Vol. IV., pl 100), June 1st, 1847; *id.*, Handb. Birds Austr., Vol. I., p. 591, 1865; Diggles, Ornith. Austr., pt. vi., 1866; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 154, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878; Ramsay, Tab. List Austr. Birds, p. 11, 1888; Hall, Key Birds Austr., p. 9, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., pp. 66, 1,073, 1901; Sharpe, Mon. Paradis., Vol. I., pl. I., 1891; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 23, 1901; Mathews, Handl. Birds Austral., p. 106, 1908; Mellor, Emu, Vol. X., p. 206, 1910 (Q.); Ramsay, *ib.*, Vol. XIX., p. 7, 1919 (N.S.W.); S. A. White, *ib.*, p. 220, 1920 (Q.); Jackson, *ib.*, p. 269; H. L. White, *ib.*, Vol. XX., p. 103, 1920 (Eggs); Jackson, *ib.*, pp. 103, 208, 1921 (Q.).

Epimachus regius Lesson, Voy. Coquille Zool., pl. 28, Nov. 1st, 1826: Port Macquarie, New South Wales.

Epimachus brisbanii Wilson, Illustr. Zool., pt. 3, pl. xl., 1827: Port Macquarie, New South Wales.

Ptilorhis paradisea paradisea Rothschild, Ibis, 1911, p. 366; Mathews, Nov. Zool., Vol. XVIII., p. 441, 1912.

Ptiloris paradisea paradisea Mathews, List Birds Austr., p. 312, 1913.

Ptiloris paradisea queenslandica Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 42, Feb. 21st, 1923: Blackall Ranges, Queensland.

DISTRIBUTION. Northern New South Wales, Southern Queensland.

Adult male. Lores, top of the head and hind-neck burnished bronze-green; sides of the face, mantle, back, rump, wing-coverts and secondaries velvety-black, shaded with bronze-purple; middle tail-feathers burnished steel-green, remainder of the tail black, margined on the outer web with purple; primaries and secondaries velvety-black shaded with violet and purplish-blue; chin and upper throat deep velvety-black glossed with purple; a large triangular patch of burnished steel-green feathers on the lower throat; chest uniform deep velvety-black; remainder of the under-parts velvety-black, each feather widely margined with glossy

* Also spelt *Ptilorhis*. † Also spelt *paradisea*.



H. Grönvold. del.

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PTILORIS PARADISEA
(RIFLE BIRD)

HISTORIA DE LA MEDICINA

RIFLE-BIRD.

purplish-green. Eyes brown, bill and feet black. Total length 275 mm.; culmen 50, wing 159, tail 96, tarsus 36. Figured. Collected on the Tweed River, Northern New South Wales, in August, 1912.

Adult female. Top of the head and back of the neck ash-brown, each feather with narrow shaft-streaks of buffish-white; back, rump, upper tail-coverts and wing-coverts uniform brownish-olive; tail-feathers olive-brown, narrowly margined on the outer web with buff; a broad superciliary stripe of creamy-white feathers; lores and feathers below the eye ash-brown with narrow whitish shaft-streaks; chin white, throat and sides of the neck cream-buff; remainder of the under-surface of the body ochraceous-buff with crescentic markings and bars of brownish-black, producing a scale appearance; primaries and secondaries ash-brown with the margins of the outer webs brownish-chestnut and the inner webs widely margined with chestnut-buff. Eyes brown, feet black, bill blackish, with lower base horn. Total length 275 mm.; culmen 50, wing 142, tail 88, tarsus 35. Figured. Collected on the Richmond River, Northern New South Wales, in October, 1901.

Immature very like the immature of the next species.

Eggs. Two eggs form the clutch, sometimes only one. A clutch of two eggs taken at Booyong, Richmond River, New South Wales, on the 2nd of November, 1899, is of a beautiful reddish-cream ground-colour, very regularly marked with spots and longitudinal streaks, or brush-like markings of an artist, of red, reddish-chestnut, purplish-red and purplish-grey, many of the latter appearing as if beneath the surface of the shell. The markings are larger and more numerous at the larger end of each egg, and possess quite a hand-painted appearance. Rather swollen ovals in shape. Surface of shell fine, smooth and glossy. 34 by 23 mm.

Nest. A rather large structure, open and cup-shaped. Composed chiefly of large, dead, brown leaves, vine tendrils, etc., and covered over outside with a quantity of green and growing fronds of a small thick-leaved climbing fern known as *Polypodium confluens*, which climbs up the trunks and limbs of the scrub trees. It is more or less ornamented with the cast-off skins of snakes, and often long pieces, over 12 inches in length, hang from the edge of the nest or the bushes or vines beside it. More snake skins are daily added *after* the eggs have been laid. It is lined with stiff wire-like portions of glossy fern stems, and thin hard rootlets; a few pieces of snake skin are generally found at the bottom of the nest directly under the eggs. The parts of the skin usually selected for this particular purpose are several of the belly scales of the underneath portion of the snake. Dimensions over all, 8 to nearly 10 inches across by 4 to 5 inches in depth. Egg cavity, 4 to 4½ inches across by 2 to nearly 2½ inches deep.

Nest usually placed and well-hidden in a dense mass of foliage or vines in the topmost part of a bushy tree, at heights varying from 6 to over 90 feet from the ground.

Breeding-months. October, November and December.

THOUGH this bird early received three names, the first field-notes appear to have been published by Gould, who wrote: "Hitherto this magnificent bird has only been discovered in the brushes of the south-eastern portion of Australia; so limited in fact does its range of habitat seem to be, that the river Hunter to the southward, and Moreton Bay to the eastward, may be considered its natural boundaries in either direction. I have been informed by several persons who have seen it in its native wilds that it possesses many habits in common with the *Climacteres*, and that it ascends the upright boles of trees precisely

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after the manner of those birds. It was a source of regret to me that I had no opportunity of verifying these assertions, but an examination of the structure of the bird induces me to believe that such is the case; that its powers of flight are very limited, is certain from the shortness and peculiarly truncate form of the wing, and this mode of progression is doubtless seldom resorted to further than to transport it from tree to tree or from one part of the forest to another. That it is stationary, and breeds in south-eastern Australia, is evident from the numerous specimens of all ages that have been sent from thence to Europe. The late Mr. F. Strange sent me the following note: 'The principal resort of the Rifle-Bird is among the large cedar brushes that skirt the mountains and creeks of the Manning, Hastings, MacLeay, Bellenger, Clarence and Richmond Rivers, and there, during the pairing months of November and December, the male bird is easily found. At that time of the year, as soon as the sun's rays gild the tops of the trees, up goes the Rifle-Bird from the thickets below to the higher branches of the pines (*Arancaria macleayana*) which there abound. It always affects a situation where three or four of these trees occur about two hundred yards apart, and there the morning is spent in short flights from tree to tree, in sunning and preening its feathers, and in uttering its song each time it leaves one tree for another. The sound emitted resembles a prolonged utterance of the word "Yass," by which the bird is known to the natives of the Richmond River. In passing from tree to tree, it also makes an extraordinary noise resembling the shaking of a piece of new silk. After 10 a.m. it descends lower down, and then mostly resorts to the thick limb of a cedar tree (*Cedrela australis*) and there continues to utter its cry of "Yass" at intervals of two minutes' duration; at this time, owing to the thickness of the limb and the closeness with which the bird keeps to it, it is very difficult of detection; wait with patience, however, and you will soon see him, with wings extended, and his head thrown on his back, whirling round and round, first one way and then another.'

Capt. S. A. White writes: "This glorious bird inhabits the thick tropical scrubs of New South Wales and South Queensland. The male birds are very shy and it is only by watching at watering places or at dancing trees that one can make sure of seeing these birds. They visit a certain tree in the forest every morning during the nesting-season and play and show off for quite a time. I have seen them diligently hunting round the trunk of a forest tree, tearing off bark and looking into every crevice for insect life. The female is not nearly so shy as the male bird. The call is loud and harsh."

Ramsay's notes from the Rockingham Bay district read: "The most northerly point that I met with this species was at Port Mackay on the Pioneer

RIFLE-BIRD.

River; it was considered there a very rare bird. I have heard of its being occasionally met with in the ranges near Gympie. This bird is very similar to *Climacteris* in its actions. While encamped for some three or four months in the ranges of the North Richmond river, the great stronghold of this species, I had abundant opportunities of studying its habits, and was struck with the similarity of its actions to our Tree-creepers. The young males and females, seldom accompanied by more than one adult male in livery, are frequently met with together traversing the stems and thick branches of the trees, especially those showing signs or in a state of decay. The call-note of the adult male is a shrill scream, easily imitated sufficiently to attract its attention and cause it to remain until you approach. By this means I have frequently watched it closely as it hopped round the bole of some decaying tree, or tore off the loose bark in search of insects. Seldom more than one adult male is found to every quarter of a square mile of scrub; and so little do they wander about, that it was customary for me to return to the same locality day after day until I had shot the bird, being quite sure of hearing him calling if he had not been destroyed in the meantime. These old males are usually solitary; but two or more occasionally meet in some favourite feeding tree, when a fight is sure to ensue; for, although closely resembling the *Climacteris* in their actions, they differ in this respect, that they may occasionally be found feeding on the fruit of the native tamarind (*Tamarindus australis*). The natives informed me that the Rifle-Bird lays its eggs, which are white, in the hollow branch of a tree without making any nest whatever—which is not improbable.”

Mr. Edwin Ashby has written me: “I have seen both the male and female in the ‘brush’ of the Blackall Ranges about seventy miles north-west of Brisbane at an altitude of 1,500 feet. The bird was exceedingly shy, but its cry, sounding like a man clearing his throat, can be heard many times during the day in its haunts, and sometimes the bird can be heard searching for grubs in large Staghorn and birds-nest ferns, that grow on the tree-trunks 40 to 70 feet from the ground, but it is most difficult to get a sight of the bird.”

Mr. A. G. Campbell has also sent me: “The ‘Big Scrub,’ Richmond River, New South Wales, is the home of this splendid bird. The female and young male wear coats of a protective brownish colour, but the dress of the male bird is a rich velvety-black, bespangled on the crown of the head and the chest with scale-like feathers of a brilliant metallic-green. The Rifle-Bird hunts for its food about the tree trunks and may be seen running up the stem prying into every crevice with its long sickle-shaped bill or disappearing into holes in search of insects much after the manner of a Tree-creeper. Its call is harsh and easily recognised. There is no mistaking the measured ‘yass-yass’ of the

THE BIRDS OF AUSTRALIA.

male bird, uttered so deliberately with a pause of a second between each syllable. A short, single 'yass' locates the female, while the young male may perhaps attempt the double call, but it is hurried and unpractised."

Mellor has written from the Blackall Ranges, South Queensland: "The Rifle-Bird was present, but not plentiful. Its presence is generally made known by the peculiar note that the male bird utters, being something between a harsh screech and the whirring noise of a strong clock spring suddenly unwinding, the note being extremely difficult to imitate, and generally made in the thick scrub. At times the mature males, in all their glory of velvety-black and burnished steel-blue, will come out on some extremely high dead tree and there 'perform.' On one occasion I was entertained for over an hour in watching the antics of a fine male bird in his endeavours to fascinate the female. He would bow and scrape, proceeding and receding at times with his wings thrown right up over his head until the tips met, and with the bright morning sun shining on his burnished breast-plate and helmet."

Ramsay (the younger) has contributed a fine account of this species on the Upper Clarence River district, Northern New South Wales, which must be referred to and from which I quote: "At Camp only one Rifle-Bird was noted—a female. As the weather was cold she kept to the forest timber, and was seldom seen in the scrub, preferring to follow the sunlight around the steep hillsides. Although she was shy, there were opportunities of observing her habits, and I was much interested in her feeding. Clinging like a *Climacteris* to the side of a branch or trunk, she would pick a few times at some loose bark or rotten timber, and then lay her ear against it listening for any movement of insects within. She would peek and listen a few times, move on a foot or so, repeat the performance, and then suddenly pick and tear furiously, while bark and rotten wood showered down, until the unfortunate beetle or centipede was discovered and devoured. The birds showed great strength of legs and claws, and clung to the under-side of a branch for long periods; one was timed for over forty minutes hanging head downwards on a broken branch, apparently devouring ants or their larvæ."

Captain S. A. White has written: "This is without doubt the most beautiful of the southern Queensland birds. Not only is it adorned with the most wonderful and beautiful plumage, but its habits, flight and call resemble so much members of the most wonderful and beautiful birds of the world—'the Birds of Paradise.' They were plentiful in these scrubs upon the Bunya Mountains, and it was a common sight to sit in camp (a collection of eight to nine tents) and watch birds of both sexes come to the several small pools in a creek which was fast drying up." He then confirmed the "*Climacteris*-" like actions of the female and the showing-off of the male, and concluded:

RIFLE-BIRD.

"The bird's call is rather a harsh one, but unlike any other bird's call in the scrub, so cannot be mistaken. It is a kind of croaking sound, shrill and repeated once over. As a rule the female has a much softer and lower note, but she is usually very silent."

Mr. A. S. Le Souëf states: "Rifle-Bird call is generally two notes: 'Kre-e-e-e, kre-e-e-e' and sometimes two shorter notes of inquiry—'Ka-ka.'"

H. L. White then noted that a farthest west limit was made by the occurrence of this species at Stewarts Brook, a tributary of the Upper Hunter River, about fifteen miles due east of Belltrees, and Jackson added that "at the end of several of the feathers in each wing there was a small 'thorn-shaped' appendage, which followed on at the extremity of the fine shaft-end of the feather."

Jackson then recorded from the Macpherson Range, South Queensland: "Rifle-Birds of Paradise were frequently seen, but were seldom recorded above the 3,800 feet level. On 28th November an adult male and female were observed in company with two young ones. Except that they were paler in colour, the young resembled the adult female. Their call was rather different, and more 'rasping' than that of the adult birds. The handsome male birds appear more plentiful than the females."

Two subspecies may be admitted:

Ptiloris paradiseus paradiseus Swainson.

New South Wales.

Ptiloris paradiseus queenslandicus Mathews.

Queensland.

PTILORIS VICTORIÆ.

LESSER RIFLE-BIRD.

(PLATE 591.)

PTILORIS VICTORIÆ Gould, Proc. Zool. Soc. (Lond.) 1849, p. 111, Aves, pl. 12 (between Jan. and June 1850): Barnard Isles, North Queensland.

Ptiloris victoriæ* Gould, Proc. Zool. Soc. (Lond.) 1849, p. 111; *id.*, Birds Austr. Suppl., pl. 50 (pt. 1), March 15th, 1851; *id.*, Handb. Birds Austr., Vol. I., p. 593, 1865; Ramsay, Proc. Zool. Soc. (Lond.) 1875, p. 599; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 155, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 191, 1878; *id.*, Tab. List Austr. Birds, p. 11, 1888; Sharpe, Mon. Paradis., Vol. I., pl. 2, 1891; Hall, Key Birds Austr., p. 9, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 69, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 26, 1901; Mathews, Handl. Birds Austral., p. 106, 1908; Jackson, Emu, Vol. VIII., pp. 235, 241, pl. xxxv., 1909; Broadbent, *ib.*, Vol. X., p. 239, 1910 (N.Q.); Campbell and Barnard, *ib.*, Vol. XVII., p. 37, 1919 (N.Q.).

Ptiloris paradisea victoriæ Rothschild, Ibis, 1911, p. 366; Mathews, Nov. Zool., Vol. XVIII., p. 441, 1912; *id.*, List Birds Austr., p. 312, 1913; *id.*, South Austr. Orn., Vol. II., p. 61, 1915.

Ptiloris paradisea dyotti Mathews, Austral Avian Record, Vol. II., pl. 7, p. 133, Jan. 28th, 1915: Cairns, North Queensland.

Ptiloris victoriæ victoriæ Mathews, *ib.*, Vol. V., pts. 2-3, p. 42, Feb. 21st, 1923.

Ptiloris victoriæ dyotti Mathews, *ib.*

DISTRIBUTION. North Queensland.

Adult male. Head and hind-neck metallic bronze-green; sides of the face, mantle, back, rump, upper wing-coverts and secondaries velvety-black, shaded with bronze-purple; middle pair of tail-feathers glossy steel-green with purple reflections; outer pairs of tail-feathers black, margined on the outer web with purple; primaries and secondaries black, shaded with purplish-blue and violet; chin and throat velvety-black glossed with purple; a large triangular patch of glossy steel-green feathers across the throat extending on to the chest; chest velvety-black, highly glossed with purple; breast, belly and sides of the body deep velvety-black, each feather tipped with oil-green with purple reflections. Eyes brown, bill and feet black. Total length 235 mm.; culmen 35, wing 141, tail 78, tarsus 34. Figured. Collected at Atherton Scrub, Cairns, North Queensland, in August, 1908.

* Also spelt *Ptilorhis*.



H. Grönvold. del

Witherby & Co

PTILORIS VICTORIAE
(LESSER RIFLE-BIRD)

NATIONAL BUREAU OF STANDARDS

LESSER RIFLE-BIRD.

Adult female. Top of the head and back of the neck ash-brown, each feather with a mesial streak of whitish; back, mantle, rump and wing-coverts greyish-ash; tail ash-brown, slightly fringed on the inner web with chestnut-buff; outermost primaries ash-brown with the outer webs olive, and widely margined at the base of the inner web with chestnut-brown; innermost primaries and secondaries similar to the primaries but fringed on the outer web with rust-colour; lores and ear-coverts dusky with faint shaft-streaks of white; a well-defined supercilium composed of buffish-white feathers; a narrow black malar stripe; chin and throat uniform rich buff; remainder of the under-surface of the body rich fawn with indistinct blackish spots on the chest and sides of the body. Eyes brown, bill and feet black, gape yellow. Total length 245 mm.; culmen 35, wing 132, tail 83, tarsus 35. Figured. Collected at Atherton Scrub, near Cairns, North Queensland, in September, 1908.

Immature male. Feathers of the top of the head and back of the neck dark brownish-ash, each feather with a mesial streak of buff; mantle, back, rump, upper tail-coverts and wing-coverts brownish-ash, shaded with grey; tail-feathers olive-brown; primaries ash-brown, margined on the outer web with brownish-olive and broadly margined on the inner web with reddish-buff; secondaries olive-brown, margined on the outer web with rust-red and on the inner web with chestnut-buff; a well-defined eyebrow of buffish-white feathers; chin and throat whitish-buff; a blackish malar streak; chest, breast and remainder of the under-surface of the body chestnut-buff, each feather with a whitish shaft-stripe and with a black arrow-shaped marking near the tip; flank-feathers barred with black; a black feather on the chest, and a velvety-black feather widely tipped with dull bronze-green on the belly, typical of the adult plumage, making their appearance. Collected on Barnard Island, North Queensland, in December, 1896. In this skin odd adult feathers are showing on the chest.

Eggs. Two eggs form the clutch. A clutch of two eggs taken at Tinaroo, Barron River Valley, North Queensland, on the 11th of December, 1908, closely resemble those of *Ptiloris paradisea*. They are of a reddish flesh-colour, most beautifully marked, with longitudinal streaks and a few smudges or spots of red, purplish-red, reddish-violet and purplish-grey, a number appearing as if beneath the surface of the shell. The long streaks, which have quite a hand-painted appearance, as if put on by an artist's brush, are most numerous about the larger end of each egg. Some of the streaks measure 16 mm. long and 3 mm. wide at the top or thick end. Ovals in shape. Surface of shell fine and very glossy. 32 by 23 mm.

Nest very similar to that of *Ptiloris paradisea* in general structure, but smaller. It is open and cup-shaped, and a great quantity of rather large, brown, dead leaves, vine tendrils, twigs and portions of climbing plants, used in its construction. Lined with fine twigs. Frequently the portions of the cast-off skin of a snake are found decorating the nest, or worked into the outside material of the structure. Dimensions over all, 7 to 8 inches across by 3 to 4 inches in depth. Egg cavity nearly 5 inches across by 2 to 2½ inches deep. The nest is built and hidden in a thick mass of vines or foliage, often near the top of a small tree in dense jungle, and at heights varying from 12 to 40 feet or more.

Breeding-months. (July to September.) October, November and December.

MACGILLIVRAY's notes, as given by Gould read: "This bird was seen by us during the survey of the N.E. coast of Australia on the Barnard Isles, and on the adjacent shores of the mainland at Rockingham Bay in the immediate vicinity of Kennedy's first camp. On one of the Barnard Isles (No. III. on

THE BIRDS OF AUSTRALIA.

lat. 17° 43" S.) which is covered with dense brush, I found Queen Victoria's Rifle-Bird in considerable abundance. Females and young males were common, but rather shy; however, by sitting down and quietly watching in some favourite locality one or more would soon alight on a limb or branch, run along it with great celerity, stop abruptly now and then to thrust its beak under the loose bark in search of insects, and then fly off as suddenly as it had arrived. Occasionally I have seen one anxiously watching me from behind a branch, its head and neck only being visible. At this time (June) the young males were very pugnacious, and upon one occasion three of them were so intent upon their quarrel that they allowed me to approach sufficiently near to kill them all with a single charge of dust shot. The adult males were comparatively rare, always solitary and very shy. I never saw them upon the trees, but only in the thick bushes and masses of climbing plants beneath them; on detecting the vicinity of man they immediately shuffled off among the branches towards the opposite side of the thicket, and flew off for a short distance. I did not observe them to utter any call or cry; this, however, may have arisen from my attention not having been so much directed to them as to the females and young males, which I was more anxious to procure, the very different style of their colouring having led me to believe they were a new species of *Pomatostomus*."

Ramsay added: "The great stronghold of this species is the Bernard (*sic*) Islands north-east of Cardwell, a short distance from the coast. It is at times found on Hinchbrook Islands, seldom on Gould and Dunk Islands, but not unfrequently in the dense scrubs clothing the coast range near Cardwell. Once only did I meet with it on the Herbert river. Their note and habits closely resemble those of *P. paradisea*. They were in full moult during the time of my visit, February and March, and did not regain their livery until May."

Broadbent, however, "found the bird in the mountainous districts inland from Cardwell even more numerous on the western fall of the range than anywhere else. In its district it was so common that eight male birds were seen during a ride through the road in the scrub. The birds attain their full size the second year, but the plumage of the male is not perfect until the third year. During the breeding-season (July, August, and September) the male bird is continually on the move, flying or hopping, and calling almost incessantly. On this latter account he is most easily obtained at this time of the year. After September the male is very quiet. Each male bird, as though by mutual agreement, has possession of a fixed domain, possibly some hundreds of yards in extent. In this area he has absolute rule—that is, as far as he can rule—and if another male should enter on the ground a fight ensues, the victor

LESSER RIFLE-BIRD.

remaining in possession. A further interesting fact in this connection is the 'playground' used by each male bird. In early morning the bird resorts to his playground and there sports himself, now spreading his wings, and rubbing them against the surface of the playground, and then whirling round with wings expanded. This he sometimes keeps up for as long as half an hour. No trouble is taken in preparing the ground, as is the case of the Bower-Birds with their wonderful bowers. The bird simply selects the broken limb of a dead gum on the border of the scrub, a broken palm, or perhaps a dead stump; but, having chosen this, here he returns at dawn day after day, especially in the breeding-season.

Campbell, in his *Nests and Eggs*, gives a long account of the slaughter of these birds, seventeen specimens at one trip, and ten on another.

Jackson has written: "Emerging for a short space into clearer ground, I was rewarded by the sight of a splendid specimen of the Victoria Rifle-Bird (*Ptilorhis victoriæ*), which was perched on an upright stick about four feet from the ground. He was a handsome creature, a regular scrub aristocrat, and I spent something like an hour, motionless, watching him. Sooth to say, he was almost as still as I, but not quite as silent, for every now and then he would open his bill widely and utter a long, harsh note, which I can only describe as a screeching 'Ya-a-s'; this performance was varied by a constant combing of his glossy plumage, and often, when rendering its cry, a quick movement of the wings, which were opened and arched forward, then slowly folded into position again. He had no looking-glass before him, yet I think he was fully conscious of his handsome personality. I was just congratulating myself over the conviction that the sitting female could not be far away, when he took flight suddenly in a flash of gleaming colour, and with that peculiar soft, silk-rustling noise characteristic of the flight of his kind. He returned almost directly to his sentinel perch, thus still further impressing me with the idea of a nest close at hand. . . . Later, I reckoned that the bird I had watched was simply one of a newly-mated pair intent on house-building." . . . "When I came to the spot at which I had previously located a pair of Rifle-Birds, I heard their note again. The female Rifle-Bird is a regular strategist; she fools and beguiles the unwary enthusiast into following her about a quarter of a mile, till she has him exasperatingly enmeshed in a tangle of lawyer vines, and then with a turn of her tail she wheels and darts back in a direct line, leaving her victim."

Gould wrote: "This Rifle-Bird is smaller in all its admeasurements than the *Ptilorhis paradiseus*, and may be distinguished by the purple of the breast presenting the appearance of a broad pectoral band, bounded above by the scale-like feathers of the throat, and below by the abdominal band of deep

THE BIRDS OF AUSTRALIA.

oil-green, and by the broad and much more lengthened flank-feathers which show very conspicuously."

This form was reduced to subspecific rank by Rothschild some years ago, when the practice of depreciating all representative species was in vogue. I accepted that value and it has been so listed by me to the present, but an unprejudiced judgment of the characters unhesitatingly compels me to give it full specific rank.

This will apparently be accepted, as Campbell and Barnard indicated their recognition of the species when they recorded from the Rockingham Bay district: "The Victoria Rifle-Bird holds its own in fastnesses of the mountains, while one or two were heard or seen in lower localities, but always in dense scrub. A goodly percentage of the glorious full-plumaged males was observed." They quote Gould's account above given, writing: "Gould was a keen observer of species: Yet Mathews states the two birds are only subspecifically different." Gould was a keen observer of geographical differences, which he called species, but knew that they were what we generally now term "subspecies," but in this instance the geographical difference I conclude is of specific value, though other workers, such as Rothschild, still regard it as of subspecific value only.

GENUS—M A T H E W S I E L L A .

MATHEWSIELLA Iredale, Bull. Brit.

Orn. Club., Vol. XLIII., p. 39,

Nov. 29th, 1922. Type (by

original designation) *Craspedophora magnifica claudia* Mathews.

Craspedophora Gray, List Genera

Birds, 1st ed., add. and err. p. 1,

April 1840. Type (by original

designation) *Falcinellus magnificus* Vieillot.

Not—

Craspedophorus Hope, Coleopt. Manuel, Vol. II., pp. 91-165, 1838.

WHILE this genus is closely related to the preceding it shows a distinct development in the wing formation.

The bill is similarly shaped, but longer and thinner, and the nostrils even more hidden. The legs show scutes in front, but no scutation behind. The feathers of the flanks are elongated into long filaments extending beyond the tail.

The wing in the female has the first primary longer than two-thirds the length of the second, narrow but scarcely falcate; the second has a pointed tip and the others are narrow.

The male has a much more expanded bib with differently formed feathers. The wing has the first and second feathers more strongly falcate, the fourth and fifth subequal and shaved at the tips, but the sixth longest, the long secondaries equal to the third primary, which is very little less than the longest.

There are other developments of this group in New Guinea, and apparently *Ptiloris* has deviated the least from the parent stock, while the variations become more complex in New Guinea, and coloration of the females is the only guide to the relationships.

MATHEWSIELLA MAGNIFICA.

MAGNIFICENT RIFLE-BIRD.

(PLATE 592.)

- [*FALCINELLUS MAGNIFICUS* Vieillot, *Nouv. Dict. d'Hist. Nat.*, nouv. ed., Vol. XXVIII., p. 167, (about March) 1819: New Guinea. Extra-limital.]
- Craspedophora magnifica claudia* Mathews, *Austral Avian Record*, Vol. III., pt. 4, p. 72, July 21st, 1917: Claudie River, North Queensland.
- Ptiloris magnifica* Gould, in *Jardine's Contr. Orn.* 1850, p. 100; *id.*, *Birds Austr. Suppl.*, pl. 51 (pt. 1), March 15th, 1851.
- Craspedophora magnifica* Gould, *Handb. Birds Austr.*, Vol. I., p. 595, 1865; Hall, *Key Birds Austr.*, p. 9, 1899.
- Ptiloris alberti* Elliot, *Proc. Zool. Soc. (Lond.)*, 1871, p. 583, Oct. 1st: Cape York, North Queensland; *Not Ptilornis alberti* Gray, *Handl. Gen. Sp. Birds B.M.*, Vol. I., p. 105, 1869=*M. m. magnifica*.
Queensland; Gray, *Ann. Mag. Nat. Hist.*, Ser. 4, Vol. VIII., p. 365, 1871; Sharpe, *Cat. Birds Brit. Mus.*, Vol. III., p. 156, 1877; Campbell, *Nests and Eggs Austr. Birds*, Vol. I., p. 76, 1901; Macgillivray, *Emu*, Vol. XIII., p. 184, 1914; *id.*, *ib.*, Vol. XVIII., p. 211, 1918.
- Craspedophora alberti* Ramsay, *Tab. List Austr. Birds*, p. 11, 1888; Sharpe, *Mon. Birds Parad.*, Vol. I., pl. 4, 1897; Hall, *Key Birds Austr.*, p. 9, 1899; Le Souëf, *Ibis*, 1897, p. 394; North, *Austr. Mus. Spec. Cat.*, No. 1, Vol. I., p. 29, 1901; Mathews, *Handl. Birds Austral.*, p. 106, 1908; Macgillivray, *Emu*, Vol. X., p. 230, 1910; Barnard, *ib.*, Vol. XI., p. 30, 1914.
- Ptiloris magnifica alberti* Rothschild, *Ibis*, 1911, p. 366; Mathews, *Nov. Zool.*, Vol. XVIII., p. 441, 1912.
- Craspedophora magnifica alberti* Mathews, *List Birds Austr.*, p. 312, 1913.
- Craspedophora magnifica claudia* Mathews, *Austral Av. Rec.*, Vol. III., p. 72, 1917.
- Craspedophora magnifica yorki* Mathews, *ib.*, Vol. V., pt. 1, p. 8, July 17th, 1922: Cape York, Queensland.
- Mathewsiella magnifica* Mathews, *ib.*, Vol. V., pts. 2-3, p. 42, 1923.
- Mathewsiella magnifica magnifica* Mathews, *ib.*
- Mathewsiella magnifica claudia* Mathews, *ib.*
- Mathewsiella magnifica yorki* Mathews, *ib.*

DISTRIBUTION. North Queensland from Cape York to Claudie River.



H. Gronvold, del.

Witherby & Co.

MATHEWSIELLA MAGNIFICA
(MAGNIFICENT RIFLE — BIRD.)

NATIONAL MUSEUM OF NATURAL HISTORY

MAGNIFICENT RIFLE-BIRD.

Adult male. Crown of the head and nape metallic steel-green; lores, a line of feathers above the eye, sides of the face, as well as the chin and sides of the throat, glossy purple; neck, back, wing-coverts, rump and upper tail-coverts velvety-black, glossed, in some lights, with purple; tail velvety-black, central pair metallic steel-green; primaries and secondaries black, slightly glossed on the outer margin and at the tip with purple; from the chin a dense shield of metallic steel-blue plumes spreads out over the chest; margined across the chest with a velvety-black band with burnished copper reflections succeeded by a golden-green band; rest of the under-surface of the body black, glossed on the belly and abdomen with reddish-purple; flank-feathers long and silky, reaching beyond the tail. Eyes blackish-brown, feet and tarsi leaden-black, bill black. Total length 330 mm.; culmen 52, wing 185, tail 103, tarsus 42. Figured. Collected at Cape York, North Queensland, on the 5th of September, 1911, and is the type of *M. a. yorki*.

The Claudie River bird differs from the above in having the feathers on the gorget less pointed in shape and of a green colour. In the Cape York bird these feathers are pointed, and with a purplish tinge seen through the green. The Claudie River bird is also larger.

Immature male. Top of the head golden-olive, each feather margined with darker olive; back of the neck, mantle and upper-back olivaceous-brown, lighter on the rump; upper tail-coverts tinged golden-olive; tail chestnut-brown; primaries ash-brown, with the entire outer web chestnut-brown; secondaries light chestnut-brown fringed on the outer webs with brighter chestnut, some of the feathers of the wings and secondaries mixed with the black pigment of the adult male; lores, feathers round the eye and ear-coverts dusky-brown; over the eye and continued to above the ear-coverts a broad line of white; a line of dusky-brown from the angle of the lower mandible down the sides of the white throat; remainder of the under-surface dull white, mottled and barred with black, the markings less distinct on the belly and under tail-coverts, which are suffused with isabelline. Eyes black, feet and tarsi leaden-blue, bill black, corner of mouth greenish-yellow. Total length 323 mm.; culmen 50, wing 163, tail 103, tarsus 42. Figured. Collected at Cape York, North Queensland, on the 8th of September, 1913.

Adult female somewhat similar to the above.

Immature male. Top of the head and back of the neck dark olive, with many scattered metallic-blue feathers making their appearance; hind-neck and mantle olivaceous-brown, a few purplish-black feathers here and there; rump and upper tail-coverts tinged with chestnut-brown; tail light chestnut-brown, some of the feathers margined on the outer web with black; outermost primaries bluish-black, glossed on the outer web with metallic-purple, innermost primaries chestnut-brown, shaded and margined on the outer webs with black; innermost secondaries velvety-black, glossed with purple; a well-defined eye of white feathers margined with brown, a blackish malar stripe; under-surface of body dull white mottled and barred with black; a few feathers on the sides of the throat and a large shield-like patch on the chest glossy purplish-blue. Feet and tarsus leaden-black, bill black, corner of mouth yellow. This skin is about half-way through the moult from the female, or immature male plumage, to the adult.

Eggs. Two eggs form the clutch. A clutch of two eggs taken near Somerset, Cape York, North Queensland, on the 26th of December, 1899, is of a creamy-white ground-colour, beautifully marked with longitudinal streaks and spots of brownish-olive, rufous-brown and slate, the long brush-like streaks becoming more numerous at the larger end of each egg. They are not such handsome eggs as is the case with those of *P. paradisea* and *P. victoriae*. Swollen ovals in shape. Surface of shell rather fine, smooth and glossy. 32 by 24 mm.

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Nest. An open cup-shaped structure, very loosely and carelessly built, composed of dead leaves (some being rather large), also vine tendrils, fibre, etc., and lined with vine tendrils and plant fibres. Dimensions over all, 8 to 10 inches across by 5 to 7 inches in depth. Egg cavity, 4 to 5 inches across by 2 to nearly 3 inches deep. It is often placed in a Pandanus Palm, within 7 feet of the ground; sometimes built on top of a dead spout of a tree, and other situations, up as high as 40 feet. This species does not appear to use cast-off snake skins on its nests as is the habit with the other two Australian species.

Breeding-months. October to early February; May.

IN the report of Macgillivray's discoveries, mentioned under *Alphachlamydera cerviniventris*, Gould quoted Macgillivray's letter: "I have now to beg that you will examine a case of specimens, sent home to Professor Forbes, in the 'St. George,' as it contains no less than eight or nine species of birds new to the Australian Fauna, all from Cape York, and the sooner the novelties are described the better." Among the new birds was included *Ptilorhis magnificus*, and Gould accepted it as identical, explaining later: "Let me add that differences too slight to be considered specific are observable in Australian and New Guinea specimens; one of them being the greater length of the black side plumes in the New Guinea examples." The elder Macgillivray's detailed notes read: "This fine Rifle-Bird inhabits the densest of the brushes in the neighbourhood of Cape York. The natives are familiar with it under the name of 'Yagoonya'; the Darnley Islanders also recognised a skin shown them, and described it to be a native of *Dowde*, or the south coast of New Guinea, near Bristow Island. Its cry is very striking; upon being imitated by man, which may be easily done, the male bird will answer; it consists of a loud whistle resembling *wheoo* repeated three times and ending abruptly in a note like *who-o-o*. Both sexes utter the same note, but that of the male is much the loudest. The old males were generally seen about the tops of the highest trees, where, if undisturbed, they would remain long enough to utter their loud cry two or three times at intervals of from two to five minutes. If a female be near, the male frequently perches on a conspicuous dead twig in a crouching attitude, rapidly opening and closing his wings, the feathers of which by their peculiar form and texture produce a loud, rustling noise, which in the comparative stillness of these solitudes may be heard at the distance of a hundred yards, and may be faintly imitated by moving the feathers of a dead skin. The full-plumaged males are much more shy than the females or immature birds. According to the testimony of the Cape York natives, whom I questioned upon the subject, the *C. magnifica* breeds in a hollow tree and lays several white eggs. The ovary of a female shot in November, the commencement of the rainy season, contained a very large and nearly completely formed egg. From the shyness of this Rifle-Bird, it is difficult to catch

MAGNIFICENT RIFLE-BIRD.

more than a passing glimpse of it in the dense brushes which it inhabits; I once, however, saw a female running up the trunk of a tree like a Creeper, and its stomach was afterwards found to be filled with insects only, chiefly ants; while the stomach of a male, shot about the same time, contained merely a few small round berries, the fruit of a tall tree, the botanical name of which is unknown to me."

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

The previous trip by Barnard was reported upon by Le Souëf, and Campbell added some notes, stating that Barnard took fourteen clutches of eggs, but I don't think Barnard killed many birds.

Macgillivray (the younger) has written: "This bird, though fairly common still in the Cape York scrubs, has suffered a great diminution in numbers, mainly through the depredations of scientific collectors. One man alone obtained over seventy skins. It is difficult to imagine why any museum or investigator should require so large a number. The number of skins taken for scientific purposes should be limited, and the large areas of scrub on this Peninsula should be made a sanctuary for the birds, else in a few years they will be a thing of the past as well as many other rare and interesting species. They keep to the scrub, where their ordinary call, two sharp whistles, is often heard. During the nesting-season this call alters to three sharp whistles and a long sonorous one to finish up with. They feed mostly on wild fruits of various kinds."

He added later: "On my second day on the Claudie, when Mr. McLennan and I were on our way down the river in a dinghy, a female Albert Rifle-Bird flew across in front of us, closely followed by a fine male. On our way back we tied up the boat and entered the scrub. We soon found a ragged-looking nest 20 feet up in a fork of a thin tree. A female Rifle-Bird flew from it, and

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the nest was found to contain a pair of eggs. Later, a male perched near us, and was so intent on probing and examining the broken end of a dry limb that he took no notice of our presence. Soon after, Mr. McLennan, by imitating the loud insistent whistle of the male, succeeded in calling up three females, and for an instant a beautiful male with rustling plumage; they were, however, shy birds even here, where they had not been molested, and soon vanished into the recesses of the shrub. . . . Young birds were found in a nest on the 9th November. . . . The recently hatched young are fed upon insects, grasshoppers, and beetle remains being found in one that accidentally fell from a nest and was killed."

When this "magnificent" species was sent to Gould by Macgillivray from Cape York he identified it with the New Guinea species, and it was so regarded until 1871, twenty years later, when Elliot, monographing the group, separated it under the name *Ptiloris alberti*, which he found upon the label of the Australian birds in the British Museum. He observed that Mr. G. R. Gray had differentiated the form and given it the above name, but had never published nor figured it. He, however, used Gray's name in preference to giving it a new name.

Gray replied that he did not figure it as it already had been figured by Gould and, moreover, he did not agree with the publication of the name, as he did not think the differences he had first observed were valid and therefore he had sunk his unpublished MS. name as a synonym of the typical form. Consequently the name *alberti* was invalid from its introduction by Elliot, but the error was only corrected in 1922.

Macgillivray sent me specimens from the Claudie River for description and published this note: "In Mr. McLennan's opinion, the note of this species on the Claudie differs remarkably from its note as heard at Cape York. The Cape York bird, for the greater part of the year, gives voice to two loud, sharp whistles. During the breeding-season there are three loud, clear whistles and a long-drawn, diminishing note, whereas with the Claudie bird the note is the same throughout the year, and strikingly different from that of the Cape York bird."

I named the Claudie River bird, and more recently the Cape York form, so that the names of the Australian forms are now:

Mathewsiella magnifica claudia (Mathews).

Claudie River district, North Queensland.

Mathewsiella magnifica yorki (Mathews).

Cape York district, North Queensland.

GENUS—PHONYGAMMUS.

PHONYGAMMUS Lesson et Garnot, in
 Ferrussac's Bull. Sci. Nat., Vol. VIII.,
 p. 110, (March) 1826. Type (by
 monotypy) *Barita keraudrenii* Lesson et Garnot.

Also spelt—

Phonygama Lesson, Dict. Class. & Hist. Nat., Vol. XIII., p. 399, 1828.
Phonigama Cabanis, Arch. fur Naturg. (Wiegman), 1847, p. 335.
Phoneogama Agassiz, Index Univer., 12mo ed., p. 828, 1848.

Chalybæus Cuvier, Règne Animal, 2nd ed.,
 Vol. I., p. 354, April 11th, 1829.
 Type (by tautonymy) *C. paradiseus*—
M. chalybata Pennant.

Also spelt—

Calybeus Lesson, Compl. de Buffon, 2nd ed., Vol. II., p. 403, 1840.

PARADISE Birds, the sexes of which are similar, with elongate feathers on each side of the head resembling "horns," lanceolate feathers on the back of the neck, throat and upper breast, long bill, long wings, long tail and short stout legs and feet.

The bill is longer than the head, laterally compressed, with little basal expansion, tip decurved, distinctly hooked, posteriorly notched, lateral edges of upper mandible nearly straight; the nasal groove long, about one-third the length of the bill, the nostrils oval placed anteriorly in groove, feathers encroaching a little on the groove but not obscuring the nostrils; nasal bristles long and strong, rictal bristles few and obscure; the under mandible nearly as stout as the upper, the depth of both mandibles at the base more than the width, the interramal space large, triangular, fully feathered, fully half the length of the bill, gonys a little ascending.

The wing is long and rounded, the fourth, fifth and sixth subequal and longest, the third and seventh little shorter, the latter longer; the secondaries long and broad, longer than the third primary; the first primary short, a little more than half the length of the second, but less than half the length of the third.

The tail is long and regularly wedge-shaped, the feathers broad.

The legs are short and stout, the tarsus showing five scutes in front, bilaminate behind; the toes are comparatively short and stout; the middle toe longest but not longer than the inner toe and claw, the outer and inner toes subequal, all the claws long and sharp; the hind-toe long and stout, the claw medium and stout, the hind-toe and claw about equal to the middle toe and claw.

PHONYGAMMUS KERAUDRENII.

MANUCODE.

(PLATE 593.)

[BARITA KERAUDRENII Lesson et Garnot, in Ferussac's Bull. Sci. Nat., Vol. VIII., p. 110, (March) 1826: Dorey Harbour, New Guinea. Extra-limital.]

Manucodia gouldii Gray, Proc. Zool. Soc. (Lond.) 1859, p. 158, note, Oct. 1st: Cape York, Queensland.

Manucodia keraudreni Gould, Birds Austr. Suppl., pl. 9 (pt. 2), Sept. 1st, 1855.

Manucodia gouldii Gray, Proc. Zool. Soc. (Lond.) 1859, p. 158, note; Gould, Handb. Birds Austr., Vol. I., p. 236, 1865; Le Souëf, Ibis, 1898, p. 54.

Phonygama gouldii Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 181, 1877; *id.*, Monogr. Birds Parad., Vol. 2, p. 7, 1891; Hall, Key Birds Austr., 1899, p. 9; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 78, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 32, 1901; Mathews, Handl. Birds Austral., p. 107, 1908; Macgillivray, Emu, Vol. X., p. 230, 1910 (Q.); Barnard, *ib.*, Vol. XI., p. 30, 1911 (N.Q.); *id.*, *ib.*, Vol. XIII., p. 70, 1913 (Eggs); Macgillivray, *ib.*, p. 184, 1914 (N.Q.); *id.*, *ib.*, Vol. XVII., p. 211, 1918 (N.Q.).

Manucodia (Phonygama) gouldii Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 182, 1878; *id.*, Tab. List Austr. Birds, p. 11, 1888.

Phonygammus keraudreni gouldi Rothschild, Ibis, 1911, p. 367; Mathews, Nov. Zool., Vol. XVIII., p. 442, 1912; *id.*, List Birds Austr., p. 313, 1913.

Phonygammus yorki Mathews, Bull. Brit. Orn. Club, Vol. XLV., p. 17, Oct. 29th, 1924: Cape York, North Queensland.

DISTRIBUTION. North Queensland, Cape York to Claudie River district.

Adult male. Top of the head, neck, and upper back glossy steel-green; mantle glossy purplish-blue; rump and upper tail-coverts steel-green, shaded with purple; middle pair of tail-feathers bluish-purple; outer pairs of tail-feathers black, glossed with steel-green on their outer webs; feathers of the throat long, pointed, and of a glossy purplish-blue; chest bright steel-blue; abdomen, sides of the body and flanks dull oil-green; under tail-coverts black tipped with glossy-green; under wing coverts and axillaries black, margined with shining green; under-surface of quills black. Eyes rich amber, feet, bill and palate black. Total length 310 mm.; culmen 26, wing 170, tail 133, tarsus 39. Figured. Collected at Black Gin Creek, Cape York, on the 23rd of December, 1912.



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PHONYGAMMUS KERAUDRENII
 (MANUCODE.)

NATIONAL ARCHIVES

MANUCODE.

Adult female. Head, ear-coverts and long tufts on each side of the occiput metallic-green, slightly glossed with bronze; mantle and upper back metallic greenish-blue; lower back, rump and upper tail-coverts metallic bronze-green; middle pair of tail-feathers entirely greenish-blue, remainder of the tail metallic greenish-blue on the outer webs and dull black on the inner webs; wing-coverts and secondaries green, glossed with blue; primaries and outer secondaries black, widely margined on the outer webs with steel-green; innermost secondaries metallic greenish-blue; sides of the face, chin, and throat green, glossed with bronze; lanceolate feathers of the throat steel-blue; chest and upper breast oil-green; abdomen and under tail-coverts dull black, devoid of gloss. Eyes crimson, feet, bill and palate black. Total length 300 mm.; culmen 26, wing 156, tail 126, tarsus 36. Figured. Collected at Utingu, Cape York, on the 24th of September, 1912.

The upper-surface of the adult female is distinctly greenish, that of the male is bluish or purplish-green.

Immature female. Top of the head, back of the neck, mantle, upper back and wing-coverts dull purplish-blue, with one or two bright metallic-green feathers making their appearance; rump brownish-black, slightly glossed with purple; upper tail-coverts and tail dull bluish-purple; primaries and outer secondaries black, glossed on the outer web with bluish-purple; innermost secondaries uniform dull purplish-blue; entire under-surface smoky-black, glossed on the chest with dull purplish-blue. Eyes amber-colour, feet and bill black. Collected at Cape York on the 22nd of August, 1912.

Eggs. Two eggs form the clutch. A clutch of two eggs taken at Lockerbie, Cape York, North Queensland, on the 19th of December, 1910, is of a pale purplish-pink ground-colour, well marked with short longitudinal streaks and spots of reddish-chestnut, purple and purplish-grey, the markings becoming more numerous towards the larger end of each egg. Rather oval in shape. Surface of shell close-grained, smooth and slightly glossy. 35-36 by 23 mm.

Nest. An open and rather shallow structure, composed almost entirely of strong curly tendrils of vines and creeping plants, well worked in and woven together, lined with finer ones. Dimensions over all, 6 to nearly 9 inches across by 4 to nearly 5 inches in depth. Egg cavity, $3\frac{1}{2}$ to $4\frac{1}{2}$ inches across by $1\frac{1}{2}$ to over 2 inches deep. Nest is built in a tree, usually at some bushy part, and placed in a small forked branch; situated at heights varying from 20 to nearly 70 feet.

Breeding-months. October to end of January.

THIS species was sent by Macgillivray with the preceding under the name *Chalybæus cornutus*, and here again Gould did not detect any difference. No field-notes were given.

Le Souëf published Barnard's notes, but more recently Barnard has given a full account, which is here reproduced: "These birds are only found in the scrub and are very shy, except on the nest, when it is difficult to flush them. The nest is constructed of vine tendrils, and somewhat resembles that of *Chibra bracteata*, but is larger in size, while the eggs can be seen through the nest from the ground. Nest is usually placed in the topmost branches of a tree, at heights varying from 20 to 70 feet from the ground. All the clutches taken consisted of two eggs. The following notes on the Manucode may be of interest to bird-

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lovers, and also as an aid to future collectors in securing their eggs. Shortly after my arrival at Lockerbie, and while watching a pair of Manucodes, I noticed a pair of Butcher-Birds (*Cracticus quoyi*) (*rufescens*) building their stick nest in a small tree, and soon afterwards located the unfinished nest of the Manucodes in a tree about 30 yards from that of *Cracticus quoyi*. The Manucodes finished building first, and I secured a pair of eggs from their nest. One egg was laid in the Butcher-Bird's nest, and some wild creature took it, and the birds left the locality. Sometime afterwards I located another nest of *Cracticus quoyi*, containing one egg, and here also was a pair of Manucodes. After watching them for some time I found that they were building in a small tree, about 50 yards distant from the tree in which the Butcher-Bird's nest was built. Both nests were about 50 yards from the scrub, in forest country. Five days later I returned and secured the eggs of the Butcher-Bird, the Manucode's nest being almost completed at the time. The same day, about half a mile away, I found another nest of *C. quoyi*, containing four eggs, which I took. On descending the tree I noticed a pair of Manucodes a short distance away, and, as they seemed uneasy, I decided to watch them. After about an hour had passed, one of the birds flew into the top of a tall tree, between 30 and 40 yards distant from the tree from which I had recently taken the eggs of *C. quoyi*, and, on investigation, I found an almost completed nest. I returned to camp well satisfied, and about a week later visited the nests, only to find to my intense disgust that both were deserted, and that there were no signs of the birds about. Even then I did not grasp the idea that the birds had forsaken their nests because the Butcher-Birds had left the locality. In a week's time I found another nest of *C. quoyi*, containing eggs, and a Manucode's nest building in a tree about 50 yards away. I took the eggs of the former species, and returned in seven days to find that history had repeated itself, the birds were gone. Then I realized that the Manucodes built near *C. quoyi* for protection, and that if *C. quoyi* were disturbed, they left too. I now determined to hunt up all the nests of *C. quoyi* that I could, but, though I located several, I did not find the Manucodes also. Finally I found a pair of Butcher-Birds, and with them a pair of Manucodes. For several days I watched the birds without result, then gave up, but returned after ten days. The Butcher-Birds were quiet, but the Manucodes were very restless when they saw me. As it was forest country, and near the edge of the scrub, I retired some distance and hid. After waiting some time, a White Cockatoo (*Cacatua galerita*) came slowly along and perched on the top of a bushy tree about 50 yards from the scrub. Instantly both the Butcher-Birds arrived, and a lively time ensued, which ended in all three birds landing on the ground at the foot of a tree. After putting up a good fight for a while, the Cockatoo

MANUCODE.

left hurriedly, with both Butcher-Birds in hot pursuit. They returned, and one flew directly into the top of the tree where the intruder had been, and remained there. 'Nest No. 1,' I thought. This time the Manucodes remained in the tree in which I had first seen them. One of them, however, flew into a thick clump of leaves in a thin bloodwood (*Eucalyptus*). I waited some time, and, as the bird did not reappear, I knew that I had located 'Nest No. 2.' The Manucode's nest contained two fresh eggs, that of the Butcher-Bird a small young one. I had now disturbed both the *C. quoyi* and Manucodes for a considerable distance around. A few days later I heard, in a different locality, the warbling note of *C. quoyi* in forest country, about 200 yards from a scrub. I instantly made towards the sound, and while I was doing so a Manucode flew directly over my head and made for the scrub. I soon located the Butcher-Bird, and after watching her a while, had the satisfaction of seeing her fly on to her nest, which contained eggs. I then began to search every tree, and found the Manucode's nest in the top of a thick bushy tree. The nest was not complete, and I did not touch the Butcher-Bird's eggs. Eight days later I took a very fine pair of Manucode's eggs from this nest."

Macgillivray (the younger) has recorded McLennan's accounts of his experiences, where, following Barnard's note, he was able to confirm it in detail. I only quote an additional item: "Saw one of these birds fly into a rubber tree about 50 yards from the Butcher-Bird's nest. In a few minutes its mate flew into the same tree with some building material. They were just starting a nest. I watched them for about half an hour, and twice in that period the male bird flew into the scrub and returned with a vine tendril and added it to the nest. The rest of the time he spent in an adjoining tree, uttering his peculiar call and preening his feathers. The female was exceedingly busy gathering her nesting material—aerial rootlets from the tree in which she was building—occasionally uttering a harsh croak in answer to her mate's more melodious call."

Later, Macgillivray added: "The Manucode (for no better or more euphonious vernacular name could be given it) is fairly common in the scrubs of the Claudie River. It keeps, however, to the roof of the scrub, and is not easily detected. With its double crest and shining black plumage it is a handsome bird. The irides are orange, bill yellow, gape black, mouth and throat blue-black, feet and legs black, and soles of feet greyish."

The Cape York form was separated as a different species many years ago on account of its oily-green coloration where the New Guinea form has purple-blue. Rothschild, the first specialist in the world on Paradise Birds, regarded the differences as of subspecific value only, and in this respect I followed him. As Rothschild's views of subspecies are very broad, including many forms I

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regard as distinct geographical species, I re-examined the material, and find that there is a problem which cannot be easily determined at present. Thus the oily-green coloration is easily seen and the birds are easily separable, but some birds are met with in New Guinea with the same coloration. It may be that this is a seasonal change in the New Guinea birds, but the material available does not enable a decision to be made. If it be not, then two species would need to be recognised, but as very few birds are yet known it seems best to be conservative, as these iridescent colours are difficult to judge, in some cases the plumage may vary from purple to green without any known reason. The Claudie River bird, however, should be separated, so that we have two subspecies in North Queensland, exactly as in the case of the preceding species.

GENUS—CORVUS.

- CORVUS Linné, Syst. Nat., 10th ed., p. 105,
 Jan. 1st, 1758. Type (by tautonymy) .. *Corvus corax* Linné.
- Corone* Kaup, Skizz. Entwick-Gesch. Nat.
 Syst., p. 99, (pref. April) 1829. Type (by
 tautonymy) *Corvus corone* Linné.
- Pterocorax* Kaup, Journ. für Orn., 1854, p. LV.
 Type (by monotypy) *Corvus scapulatus* Daudin
 =*C. albus*.

LARGEST Passeriform birds, with long stout bills, long wings, long tail and long stout legs and feet.

The bill is longer than the head, the culmen arched, tip sharp, moderately laterally compressed with little basal expansion, so that the depth at the base is about equal to the width; culmen semi-keeled; the under mandible nearly as stout as the upper, interramal space large, triangular, scantily feathered, the gonys less than half the length of the bill, a little ascending, not angulate; rictal bristles prominent, nasal bristles long and thick, entirely covering the nostrils which are almost circular apertures in deep nasal groove, about one-third the length of the culmen.

The wing has the third primary longest, the fourth and fifth a little shorter, the sixth shorter than the second, which is shorter than the fifth; the first primary a little more than half the length of the third and about equal to the secondaries.

The tail is long and rounded.

The feet are long and strong, the front of the tarsus strongly scutate, the hind portion bilaminate; the toes long and stout, the outer about equal to the inner, the inner toe and claw equal to the middle toe alone, the hind-toe longest and stoutest, the claws short, the hind-claw longest and stoutest.

CORVUS CORONOIDES.

RAVEN.

(PLATES 594, 597.)

- CORVUS CORONOIDES Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 261, Feb. 17th, 1827: New South Wales.
- Corvus coronoides* Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 261, Feb. 17th, 1827; Gould, Birds Austr., pt. xx. (Vol. IV., pl. 18), Sept. 1st, 1845; Ogilvie Grant, Bull. Brit. Orn. Club., Vol. XXIX., p. 70, 1912; Anon., Emu, Vol. XII., p. 44, 1912; S. A. White, *ib.*, Vol. XIII., p. 32, 1913 (S.A.); Alexander, *ib.*, Vol. XVI., p. 33, 1916 (W.A.); Cleland, *ib.*, Vol. XVIII., p. 283, 1919 (N.S.W.); S. A. White, *ib.*, Vol. XX., p. 129, 1921 (W.A.); Ashby, *ib.*, p. 136, 1921 (W.A.); Alexander, *ib.*, p. 168, 1921 (W.A.).
- Corvus coroneoides* Wagler, Syst. Av. Corvus, sp. addita, (Oct.) 1827: New Holland = New South Wales.
- Corvus affinis* Brehm, Isis, 1845, heft 5, col. 357, May: New South Wales. Not *Corvus affinis* Shaw, Gen. Zool., Vol. VII., p. 381, 1809.
- Corvus australis* Gould, Handb. Birds Austr., Vol. I., p. 475, 1866; Diggles, Ornith. Austr., pt. xvi., 1868; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; Mellor and White, Emu, Vol. XII., p. 164, 1913 (Flinders I.); Chandler, *ib.*, Vol. XIII., p. 44, 1913 (Vic.); (?) Orton and Sandland, *ib.*, p. 80 (W.A.); Macgillivray, *ib.*, p. 185, 1914 (N.Q.); Howe and Tregellas, *ib.*, Vol. XIV., p. 74, pl. vi. (Vic.); Jackson, *ib.*, Vol. XVIII., p. 167, 1919 (N.S.W.).
- Corone australis* Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 37, 1877; Ramsay, Tab. List Austr. Birds, p. 12, 1888; Hall, Key Birds Austr., p. 7, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 55, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 5, 1901; Hill, Emu, Vol. II., p. 164, 1903 (Vic.); A. G. Campbell, *ib.*, p. 205, 1903 (King I.); Hill, *ib.*, Vol. III., p. 105 (W.A.); Littler, *ib.*, p. 214 (Tas.); (?) Milligan, *ib.*, Vol. IV., p. 8, 1904 (Wongan Hills, W.A.); (?) Berney, *ib.*, Vol. V., p. 20, 1905 (N.Q.); G. F. Hill, *ib.*, Vol. VI., p. 177, 1907 (Vic.); Batey, *ib.*, Vol. VII., p. 4, 1907 (Vic.); Dove, *ib.*, p. 112, 1907 (Tas.); MacLaine, *ib.*, p. 192, 1908 (Bass St.); Chisholm, *ib.*, Vol. VIII., p. 100 (Vic.); Mathews, Handl. Birds Austral., p. 107, 1908; Whitlock, Emu, Vol. VIII., p. 179, 1909 (W.A.); Gibson, *ib.*, Vol. IX., p. 72, 1909 (W.A.); Macgillivray, *ib.*, Vol. X., p. 24, 1910 (N.S.W.); Littler, Handb. Birds Tasm., p. 12, 1910; Gubanyi, Emu, Vol. X.,



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p. 120, 1910 (N.S.W.); Cleland, *ib.*, Vol. XI., p. 93, 1911 (N.S.W., Food); S. A. White, *ib.*, Vol. XII., p. 4, 1912 (S.A.).

Corvus marianæ Mathews, *Emu*, Vol. X., pt. 5, p. 326, April 1st, 1911; new name for *Corvus australis* Gould, i.e. Sharpe: Gosford, New South Wales.

(?) *Corvus coronoides perplexus* Mathews, *Nov. Zool.*, Vol. XVIII., p. 442, Jan. 31st, 1912: Perth, South-west Australia; *id.*, *List Birds Austr.*, p. 313, 1913; Belcher, *Birds Geelong*, p. 366, 1914; (?) S. A. White, *Emu*, Vol. XIV., p. 191, 1915: Central Australia; *id.*, *ib.*, Vol. XVI., p. 151, 1916 (S.A.); *id.*, *ib.*, Vol. XVI., p. 76, 1916 (S.A.).

Corvus marianæ marianæ Mathews, *Nov. Zool.*, Vol. XVIII., p. 443, Jan. 31st, 1912.

Corvus marianæ mellori Mathews, *ib.*: Angas Plains, South Australia.

Corvus marianæ halmaturinus Mathews, *ib.*: Kangaroo Island, South Australia.

Corvus marianæ tasmanicus Mathews, *ib.*: Tasmania.

Corvus coronoides coronoides Mathews, *List Birds Austr.*, p. 313, 1913.

Corvus coronoides tasmanicus Mathews, *ib.* p. 314.

DISTRIBUTION. Southern Australia; Coastal from Sydney, New South Wales, to (?) Perth, South-west Australia; Tasmania.

Adult. All the contour feathers with the bases smoky-grey. General colour of both the upper- and under-parts black, glossed with bluish-purple, brightest on the upper-surface and dullest on the belly. The feathers on the throat lanceolate in shape. These feathers seem more pronounced in the so-called "Raven" (dark bases) than in the Crow, where the feathers are always pure white at the base. Bill and feet black, eyes hazel. Total length 572 mm.; culmen 61, wing 362, tail 190, tarsus 72. Figured. Collected in Tasmania in 1876, and is the type of *C. c. tasmanicus*.

The sexes are alike.

Half grown. Head dull black, slightly glossed with purple; back, rump and upper tail-coverts smoky-black, each feather widely edged with purple-blue; tail uniform purplish-blue; primaries black, with the outer web dull metallic-blue; secondaries black, strongly glossed with purple; entire under-surface dull smoky-black. Collected at Tareoon, near Brewarina, New South Wales.

Immature female just out of nest. Top of the head and back of the neck dull smoky-black; mantle and back smoke-grey, widely tipped with glossy purplish-blue, producing a spangled appearance; tail-feathers glossy purplish-blue; primaries and secondaries black, strongly glossed on the outer web with purplish-blue, and on the inner web slightly glossed with purplish-blue; entire under-surface dull smoky-black. Eyes dull blue, feet black with white lines along toe nails, legs black with white joints, upper mandible black with white tip, lower white with black tip. Collected on Warunda Creek, Eyres Peninsula, South Australia, on the 28th of August, 1911.

All these birds have darkish bases to the feathers.

Eggs. Four to five eggs form the clutch, and sometimes six. A clutch of five eggs taken at Ellerston, Upper Hunter River district, New South Wales, on the 12th of August, 1909, is a pale green ground-colour, spotted, speckled and blotched with blackish-brown and light umber, the markings being larger and more plentiful at the larger end of each egg. Ovals in shape. Surface of shell close-grained, smooth and slightly glossy. 45-47 by 32 mm.

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Nest. A large open structure and rather deep; composed of sticks and twigs, lined with strips of bark, grasses, hair, wool, etc. Dimensions over all, 18 to 20 inches across by 9 to 14 inches in depth. Egg cavity, 7 to 8 inches across by 4 to nearly 5 inches deep. Usually placed high up in the forked branches of a large tree, at heights varying from 30 to 90 feet or more.

Breeding-months. August to end of December; sometimes as early as July, and as late as January.

CROWS are mentioned by the early travellers, but simply as Crows, of no importance nor interest.

Vigors and Horsfield, however, upon their examination of the collection of Australian birds in the Linnean Society's Museum, found the specimens worth describing as a new species, writing: "This bird has a very general resemblance to our common species, *C. corone*. It is to be distinguished chiefly by its superior size, its length being twenty-two inches, while that of the European species is eighteen inches. The bill also differs. In our bird this member is much more elongated in proportion to its size; the *culmen* is less rounded and arched, and the *gonys* of the under-mandible less prominent; it is also less smooth and glossy than in *C. corone*. In Mr. Caley's MSS. are the following remarks: 'This bird is gregarious and not to be met with at all times. Its native name is Wa'gan. Moowattin, a native follower of mine, tells me that it makes its nest like the *Ca' ruck* (*Cr. tibicen*), but that he never met with more than one nest, which was in a *Coray'bo* tree, at the Devil's Back, about four miles from Prospect Hill. He and several other natives at first took it to be a *Curraygin's* (*Scythrops*) nest. There were two young ones in it, and the broken shells of two eggs, which were quite black. There was a quantity of dung under the tree. I have observed that the croak of this bird is not so hoarse as that of *C. corone*. This was also remarked by the same native when with me in this country (England) on his hearing a Crow one morning near Fulham. The people in the colony say that it will devour chickens; this I rather doubt.' In a subsequent note, Mr. Caley says that he remembers once or twice meeting with a single bird of this species; and once more, particularly in the month of November 1804, when in the roughest part of the mountains, he observed for several days a pair of them flying about. The people who accompanied him observed that they must be lost, or they would never remain in so dreary a country. On the whole, however, he considered them as gregarious."

Gould, under the name White-eyed Crow, wrote: "This species is so intermediate in size, in the development of the feathers of the throat, in its voice, and in many parts of its economy, between the Carrion-Crow and Raven of our own island, that it is difficult to say to which of those species it is most nearly

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allied. I prefer, however, placing it among the true Crows to assigning it to a companionship with the larger members of the family. Every part of Australia yet explored has been found to be inhabited by it; some slight difference, however, is observable between individuals from Port Essington, Swan River, Tasmania, and New South Wales, but these differences appear to me to be too trivial to be regarded as specific; specimens from Western Australia are somewhat less in size than those procured in the other localities mentioned, while Port Essington examples have the basal portion of the feathers on the back of the neck greyish-white, which is not the case with those inhabiting the south coast. When the birds are fully adult, the colour of the eye is white, I believe, in the whole of them—a circumstance which tends to strengthen the opinion I entertain of their being one and the same species. In Western Australia, for the greater part of the year, this bird is met with in pairs or singly; but in May and June it congregates in families of from twenty to fifty, and is then very destructive to the farmers' seed crops, which appear to be its only inducement for assembling together, as it is not known to congregate at any other period. In New South Wales and Tasmania it is also usually seen in pairs, but occasionally congregated in small flocks. At Port Essington, where it is mostly seen in pairs, in quiet secluded places, it is not so abundant as in other parts of Australia. The stomach is tolerably muscular, and the food consists of insects, carrion of all kinds, berries, seeds, grain and other vegetable substances. Its croak very much resembles that of the Carrion-Crow, but differs in the last note being lengthened to a great extent."

Mr. Thos. P. Austin has written me from Cobbora, New South Wales, under name "*Corone australis*. This well-known villain of a bird is too numerous at all times throughout the district, but is more frequently met with in the open country, although they often resort to the ironbark ranges to breed, usually choosing a very large tree in which to place their nest, and if the eggs are destroyed, they will often lay another clutch in the same nest within a few days. The earliest date I have taken their eggs is July 7th and the latest October 14th, the latter probably being a second laying. Most of them lay during July and August, and the clutch is generally four or five, but it is no unusual thing to find six. During droughts, when sheep are in low condition, also in the lambing season, these birds do a great amount of damage; stock-owners as a rule do all they can (which is very little) to destroy them, which is no easy matter. When poor sheep get down, they are almost immediately attacked by these birds, first pecking out an eye or both, from which treatment I have never known a sheep to recover; whether this is owing to the fact that the Raven, being a carrion feeder, causes blood poisoning, remains to be proved. Few people have a good word to say for them, and fewer still ever fail to try

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and shoot a Raven if the opportunity arises. But excepting during the above-mentioned times they do little damage, the worst probably being the taking of chickens, young turkeys and eggs, at which they are experts, and their depredations in the fowl-yard are only too well known to most people living in the country where Ravens abound. The bird is therefore condemned by most people as a curse to the country and probably not without reason, but on the other hand it has much in its favour, so I will now mention some of its good traits: the bird being a scavenger, clears up a vast amount of offal and carcasses of dead animals, destroying thousands of noxious insects, maggots and even blow-flies themselves. Dead stock and rabbits, etc., are so destroyed that nothing but skin and bone remain, and the maggots are destroyed that would otherwise have entered the ground and escaped eventually to do their damage later on. I consider that the Raven is our best natural enemy of the blow-fly and is also a most effective enemy of grasshoppers in certain stages. While there is no question as to the damage done in some districts to ewes and lambs in bad seasons, at other times of the year it is a friend in disguise, so if it would only leave the sheep alone it would be one of our most useful birds. For some years off and on I have been trying to make a study of the colour of its eyes, but so far have not been able to come to any definite decision. At one time I thought the eyes might turn white with age, but a friend took me to see a bird in captivity with brown eyes, and upon questioning the owner, he informed me that he had had the bird for many years, and the eyes were always brown. This bird, I might mention, is a splendid talker. Great numbers of these birds come to my slaughter-yard to feed and if not interfered with become very daring. This yard is only about fifty yards from a drayshed, through the walls of which I have cut loop-holes to shoot them with a small rifle, and from here have shot dozens of them and find that just as many have brown eyes as white. But all which I have shot at a nest have had white eyes, while I have examined many during the non-breeding season with white eyes. They are most difficult birds to poison; if they take anything containing strychnine they just simply throw it up again immediately; fat and phosphorus are the best, but they soon become very cunning about it. I once took a bullock's head and offal from my slaughter-yard out into a paddock and smeared it with fat and phosphorus; after the first day not a Raven came near it, and it all just simply decayed where I placed it. Another time, as the Ravens were destroying eggs, I took a fowl's egg and put some cyanide in it and placed it in the open. A Raven soon discovered it and in a few minutes fifteen were standing round it in a circle. Then one walked up, had a few pecks at it, walked away and was sick; then it flew away, the rest followed and the egg was left there till I smashed it."

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Hill has observed: "Common at Geelong. I do not remember having seen a Raven or a Crow in the Otways."

A. G. Campbell has stated: "Parties of these birds frequently cross the Straits (to King Island) to and from Tasmania."

Berney, from the Richmond district, North Queensland, states: "The Raven appears far from common out this way."

Batey has written from Victoria: "One of my brothers maintained, long years ago, that we had both Crows and Ravens, but I could not distinguish them then. Both Crows and Ravens, I should say, are very useful birds in destroying insect life of all kinds, either in the matured or larva state, though they are also pests on fruit."

Maclaine has noted from Clarke Island, Bass Strait: "The Raven—the grazier's arch-enemy—is, like the poor, always with us, and a very wary fellow he is. He seems to have his eye everywhere, and if fired at without success is always on the *qui vive*. When the Mutton-Birds (*Puffinus tenuirostris*) are about half fledged, one will often see a score of Ravens, in company with the Pacific Gulls (*Gabianus pacificus*), amongst the rookeries, and if a young bird unwarily approaches the mouth of the burrow, he is soon taken by these depredators.

Chisholm wrote about the "Crow" at Charlotte Plains, twelve miles from Maryborough, Victoria, and the Editors of the *Emu* noted this should have been "Raven."

From the Pilbarra Goldfield, Whitlock wrote: "All the Crows I examined were Ravens. It is, of course, possible that the Crow occurs too."

Gibson, cataloguing the birds observed between Kalgoorlie and Eucla, wrote "*Crow*. Common everywhere until the plain country is reached; here they are replaced by the Raven. *Raven*. Fairly common on the plains and in the coastal districts westerly as far as Ballardonia; here both Crows and Ravens were identified, but this appears to be the latter's western limit."

Macgillivray, writing about the region of the Barrier Range, has recorded: "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 thirteen 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

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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 larvæ, and the stench which assailed our nostrils when the crops were opened did not tempt us to pursue our investigations further in that direction."

Mr. F. E. Howe has written me: "*Corvus coronoides* was very plentiful all through the Mallee and many nests, all containing young, were noticed in Oct. 1909. *Corone australis* is very plentiful all about the plains near Melbourne. They have been observed nesting at Parwon, Little River, and Whittlesea, also at Ringwood."

This reads as though the Mallee birds were distinct from the southern Victorian Ravens.

Mr. E. J. Christian states: "In this part Crows are very common, in fact, too common, and are often seen with Ravens. The Crow differs from the Raven chiefly in two aspects, firstly he has a white skin round the eye, and secondly the base of his plumage is white while that of the Raven is dark brown." This may simply be the general features commonly given.

Littler has written from Tasmania: "Raven. Too plentiful to be appreciated. Called by everyone 'Crows.' I took particular care to examine every specimen I could lay my hands on—quite a number—and found them to be in every instance Ravens."

Dove, a little later, wrote: "There seems to be an impression abroad in many quarters that the Crow (*Corone australis* Gould) is not found in Tasmania, but that all our birds are Ravens (*Corvus coronoides* V. and H.). . . . Recently I have examined five or six specimens from this district (Launceston) (some in the presence of Mr. H. C. Thompson) and all had snow-white bases to the feathers. Has any Tasmanian specimen been found with the dark feather bases?"

I think the explanation of this difference of opinion is that old "Ravens" have pale, nearly white bases to the feathers of the back of the neck, but these birds have dusky bases to the body-feathers.

Mellor and White, reporting upon the Birds of Flinders Islands, included "*Corvus australis (tasmanicus)*. Tasmanian Raven. Many Ravens were seen flying high over the island. As soon as specimens were secured, Mr. Mathews was supported in his making a subspecific distinction, because the great size of the bill is evident at once in the Tasmanian form."

Captain S. A. White has made several notes as to the difficulty he has had in distinguishing them, but owing to their wary nature long series have never been collected. Thus, in the report of his Trip to the Gawler Ranges, he included: "Crows seen in many places, but were very difficult to approach.

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A few specimens were procured: one had the base of the feathers perfectly white." From Central Australia: "I am completely puzzled by these birds. Skins were collected with white basal half to feathers, while others had them almost black. The majority had white eyes; a few had hazel or light brown eyes."

Only one species of Crow or Raven was recognised by Gould, who noted that the form was exactly intermediate between a Crow and Raven, and both Vigors and Horsfield, and Wagler, called the species *Corvus coronoides*. When Sharpe prepared *The Catalogue of the Birds in the British Museum* he separated two species, even placing them in different genera, both about the same size and colour, but one having the feathers of the neck and body snow-white at their bases, which he called *Corvus coronoides*, and the other with the bases of the feathers dusky-brown or black which he called *Corone australis*. The former was the Crow of Australians, the latter the Raven, but the genus *Corvus* was based on the European Raven, the genus *Corone* on the European Crow. Sharpe's conclusions were probably influenced by Ramsay's account wherein the colour of the eyes was noted.

The generic differences used by Sharpe for *Corvus* and *Corone* were that in the former the first primary was equal to or exceeding the innermost secondaries, and in the latter was shorter than the innermost secondaries but longer than outer secondaries, a somewhat subtle difference.

On the authority of *The British Museum Catalogue* the two species were recognised by Australians and a clear account is given by Campbell in his *Nests and Eggs*, p. 54, as follows: "The Raven is the larger bird, has eyes white in the adult, and wears conspicuous long feathers on its throat, and has the base of the feathers on the hind-part of its neck and back of a *dusky-brown* or *sooty* colour; while the true Crow has white eyes likewise, but the base of the feathers is *snow-white*. . . . The Crow is probably the more northern and western bird. I have received skins or feathers from various parts of the Continent and Tasmania. They have all pertained to Ravens, except those from near the Tropics, which were Crows. I examined several skins in the Hobart Museum; also all Ravens. Sample heads from Mr. Tom Carter, North-west Cape, were those of Crows, and were accompanied by the statement that the white-eyed birds had inside of mouth and tongue blue-black, while those with brown eyes had the mouth pink. Probably the latter were youthful birds."

Simultaneously, North distinguished as a distinct species a small bird living in the interior with white bases to the feathers like the Northern Crow.

When I prepared my "Reference List" in 1912 I noted that there were differences in detail as well as the three species above noted. I had a fair series and did not hesitate to determine subspecies, but of course classed them all

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in one genus *Corvus*. The name in use for the Raven was *Corone australis* as of Gould, not Gmelin. As such usage was incorrect, I renamed this species *Corvus mairanæ*.

I then arranged the species as follows:—

Corvus coronoides coronoides Vigors and Horsfield.

New South Wales.

Corvus coronoides cecilæ Mathews.

“Differs from *C. c. coronoides* in its smaller size, wing 355·6 mm. (the type of *C. c. coronoides* 361 mm.) (but the average is over 370 mm.). (Napier Broome Bay) North-west Australia.”

North-west Australia.

Corvus coronoides perplexus Mathews.

“Differs from *C. c. coronoides* in its much smaller size; wing 314–327 mm. Perth, West Australia.

South-west Australia.

This referred to the Crow with snow-white bases to the feathers, accepting Vigors and Horsfield's name, following Sharpe.

I then allowed the Small-billed Crow with three subspecies:

Corvus bennetti bennetti North.

New South Wales, South Australia.

Corvus bennetti bonhoti Mathews.

“Differs from *C. b. bennetti* in its smaller size generally; wing 295 mm. Murchison, West Australia.”

West Australia.

Corvus bennetti queenslandicus Mathews.

“Differs from *C. b. bennetti* in having a deeper and stouter bill and thicker tarsi. (Dawson River) Queensland.”

Queensland.

For the Raven I used *C. mairanæ* and made four subspecies:

Corvus mairanæ mairanæ Mathews.

New South Wales.

Corvus mairanæ melli Mathews.

“Differs from *C. m. mairanæ* in its smaller size (wing 326–330 mm.), and from *C. b. bennetti* in the grey bases to the feathers. (Angas Plains) South Australia.”

Victoria; South Australia; South-west Australia.

Corvus mairanæ halmaturinus Mathews.

“Differs from *C. m. melli* in its smaller size; wing 291 mm. Kangaroo Island, South Australia.”

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Corvus marianæ tasmanicus Mathews.

"Differs from *C. m. marianæ* in its much longer bill, 67 mm. ; typical *marianæ* 58-60 mm."

Tasmania.

At the same time as this was published, Ogilvie-Grant was engaged in preparing the *Catalogue of Birds' Eggs in the British Museum*, and separating the Ravens' from the Crows' eggs examined the birds and concluded that Sharpe was wrong, and although the bases of the feathers of the type of *Corvus coronoides* were whitish, they were not snow-white, and that it was a Raven and not a Crow as generally understood. He was about to name the Crow as a new species when I drew his attention to my published account. He thereupon criticized that from the view-point of a lumpner and published his account, which was reprinted in the *Emu*. He admitted three species, but used the name *Corvus coronoides* for the Raven, the name *Corvus cecilæ* for the Crow, and *Corvus bennetti* for the Small-billed Crow or Jackdaw. He wrote: "I am glad to say that he (Mr. Mathews) now entirely agrees with me on all the main points at issue concerning the Australian *Corvidæ*, and their synonymy, as given below." This was not accurately worded, but I did not wish to enter into a controversy, as most of the points were matters of opinion, not of facts. It seems, however, not quite true that Sharpe made the mistake in considering Vigers and Horsfield's type, which he had before him, as a Crow, whereas it was the Raven, according to Ogilvie-Grant. As a matter of fact the bases of the feathers are white, and I think the matter cannot be settled by examination of it alone, but that a series of these birds should be collected near Sydney, say fifty, without any selection and sent to the British Museum for comparison. I think until then the matter cannot be definitely determined, and consequently have followed Ogilvie-Grant's determination, without prejudice, until a final adjudication of the type-specimen with a series.

Consequently, I am using the species names proposed by Ogilvie-Grant in order to avoid further confusion, but note that I do not consider the matter at all settled. As above noted, I decided not to interfere at that time, but endeavoured to procure specimens to satisfy myself upon the points at issue. Unfortunately through this bird being so common and injurious, I was unable to get much satisfaction, my correspondents generally feeling there was more interest in searching for new birds' eggs, etc., than killing and preserving Common Crows.

Meanwhile, another complication was introduced by the action of a young German ornithologist, who, working upon the birds of the Moluccas, reviewed the Crows of Australia and lumped all the three species into one. This review was published in a German periodical during the war, the data having been

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prepared before that event, and I gave a short note of his results in the *Emu*.

As all Crows are "black," Stresemann lumped all the species from Japan to Tasmania as one species, and then allowed twenty subspecies, a somewhat incongruous assemblage. When he treated the Australian birds, ignorant of the nature of the land and confusing localities, he allowed four subspecies as follows:

Corvus coronoides coronoides Vigors and Horsfield.

New South Wales.

Average wing-length, 359 mm. Average bill length, 55.8 mm.

Corvus coronoides perplexus Mathews.

Victoria, South Australia, Tasmania and South-west Australia.

Average wing-length Victoria ex 335.9; South Australia, 333.0; South-west Australia (Albany 345, Perth 315 mm.); Tasmania, 337, 341, 342, 361; Average bill length Victoria 50.8; South Australia, 50.8; South-west Australia (Albany 52, Perth 49 mm.); Tasmania, 54, 55, 57, 63.

He queried the Tasmanian examples as different.

Corvus coronoides bennetti North.

Cape York, Queensland.

Average length, 322 mm. Average bill length, 51.5.

Corvus coronoides cecilæ Mathews.

Northern Territory, North-west Australia and South-west Australia.

Average wing-length, 335.2 mm. Average bill-length, 53.5 mm.

The inaccuracies of this arrangement are obvious.

The New South Wales form is considered a distinct subspecies, and then North's *C. bennetti*, which was described from the interior of Southern New South Wales, is used for Cape York birds, my *C. b. queenslandicus*, which Ogilvie-Grant pointed out were not *C. bennetti*.

The series Stresemann examined was that received from Cape York, collected by Kemp after Ogilvie-Grant's account appeared. The figures given by Stresemann and included in his averages represent many birds of the first year, and the full adults vary from about 325-355, giving an average of 330-335, which represents the Cape York subspecies, the bill in the adult is from 52-55. North's *C. bennetti*, which is very distinct, has a wing-length of 312 mm. and a bill-length of 47-48.5. Moreover, an item which is often overlooked is that while the bill-length and wing-length are used for comparisons, no notice is taken of bulk, which in this case is very different, as the bulk of *C. bennetti* is noticeably less than that of *C. queenslandicus*.

Under *C. c. cecilæ*, Stresemann includes the Fitzroy Range birds, with wings 306, 312 and 317, with the Napier Broome Bay birds, with wings 354, 355, 357,

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although Rogers and others had pointed out that these birds were altogether different in habits, etc. From Point Cloates two birds, one 309, the other 333, and from Kalgoorlie 343 and Carnarvon 304, are lumped so that by means of this an average is reached which does not show the facts in any way, but misleads the superficial student as it already has done. Having thus confused the matters at issue, Stresemann did not detail the bill lengths but simply lumped them as varying from 46–59, average 53·5 mm.

Yet the facts seem clear that there are three species in Australia, a Northern, Central and Southern one. That they are species and not subspecies seems certain from the fact that they breed in the same localities, and do not interbreed, and that they are recognisable by habits, notes and size. It is extraordinary that Palæarctic workers should dare to ignore the field-accounts of so many good Australian workers, and yet pretend to differentiate species of Palæarctic Tits which even the most careful student can easily confuse.

Taking into consideration the whole of the facts and the opinions expressed by Ogilvie-Grant and Stresemann, I believe that the best course is to allow the forms as I arranged them in 1913, and solicit criticism from Australian ornithologists themselves. I do not think that Palæarctic workers will do anything else except add confusion through their entire ignorance of local conditions. Students will persist in treating Australia as if it were a mere rock, lumping all kinds of birds from hundreds of miles apart together and separating birds from small Molucca islands on a couple of specimens. The absurdity of such action should be evident to all, but Australians especially will realise that more than one form of Crow can inhabit Australia, whatever Palæarctic "experts" may say to the contrary.

I would therefore conservatively allow four subspecies of the Raven in order to interest Australians as follows :—

Corvus coronoides coronoides Vigors and Horsfield.

New South Wales.

Of this *Corvus marianæ* Mathews is cited as a synonym, but if it be shown that New South Wales birds differ, and that *C. coronoides* belongs to the Crow, then *C. marianæ* becomes the name of the Raven again. It is somewhat peculiar that Stresemann allowed this as distinct with such a restricted range when he was lumping birds from all over the Continent.

Corvus coronoides melli Mathews.

Victoria, South Australia; (?) Kangaroo Island.

This was separated as smaller and this is admitted by Stresemann, although his average measurements are always wrong; in this case he includes a small bird from Laverton among the South Australian birds, and also the measurements of obviously immature specimens.

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Corvus coronoides tasmanicus Mathews.

Tasmania and islands of Bass Straits.

The long bill is characteristic, and has been recognised by Australian workers.

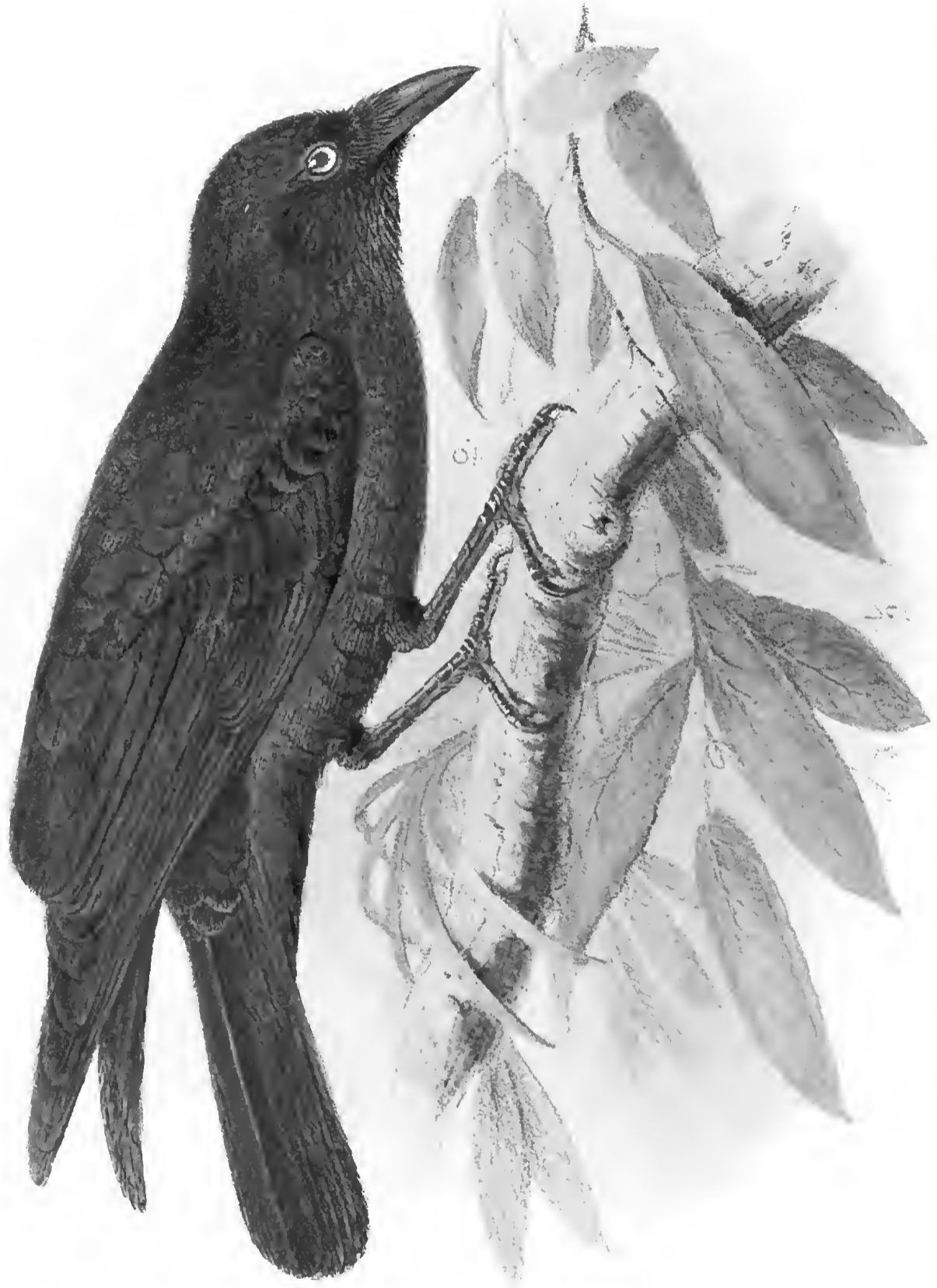
Corvus coronoides perplexus Mathews.

South-west Australia.

Though Stresemann lumped this with the preceding, I think the best course is to set it out as distinct until some one with a better knowledge of Australian birds can study it. Stresemann did not have the least idea of the country and tried to find the localities on the map and lump them by that method, so that he thought Moolah had something to do with Cape York and put Laverton in South Australia.

Mr. Tom Carter has written me: "*Corvus* (?) sp. Native name Warragong. Crows are generally found through the south-west but are seldom seen about Broome Hill, and when observed were generally flying overhead without alighting. The following are the dates noted. Oct. 19, 1905: One seen. Jan. 26, 1906: One heard. Feb. 11, 1907: Eight flew over. Aug. 1, 1907: Four passed over. Aug. 18, 1908: Two flew over. Jan. 20, 1909: Three flew over, etc. Although for a long time I offered a reward of ten shillings for a Crow, alive or dead, not a single bird was brought in. Sometimes for a year or two no Crows would be seen about Albany, sometimes they were plentiful, but very wary. When driving from Albany in March, 1910, northwards to the Stirling Ranges, Crows were noted as far as the Porongorup ranges (35 miles), then none were seen. Crows are very numerous about the Vasse River, and have quite different calls and notes to the Crows of the Gascoyne district. Common on Blackwood and Warren Rivers, Lake Muir and through extreme south-west."

ADDITIONAL INFORMATION



Witherby & C^o

CORVUS BENNETTI
(SMALL-BILLED CROW.)

H Gronvold, del

CORVUS BENNETTI.

SMALL-BILLED CROW.

(PLATES 595, 597.)

CORVUS BENNETTI North, Victorian Naturalist, Vol. XVII., p. 170, Jan. 10th, 1901 :
Moohlah, Western New South Wales.

Corvus bennetti North, Vict. Naturalist, Vol. XVII., p. 170, 1901 (N.S.W.); *id.*, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 3, 1901; Carter, Emu, Vol. III., p. 212, 1904 (N.W.A.); Hall, Key Birds Austr., 2nd ed., p. 110, 1906; Hall, Emu, Vol. VII., p. 25, 1907 (N.W.A.); Mathews, Handl. Birds Austral., p. 107, 1908; *id.*, Emu, Vol. IX., p. 69, 1909 (N.T.); Macgillivray, *ib.*, Vol. X., pp. 18, 33, 100, 1910 (N.S.W.); Ogilvie Grant, Bull. Brit. Orn. Club, Vol. XXIX., p. 74, 1912; Macgillivray, Emu, Vol. XIII., p. 185, 1914 (Q.); Ashby, *ib.*, Vol. XVII., p. 220, 1918 (S.A.); Jackson, *ib.*, Vol. XVIII., p. 167, 1919 (N.S.W.); S. A. White, *ib.*, p. 198 (S.A.).

Corvus bennetti bennetti Mathews, Nov. Zool., Vol. XVIII., p. 442, 1912; *id.*, List Birds Austr., p. 314, 1913.

Corvus bennetti bonhoti Mathews, Nov. Zool., Vol. XVIII., p. 442, Jan. 31st, 1912 :
Murchison, (Mid) West Australia; *id.*, List Birds Austral., p. 314, 1913; H. L. White, Emu, Vol. XX., p. 188, 1921 (Nest and Eggs).

Corvus cecilæ marngli Mathews, Austral Av. Rec., Vol. I., pt. 2, p. 52, April 2nd, 1912 :
Marngle Creek, Kimberley, North-west Australia; *id.*, List Birds Austral., p. 314, 1913.

DISTRIBUTION. Central Australia. Interior of New South Wales, Queensland, West and South Australia.

Adult female. Bases of all the contour feathers white; entire upper-surface of the body dull metallic-purple, with a few newly moulted rich purple feathers making their appearance all over the back, rump, wings and tail; entire under-parts black glossed with purple and blue. Eyes white, feet and bill black. Total length 445 mm.; culmen 47, wing 295, tail 170, tarsus 55. Figured. Collected at Yandamgarra, Murchison, West Australia.

The sexes are alike.

Eggs. Four to five eggs form the clutch, sometimes six or seven. A clutch of five eggs taken on the 5th of August, 1920, is of a pale greenish-grey ground-colour,

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speckled, and uniformly spotted all over with blackish-brown and olive-brown. Long ovals in shape. Surface of shell fine, smooth and rather glossy. 41-43 by 27-28 mm.

Nest. A substantial structure of sticks and twigs, smaller and more neatly made than that of *Corvus ceciliae*. Lined with bark, hair, fur, etc. Dimensions over all, 12 to 14 inches across by 9 inches in depth. Egg cavity, 6 to 7 inches across by nearly 4 inches deep. Nest is placed in a tree at heights varying from 20 to 60 feet or more.

Breeding-months. August to November.

NORTH described this very distinct species (on the East) from South-western New South Wales.

A little later, Carter wrote from the North-west Cape, Mid-west Australia: "There are undoubtedly *two* resident species of Crows—one a large, powerfully made bird with heavy bill; the other smaller in every way, and is, I think, *C. bennetti*. I hope to add a note on this later." He added: "As mentioned in the earlier part of these notes, there are evidently two species of Crows occurring with us, but not the so-called Raven, and on Dr. E. Hartert and myself comparing the smaller Short-billed skins from my collection with Mr. A. J. North's description of *C. bennetti*, we came to the conclusion that they are referable to that species, which apparently, therefore, extends across the Continent."

Then Robert Hall recorded *Corvus bennetti* from the Townsend River, North-west Australia, collected by J. P. Rogers, noting "Wing 11.3 inches."

Macgillivray, from the Barrier Range, New South Wales, where both birds breed, recorded: "McLennan 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 look-out 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 (*Corona australis*), being a harsher and shorter 'Gahr.' 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 pterylæ; the gape was pink. . . . A Short-billed Crow's nest was occupied by young birds. These nestlings are hatched with

SMALL-BILLED CROW.

greenish-yellow naked skin and eyes closed; the skin soon darkens, and the eyes open on about the fifth day."

Macgillivray then recorded from Queensland three species: "*Corvus coronoides*. Crow. Noted occasionally in the Gulf country. *Corvus bennetti*. Short-billed Crow. This species predominates throughout the Gulf country, and is the usual foster-parent of the Channel-bill. On a channel of the Gilliat River, near Sedan, 23 nests were found one morning containing either young Crows, young Channel-bills or Crows' eggs. The trees of other creeks on the plain were resorted to in the same way. This was in March, at the end of the wet season."

Ashby reported from Pungonda, South Australia: "*Corvus bennetti*. Two nests of this bird were found, both with young; it seems the Crow of the district."

Jackson has written from the Diamantina River, Western Queensland: "*Corvus australis*. Raven. Very plentiful and breeding. *Corvus bennetti*. Very plentiful and one pair found breeding. They live in company with the Ravens. Specimens were secured for identification of both these species. Both species were shot, possessing both hazel and white eyes. The white eye in both species had a faint tinge of blue on the inside edge beside the pupil, then sometimes it would be on the outside edge. Probably the eyes get white as the birds grow older. A male specimen of *Corvus australis* (testes swollen) measures in mm.: Total length 495, wing 343, tarsus 56, tail 217, bill 66; legs, bill and claws black; eyes hazel. A female specimen of *Corvus bennetti* (ovaries large) measures: Total length 425, wing 315, tarsus 51, tail 165, bill 49; legs, bill and claws black; eyes bluish-white."

Mr. J. P. Rogers wrote me: "*Corvus bennetti*. In April 1910 there was 13 inches of rain in two days, a most unusual fall for that month, as usually the dry season sets in at the beginning of this month. This rain caused a tremendous growth of weeds, and in May and June the weeds on the banks of the Fitzroy were alive with large green, black and dull red caterpillars, all the three kinds being large. These Crows then came in thousands and in a short time there were very few grubs left. Every year these birds come in large flocks about March and remain until after the cold weather. They are not gun-shy like the Common Crow: if a shot is fired or they see a man with a gun after they have been shot at a few times they fly out of range but return almost immediately. At Marngle Creek a few came to the camp occasionally, and on the 30th May a flock of about fifty came after sundown. When at Mungi at first there were none, but one day a large flock came and I put out the carcass of a rock-wallaby well dosed with strychnine. The Crows gathered round the bait but would not touch it, then two brown Hawks flew down and

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started feeding ; in a very few minutes one fell over and died and immediately all the Crows flew up with loud calls, and although they repeatedly returned to the bait none would touch it ; both Hawks died."

Captain S. A. White has recorded this species from the Nullabor Plains, writing : " Very plentiful at Tarcoola, where they act as scavengers. Did not see them often in the scrub ; an odd bird or two flying over."

While it is obvious that this species is very distinct and easily recognisable in the east of Australia and by field ornithologists in North-west Australia, as above, the range of variation makes it perplexing to allot specimens from the coastal districts of North-west Australia, where both species of " Crow " are found.

I have mentioned the technical history of this bird in connection with the previous species and we can at once set aside, as valueless, Stresemann's treatment, as he shifted Moolah up to Cape York, where it does not locate.

As a matter of fact, Australian ornithologists are quite correct in recognising a smaller species which occurs throughout the interior. Though we marked as to habits, notes, and nidification it is difficult to recognise in the north-west through the variation into the territory of the " Crow."

It will be best to set out three subspecies, but collection with field-notes of series is necessary to determine these, and no assistance can be given by Palæarctic workers. These are :

Corvus bennetti bennetti North.

Interior of New South Wales and South Australia. (Probably Central Australia adjacent.)

Corvus bennetti bonhoti Mathews.

Interior of Mid-west Australia.

Corvus bennetti marngli Mathews.

Interior of North-west Australia.

The ranges of these forms has not been determined, and the measurements of *C. b. marngli* are almost the same as of the typical form.

1880-1881



H. Grönvold, del

CORVUS CECILIAE
(CROW)

Wittherby & Co

CORVUS CECILÆ.

CROW.

(PLATES 596-7).

CORVUS CORONOIDES CECILÆ Mathews, Nov. Zool., Vol. XVIII., p. 442, Jan. 31st, 1912 :
Napier Broome Bay, North-west Australia.

Corvus coronoides Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 20, 1877; Ramsay, Tab. List Austr. Birds, p. 12, 1888; Hall, Key Birds Austr., p. 7, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 54, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 1, 1901; (?) Lyons, Emu, Vol. I., p. 137, 1902 (Central Australia); Le Souëf, *ib.*, Vol. II., p. 86, 1902 (N.T.); Carter, *ib.*, Vol. III., p. 35, 1903 (N.W.A.); Berney, *ib.*, Vol. V., p. 19, 1905 (N.Q.); Carter, *ib.*, Vol. VII., p. 99, 1907 (W.A.); Cornwall, *ib.*, p. 173, 1908 (N.Q.); Mathews, Handl. Birds Austral., p. 107, 1908; Jackson, Emu, Vol. VIII., p. 260, 1909 (N.Q.); Gibson, *ib.*, Vol. IX., p. 72, 1909 (W.A.); Crossman, *ib.*, p. 90 (W.A.); (?) Whitlock, *ib.*, p. 212, 1910 (W.A.); (?) Gubanyi, Vol. X., p. 120, 1910 (N.S.W.); Broadbent, *ib.*, p. 238, 1910 (N.Q.); Hill, *ib.*, p. 290 (N.W.A.); Barnard, *ib.*, Vol. XI., p. 32, 1911 (N.Q.); Cleland, *ib.*, p. 93 (Food); E. D. Barnard, *ib.*, Vol. XII., p. 194, 1913 (Q.); (?) Hill, *ib.*, p. 249 (Central Australia); *id.*, *ib.*, p. 261 (N.T.); Macgillivray, *ib.*, Vol. XIII., p. 185, 1914 (N.Q.); Barnard, *ib.*, p. 206 (N.T.); *id.*, *ib.*, Vol. XIV., p. 50, 1914 (N.T.); H. L. White, *ib.*, Vol. XVI., p. 230, 1917 (N.T.); Campbell and Barnard, *ib.*, Vol. XVII., p. 37, 1917 (N.Q.); Le Souëf, *ib.*, Vol. XVIII., p. 44, 1918 (Q.).

Corvus cecilæ Ogilvie-Grant, Bull. Brit. Orn. Club, Vol. XXIX., p. 74, 1912; Anon., Emu, Vol. XII., p. 44, 1912; Mathews, South Austr. Orn., Vol. 3, pt. 7, p. 229, 1918.

Corvus coronoides cecilæ Mathews, Nov. Zool., Vol. XVIII., p. 442, 1912.

Corvus bennetti queenslandicus Mathews, *ib.*, p. 443, Jan. 31st, 1912: Dawson River, Queensland.

Corvus cecilæ cecilæ Mathews, List Birds Austr., p. 314, 1913.

Corvus cecilæ Mathews, *ib.*; Whitlock, Emu, Vol. XXIII., p. 280, 1924.

Corvus cecilæ queenslandicus Mathews, *ib.*; Macgillivray, Emu, Vol. XVII., p. 211, 1918 (N.Q.).

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- (?) *Corvus coronoides* Carter, Ibis, 1917, p. 610 : Dirk Hartog Island.
(?) *Corvus cecilæ hartogi* Mathews, Bull. Brit. Orn. Club, Vol. XL., p. 76, Jan. 30th, 1920 :
Dirk Hartog Island.
(?) *Corvus sp.* (?) Whitlock, Emu, Vol. XX., p. 185, 1921.
(?) *Corvus bennetti bonhoti* H. L. White, *ib.*, p. 188.
Corvus cecilæ probleēma Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 42, Feb. 21st,
1923 : Derby, North-west Australia.

DISTRIBUTION. Tropical Northern Australia, ranging as far south as (?) Dirk Hartog Island in the west.

Adult male. All the contour feathers of the body with their bases white ; head and neck black, glossed with dull steel-blue ; mantle slightly duller than the head ; back, rump, upper tail-coverts, scapulars and wing-coverts glossy purple, shaded with blue ; tail-feathers black, glossed with dull blue and purple ; primaries black, glossed with purplish-blue on the basal half of the outer web and slightly glossed on the inner web with greenish-purple ; secondaries black, glossed with purple on the outer web and with purplish-blue on the inner web ; throat-hackles black, glossed with bluish-green. Eyes white, bill and feet black. Total length 515 mm. ; culmen 60, wing 355, tail 203, tarsus 70. Figured. Collected at Napier Broome Bay, North-west Australia, on the 30th of July, 1910, and is the type of *Corvus cecilæ*.

The sexes are alike.

Eggs. Four to five eggs form the clutch, sometimes six. A clutch of five taken at Mackay, North Queensland, on the 11th of November, 1908, is of a pale greenish-grey ground-colour, spotted, speckled and blotched with blackish-brown and olive-brown. Ovals in shape. Surface of shell fine, smooth and slightly glossy. The eggs often vary considerably in the same nest. 40-42 by 29-30 mm.

Nest. Similar to that of the Raven, a large structure of sticks, lined with bark, hair, fur, etc., and placed in a tall tree.

Breeding-months. August to January. (June to September.)

As already recorded, Gould did not distinguish between the "Crow" and the "Raven," but Ramsay noted that there were remarkable differences, and then Sharpe separated two species and, moreover, placed them in two different genera. These were adopted by Australians, Campbell giving a clear account of the differences which I have quoted, but the geographical separation was not emphasized by other workers. Consequently the names were used in the sense of two species living together throughout Australia, and most writers have thought it necessary to record both from every locality, the more careful workers, however, always expressing doubt. After the names had become well established, Ogilvie-Grant, from examination of the type, decided that it was not a "Crow," as stated by Sharpe, but that it was a "Raven." I have followed this authority in order to avoid more confusion at the present time, but here again record my doubt upon the matter and earnestly solicit some Australian ornithologist to make a complete study of this subject and get down

CROW.

to facts. The varied suggestions of Palæarctic workers are scarcely worth consideration, as such have absolutely ignored all the field observations of the best Australian workers, and have given a confused and inaccurate survey of the facts. In connection with the present species, the perplexing feature is the lack of series and consequent confusion with the preceding on the north-west coast. As above stated, and it must be reiterated, these Palæarctic workers regard Australia as an island equivalent to one of the small Moluccan islets which are not marked on any save the largest-scale map. They confuse localities hundreds of miles apart, and biologically of little relationship, in their generalisations, and often make inaccurate remarks, which, whether from absolute intent or simple carelessness, mislead workers without similar access to books and material.

In the present case we may regard as the "Crow" the Northern species, and I must emphasize the fact that my synonymy has been carefully drawn up, but is not by any means faultless through the confusion in nomination by workers at this end upon whom Australian field-workers are to a certain extent dependent. I am placing all the notes from the north and north-west under this name.

Mr. Tom Carter has written: "The North-western Crow is common through the Gascoyne and North-west Cape districts, but, as *Corvus bennetti* also occurs in the same localities, it is difficult to be sure of the identity of the birds without actually handling them. I should say the larger species is the more numerous. The birds are mischievous and bold about homesteads and camps, but very wary when out in the open bush. The nests are usually built high up in trees, when possible, but when at any distance from watercourses, and trees are not present, the nests are built on bushes at elevations of sometimes ten feet or less. At Point Cloates there were no trees within thirty miles, and Crows' nests were found on ledges of low sea cliffs, and in the forks of timbers supporting the levers used to draw up water from the shallow sand wells. That Crows will eject a piece of meat poisoned with strychnine I have personally observed on several occasions, some minutes after the meat was swallowed. When camped at the Yardie Creek in September, 1913, I shot some prettily marked Rock Wallabies for food, and had two of the skins pegged out to dry on the sand at my camp, but whenever I left, a stray Crow came and pulled the skins about. I then made a good-sized hollow in the sand and carefully and *completely buried* the skins under some inches of sand. On my return the Crow had pulled them both out on to the surface of the ground. (Do Crows smell?) While travelling on mail coach north of Carnarvon in September, 1911, I saw about ten nests of Crows built in fairly close proximity (all within 300 yards) in dead branches of Snakewood and Jam trees from 10 to 15 feet

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above ground. Some were old nests, the remainder contained young birds. The nests were on each side of the high road and only fifty yards from it and, the country being flat, were visible more than a mile away. On May 14, 1901, my attention was attracted by a flock of about two hundred of these birds making a great fuss in the tops of some White-Gum trees on a creek inland from Point Cloates. Upon approaching the scene, I found the birds were feeding on swarms of dragon-flies with which the air was full just there. Upon examination of many birds shot between December and April in various years I found that the irides of the birds of the year were partly hazel-brown and partly white, evidently in the transition stage to the pearly-white of the adult. July 18, 1900: Two young in nest, almost ready to fly, had slate-blue irides, and on July 21, 1900, one fledgling still in the nest had also slate-blue irides. The breeding-season is usually from early June until September; the earliest date, June 28, 1900 (record wet year), when seven eggs were found in a nest, the usual clutch being three to five. July 15, 1899: Four eggs. July 21, 1900: Young in nest. Aug. 8, 1887: Three eggs just hatching. Sept. 5, 1911: Young in nest. Oct. 9, 1895: Half-grown young in nest."

Le Souëf wrote: "It is not difficult as a rule to separate Crow's eggs from those of the Raven, on account of their lighter colour, especially in the extreme north, although, so far, I have received no eggs or skins of Ravens from Northern Australia."

Berney's note from the Richmond district, North Queensland, reads: "The Crows flock in winter and nest in summer. I have seen a nest of fully fledged young on 29th November. My notes of eggs or young extend thence up to 24th March, on which day I examined a nest containing three squabs and two eggs, the latter just hatching."

Cornwall has written from Mackay, North Queensland: "It would be hard to persuade the sheep-farmer of the western country that the Crow is a blessing to man, but in the coastal districts of Queensland they should certainly be afforded all the protection possible. They devour enormous numbers of cane-grubs and beetles, and often may be observed amongst the selectors' cattle, climbing over them in their search for that scourge of the north, the cattle tick."

Hill wrote from Kimberley, North-western Australia: "Were seen in all the localities I visited, including the islands. Locusts and lizards only were found in the crops."

Measurements: ♂ Wing 362, tarsus 62, bill 57, tail 204 mm.

♀ Wing 350, tarsus 64, bill 51, tail 190 mm."

Hill then recorded on his journey across Australia: "*Corvus coronoides*, collected at Tundi-eji. Adult ♀. Wing 310, tarsus 61, bill 48, tail 177 mm. Irides white, feet and bill black." And from Borroloola: "Fairly numerous."

CROW.

Wing 315, tarsus 61, bill 56, tail 189 mm. Irides umber, feet and bill black."

The former would be "*bennetti* in every detail."

Barnard also recorded "*Corvus coronoides* Crow. Very common, breeding freely in the gidgea and coolibah trees along water courses during February and March; from the Brunnette Downs, Northern Territory," but gave no details of measurement, nor did H. L. White from the King River district.

Macgillivray wrote from the Claudie River district, New Queensland: "*Corvus cecilæ queenslandicus*. On the 24th November, whilst Mr. Kershaw was skinning a wallaby at our top camp, a Crow's voice was heard—a harsh, short 'Ahi, ahi,' Two flew over. Mr. McLennan had previously obtained specimens, and several since. All these have white irides, unlike the Crows of southern parts, whose irides are hazel. We saw more of these birds at the sandalwood landing, and over the beach opposite Lloyds' Island. Mr. McLennan found them too quite numerous on the Archer River."

I have outlined the history of this form, the "Crow" of Australian ornithologists, in connection with the two preceding, and it is apparently restricted to Northern Tropical Australia, and four subspecies may be here noted for information:

Corvus cecilæ cecilæ Mathews.

North-west Australia, Northern Territory.

Corvus cecilæ problēma Mathews.

North-west Australia (Derby southward).

This is smaller, averaging 335, against the above 355, while the bill is shorter.

Corvus cecilæ queenslandicus Mathews.

Northern Queensland.

As shown by Stresemann this is smaller than the two preceding and has a larger bill than *C. bennetti*, with which Stresemann confused it.

(?) *Corvus cecilæ hartogi* Mathews.

I differentiated this, as Carter states it is quite a different form, and Whitlock places it under *C. bennetti*. It is possibly an island form of this species, simulating the interior *C. bennetti*, but more material should be studied by Australian ornithologists from Dirk Hartog Island, the type locality.

The type of *Corvus cecilæ* was described from Napier Broome Bay (Stresemann writes Broome-Bar, which is altogether wrong, as there is a place called Broome not far away), and this part of North-west Australia is really Northern Territory as regards birds, and in such cases as this the forms are identical and differ from the North-west forms from Derby, North-west Australia.

Mr. Tom Carter has written under the name *Corvus coronoides*: "Crows were extremely abundant on Dirk Hartog Island, but as a great many of them

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were of mixed brown plumage, which was a new phrase to me. . . . On May 3, at a camp on the west side of Dirk Hartog, where Crows were abundant and tame, I noticed that many of them had brown napes, and much brown mingled with the ordinary black plumage on the back, wings and under-parts. Oct. 2: Shows a bird of the year. Plumage all black. Irides partly pale blue, partly hazel. Base of lower mandible dull crimson. Oct. 22: Fully fledged bird. Plumage all black. Base of lower mandible dull crimson. Irides had narrow, bright blue circle round pupils. Oct. 25: Adult. Irides white. Much brown in the plumage, on the mantle. Bill all black. Oct. 26: Adult. Irides white. Plumage all black. Nov. 1: Adult. Irides hazel. Plumage brown and black. The under plumage of all the Crows was white. Many Crows were observed through binoculars at close range. Immature birds could be distinguished by the dull crimson at the base of the lower mandibles. All these seemed to have black plumage. Adults, with black beaks throughout, had mostly brown and black plumage."

Whitlock was also puzzled and wrote: "One shot from a flock (of non-breeding birds) had the plumage much like that of the English Blackbird when changing from the mottled blackish-brown to the fully adult glossy black of maturity. Dimensions in millimetres: Length 440; wing 310; culmen 50; tarsus 53; iris brown. In another adult the iris was white with a tinge of blue round the pupil."

These specimens H. L. White identified as the Short-billed Crow.

Capt. White writes: "Widely distributed, not nearly so numerous in South Australia as formerly, which will mean a great loss to the squatter, for these birds are the best of scavengers, and the blow-fly pest is increasing every day through the destruction of these birds. They are found all over South Australia with only one or two exceptions where the short-billed bird is found. The writer has found them nesting in the big gums (*Eucalyptus rostrata*) along the watercourses and in low mulga and casuarina trees in the interior. Nest is a rough structure of sticks placed in a fork of a limb or trunk of tree; have seen several nests constructed entirely of scraps of fencing wire, and one was built on the top of a telegraph pole. This bird lives on carrion, lizards, or any small reptiles, grasshoppers, insects of many kinds, and will take eggs from fowl-yard or from other birds' nests. Nesting-season from August to November. Clutch of four to six eggs."

Since writing the above, Meinertzhagen has monographed the Crows in *Nor. Zool.*, Vol. XXXIII, pp. 57-121. He tells us in the Introduction how prejudiced he is. This is carried to excess on p. 86, where he makes *cecilia*, the largest Crow, an absolute synonym of *bennetti* the smallest.



H Grönvold, del.

Witherby & Co

- (1) CORVUS BENNETTI
(SMALL-BILLED CROW)
- (2) CORVUS CECILAE
(CROW)
- (3) CORVUS CORONOIDES
(RAVEN)

FAMILY—CORCORACIIDIDÆ.

GENUS—CORCORAX.

CORCORAX Lesson, *Traité d'Ornith.*, livr. 5,
p. 324, (Dec.) 1830. Type (by mono-
typy) *Corcorax australis* Lesson=
Coracia melanoramphos Vieillot.

Cercoronus Cabanis, *Arch. für Nat.* (Wieg.)
1847, p. 335. New name, on score of
purism, for *Corcorax* Lesson

Also spelt—

Corcoronis Gray, 1849.

Cercoronus Bonaparte, *Consp. Gen. Av.*, Vol. I., p. 388, 1850.

LARGE "Crows" with long, slender, curved bills, long wings, very long tail, long legs and small feet.

The bill is longer than the head, slender, laterally compressed, tip sharp, culmen rounded, practically no basal expansion, so that the width at the base is about equal to the depth; nostrils circular in deep, small, basal groove hidden by nasal bristles, or, perhaps better, nasal feathering, rictals obsolete; the under mandible about as slender as the upper, the interramal space narrow and feathered, less than half the length of the bill, the gonys a little decurved, not angulate.

The wing long but rounded, the fifth primary longest, the fourth very little shorter, longer than the sixth, the third little shorter, longer than the seventh, the second shorter than the eighth, the first primary about half the length of the fifth, and shorter than the secondaries.

The tail is very long and well rounded, nearly wedge-shaped.

The legs are long and stout, scutate in front, bilaminate behind; the toes comparatively short, the outer and inner toes subequal, the inner toe and claw about equal to the middle toe alone, the hind-toe stouter, the claw stout and longest, but the hind-toe and claw shorter than the middle toe and claw; all claws short and sharp.

Order PASSERIFORMES.

Family CORCORACIIDIDÆ.

No. 744.

CORCORAX MELANORHAMPHUS.

WHITE-WINGED CHOUGH.

(PLATE 598.)

CORACIA MELANORAMPHOS Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. VIII., p. 2, March 15th, 1817: "Nouvelle Hollande" = New South Wales.

Coracia melanoramphos Vieillot, Nouv. Dict. d'Hist. Nat., nouv. ed., Vol. VIII., p. 2, 1817.

Pyrrhocorax leucopterus Temminck, Manuel d'Orn., 2nd ed., Vol. I., p. 121, Oct. 21st, 1820: New South Wales.

Fregilus leucopterus Vigors and Horsfield, Trans. Linn. Soc. (Lond.), Vol. XV., p. 265, 1827.

Corvus leucopterus Wagler, Syst. Av. Corvus, sp. 14, 1827.

Corcorax australis Lesson, Traité d'Orn., livr. 5, p. 325, (Dec.) 1830: New South Wales.

Corcorax leucopterus Gray, List Gen. Birds, 2nd ed., p. 52, 1841; Gould, Birds Austr., pt. xxiv. (Vol. IV., pl. 16), Sept. 1st, 1846.

Corcorax melanorhynchus Gray, Gen. Birds, Vol. III., p. 321, 1846.

Cercoronus melanorhynchus Cabanis, Arch. fur Nat. (Wiegmann), 1847, p. 335.

Cercoronus melanorhamphus Cabanis, Mus. Heine., Vol. I., p. 228, 1851.

Corcorax melanorhamphus Gould, Handb. Birds Austr., Vol. I., p. 470, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 149, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; *id.*, Tab. List Austr. Birds, p. 12, 1888; Hall, Key Birds Austr., p. 8, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 65, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 21, 1901; A. G. Campbell, Emu, Vol. II., p. 11, 1902 (Vic.); Hill, *ib.*, p. 164, 1903 (Vic.); Berney, *ib.*, Vol. V., p. 20, 1905 (N.Q.); Hill, *ib.*, Vol. VI., p. 178, 1907 (Vic.); Batey, *ib.*, Vol. VII., p. 4, 1907 (Vic.); Austin, *ib.*, p. 28 (N.S.W.); Mathews, Handl. Birds Austral, p. 108, 1908; H. L. White, Emu, Vol. VIII., p. 150, 1909 (N.S.W.); Cleland, *ib.*, Vol. IX., p. 226, 1910 (Food); Ingle, *ib.*, p. 122 (Vic.); S. A. White, *ib.*, Vol. XI., p. 208, 1912; Cleland, *ib.*, Vol. XII., p. 18 (Food); Wilson, *ib.*, p. 39 (Vic.); Stone, *ib.*, p. 114, 1912 (Vic.); S. A. White, *ib.*, Vol. XIII., p. 29, 1913 (S.A.); Chandler, *ib.*, p. 44 (Vic.); Campbell, *ib.*, p. 70 (Eggs); S. A. White, *ib.*, p. 128, 1914 (S.A.); *id.*, *ib.*, Vol. XVIII., p. 25, 1918 (N.S.W.); Stone, *ib.*, p. 126 (Vic.); Cleland, *ib.*, p. 282, 1919 (N.S.W.); H. L. White, *ib.*, p. 306; Shufeldt, *ib.*, Vol. XXIII., p. 5, 1923.



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CORCORAX MELANORHAMPHUS
(WHITE-WINGED CHOUGH.)

WHITE-WINGED CHOUGH.

Corcorax melanoramphos melanoramphos Mathews, Nov. Zool., Vol. XVIII., p. 445, 1912;
id., List Birds Austr., p. 317, 1913.

Corcorax melanoramphos subniger Mathews, Nov. Zool., Vol. XVIII., p. 446, Jan. 31st,
1912: (Ringwood) Victoria; *id.*, Austral Av. Rec., Vol. I., p. 64, 1912.

Corcorax melanoramphos whiteae Mathews, Nov. Zool., Vol. XVIII., p. 446, Jan. 31st,
1912: Eyre's Peninsula, South Australia; *id.*, List Birds Austr., p. 317, 1913;
Belchor, Birds Geelong, p. 372, 1914.

DISTRIBUTION. Queensland, New South Wales, Victoria, South Australia.

Adult male. Feathers of the lores, top of the head and neck dull black, slightly glossed with purple; upper back and mantle black, slightly glossed with purple and with a spot of glistening purplish-blue at the extremity of each feather, producing a spangled appearance; rump and upper tail-coverts dull black; tail-feathers black, slightly glossed with steel-blue; primaries black on the outer web and with the greater part of the inner web silvery-white broadly tipped with black; secondaries black, slightly glossed on the outer web with greenish-blue; entire under-parts black, very slightly glossed with blue on the chest and sides of the body. Eyes scarlet, bill and feet black. Total length 470 mm.; culmen 40, wing 242, tail 205, tarsus 65. Figured. Collected at Penrith, New South Wales, in August, 1891.

The sexes are alike.

Adult female. Feathers of the top of the head, neck, back, mantle, upper tail-coverts, scapulars and wing-coverts black, glossed with purple, and with a metallic spot near the extremity of each feather, producing a spangled appearance; tail-feathers uniform black, glossed on the outer webs with steel-blue; primaries black, glossed on the outer web with dull blue; inner webs of all the primaries for their greater part silvery-white, the white increasing inwards on the wing; secondaries uniform black, glossed with purplish-blue; entire under-surface of the body black, glossed slightly on the sides. Eyes scarlet, bill and feet black. Total length 410 mm.; culmen 37, wing 225, tail 190, tarsus 57. Collected near Lake Greenly, Eyres Peninsula, South Australia, on the 29th of August, 1911, and is the type of *C. m. whiteae*.

Immature male. Head, neck, back, rump, upper tail-coverts, scapulars and wing-coverts clothed with smoky-black feathers of a silky texture; over each eye and at the back of the neck a few of the white nestling feathers still adhering to the new black second plumage; tail black, slightly glossed with glossy green; primaries black on the outer web and silvery-white for the greater part of the inner web; secondaries black, slightly glossed with green; entire under-surface of the body dull smoky-black. Eyes light brownish, feet brownish-black, bill light horn with lighter tip. Collected at Streaky Bay, Eyre's Peninsula, South Australia, in August, 1911.

Eggs. Five to seven eggs form the clutch, although sometimes as many as nine are met with. A clutch of five eggs taken at Belltrees, Upper Hunter River, New South Wales, on the 12th of September, 1909, is of a pale creamy-white ground-colour, boldly spotted and blotched with olive-brown, blackish-brown and slaty-grey, some of the blotches being very large. Ovals in shape. Shell coarse-grained and minutely pitted all over and slightly glossy. 38-42 by 28-29 mm.

Nest. A large, open, bowl-shaped structure, composed of mud reinforced with grasses, etc., and lined with fur, bark, feathers, grasses, and sometimes sheep's wool.

THE BIRDS OF AUSTRALIA.

Some of these mud nests collected have been nearly 10 pounds in weight. Dimensions over all, 9 to 11 inches across by 6 to 7 inches in depth. Egg cavity, 7 to 8 inches across by 3 to nearly 4 inches deep. It is a very conspicuous nest, and is generally built upon the horizontal limb of a forest tree at heights varying from 18 to nearly 60 feet.

Breeding-months. August to December.

ON account of its Chough-like bill, first described by Vieillot and independently by Temminck, both placed it with the Choughs; Lesson, however, made a distinct genus for it. The first field-notes appear to be those published by Vigors and Horsfield, who quoted: " 'This bird,' Mr. Caley observes in his Notes, 'is called *Waybung* by the natives. They tell me it begins its nest by laying two sticks in a parallel manner; it then builds it up with mud or clay, and lines it with a few feathers. It is gregarious, and seems to prefer elevated situations, or such as command a prospect of the country. I cannot consider it as migratory.' "

Gould's notes are very good, as follows: " This bird is distributed over all parts of New South Wales and South Australia; it is very abundant in the whole of the Upper Hunter district; I killed it in the interior of South Australia, and Mr. Elsey met with it at the edge of a dense scrub on the Burdekin in latitude 19° 30" S. It usually occurs in small troops of from six to ten in number, feeding upon the ground, over which it runs with considerable rapidity. In disposition it is extremely tame, readily admitting of a very close approach, and then merely flying off to the low branch of some neighbouring tree. During flight the white markings of the wing show very conspicuously, and on alighting the bird displays many curious actions, leaping from branch to branch with surprising quickness, at the same time spreading the tail and moving it up and down in a very singular manner; on being disturbed it peeps and pries down upon the intruder below, and generally utters a harsh, grating, disagreeable and tart note; at other times, while perched among the branches of the trees, it makes the woods ring with its peculiar, soft, low, very pleasing, but mournful pipe. During the pairing-season the male becomes very animated, and his manners so remarkable, that it would be necessary for my readers to witness the bird in its native wilds to form a just conception of them; while sitting on the same branch close to the female, he spreads out his wings and tail to the fullest extent, lowers his head, puffs out his feathers and displays himself to the utmost advantage, and when two or more are engaged in these evolutions the exhibition cannot fail to amuse and delight the spectator. A winged specimen gave me more trouble to catch than any other bird I ever chased, its power of passing over the ground being so great that it bounded on before me and cleared every obstacle, hillocks, and fallen trees, with the

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utmost facility. The White-winged Corcorax is a very early breeder, and generally rears more than one brood in a year, the breeding-season extending over the months of August, September, October and November. The nest is a most conspicuous fabric, composed of mud and straw, resembling a basin, and is usually placed on the horizontal branch of a tree near to and overhanging a brook. The eggs vary from four to seven in number. It has often struck me that more than one female deposited her eggs in the same nest, as four or five females may be frequently seen either in the same or the neighbouring trees, while only one nest is to be found. The bird generally evinces a preference for open forest land, but during the breeding-season affects the neighbourhood of brooks and lagoons, which may be accounted for by the fact of such situations being necessary to enable it to procure the mud to build its nest, besides which they also afford it an abundance of insect food."

Mr. Thos. P. Austin has written me from Cobbara, New South Wales: "A very common species throughout the whole district, and found in all classes of country where there are living-trees, but they certainly prefer the more open forests, especially where there are yellow box-trees, in which they usually place their nests. They breed here in great numbers, often using the same nest year after year, just adding a little fresh mud to the top rim. If a nest falls down after using it, and before the next breeding-season, they will often build a new nest in the same tree. One flock has lived about my house for over twenty years, and for as long as I can remember they have reared their young in the same tree, and yet the flock does not appear to increase. Another nest about a mile from my house, on a branch almost overhanging one of my private roads, which was in use some years ago for several seasons, and was then not used again for I think six years and had almost disappeared, is now (Sept. 19th, 1920) built up again, and the birds sitting. During 1908 I made a special study of their eggs and examined twenty-seven complete clutches, which ranged from three to eight, but I found in every case where there were more than five eggs in a nest, they were of two distinct types, but when there were five or less I am quite satisfied they were laid by the same female. They start breeding early, most of them laying in August, but I have taken eggs as late as December 5th. A whole flock assists in the building of the nest, but I am of the opinion that a very small percentage of the females lay each year. Of course, they usually build their nests in trees within the vicinity of water, but very few have come under my notice placed in trees growing along banks of rivers; they are more likely to be found some little distance away from a dam or lagoon. Yet I have seen their nests, and in use, miles away from any water; these I should think were constructed during wet seasons in the past, when there was sufficient mud for them somewhere close at hand for them

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to build the nest. They are usually met with in flocks of from eight to a dozen, but it is no unusual thing to see from twenty to thirty or even more. They are always covered with lice, which appears to irritate them considerably, because, when the ground is dry enough, they are continually rolling in the dust, and they appear to always go to the same place to do so. The flock, which lives about my house, has a dust-bed on a road, and when the road is dry, I can see the whole flock in it almost any day from my verandah. They spend most of their time feeding upon the ground, and when disturbed they fly slowly to the nearest tree, uttering their harsh cries of alarm the while, but they differ to most flocks of birds found feeding upon the ground by not all taking wing about the same time; they prefer to follow one after the other. Struthideas, Babblers and Blue-faced Honey-eaters have this habit when flying from a tree, but not from the ground. When they reach the tree they utter quite a different single note, which is a mournful whistle."

Capt. S. A. White writes: "Widely distributed over the southern part of Australia, they move about in large communities, giving their weird and mournful whistle; when one flies off they all follow. Many birds seem to assist in building the wonderful mud nest, but I am of the opinion that only one bird lays in it; the clutch varies very much, for three to seven eggs will be found in the nest. If a bird should be wounded, the whole party come fussing round with wings drooping and tail spread out, uttering loud calls of alarm. A horizontal limb is always selected on which to plan the nest, and they breed in August, September and October.

Mr. E. J. Christian has written me: "This bird is the wheat-growers' scourge. I have seen great patches of wheat crops ruined by this bird. As soon as the wheat sprouts and the seed is soft this bird will pull up plant after plant, and as they come in flocks of from ten to thirty they soon spoil an acre. I have counted seventy in one flock. They love the timbered country and never appear to use their wings for long flight. Crops of grain grown on the plain are not troubled. They have a most dismal, mournful, long-drawn-out cry and when a large flock all call out it is most weird. When disturbed they break out into a harsh jumble, very much like the noise produced by one of those wooden rattles. They are very amusing to watch when they alight on a bough. The head and tail jerk about, giving the bird the appearance of balancing itself. When feeding on the ground, they can always be distinguished at a distance by their peculiar gait, black bill and legs; red eyes, white on the wings and a slightly curved bill are their chief characteristics. One can set a flock calling by imitating their note."

Mr. Edwin Ashby states: "Not uncommon in the Mount Lofty Ranges near Adelaide, frequenting the timbered country, but feeding on the grounds

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in flocks of about a dozen. Their notes are many of them not unmusical and when disturbed fly up unto the nearest trees. They are very restless and continue to utter loud cries while the intruder is near. I have met with them at Saddleworth, seventy miles north of Adelaide, near Ballarat in Victoria, and in the southern part of New South Wales at Adaminaby at 3,000 feet."

Mr. F. E. Howe's notes read: "In all parts of Victoria this bird is very plentiful, and this district appears to be especially favoured with this useful form. They are local to an extraordinary degree and can always be met with in small families in the same spot for years. Sometimes a nest will be built and added to for a few years, and in other cases a new nest will be built every year, and, in the latter case, many old ones will be seen in the vicinity. At Ringwood on Oct. 18th a bird was noticed sitting on her nest. It was raining heavily and the wings were spread out over the sides of the nest to keep the water out. A well-thrown stick flushed the parent and the young began to cry out. Nests have been found containing from four to seven eggs, but whether laid by one or more females has not been decided. One nest was found to contain young a few days old and eggs also that were heavily incubated. We have never noticed more than one nest being occupied in any given spot, though a lot of birds were seen in that locality. It is possible that some of them perhaps don't reach maturity for a few years."

Hill has written: "In considerable numbers in parts of the Otways. Seems to prefer the hilltops. In fact, it seems a general rule in the forest that the larger birds keep to the hills and the smaller ones to the scrub in the gullies. I have never seen the Chough nearer Geelong than Spring Creek, though I am told that it is plentiful in parts."

Captain S. A. White has written from the Gawler Ranges, South Australia [furthest westward record?]: "The curious *Corcorax* was only seen in the interesting belt of mallee at the south-west end of the ranges, where a small colony of six or eight birds came under notice. A nest of the usual mud type was found placed on a horizontal branch 50 or 60 feet from the ground, in a white gum (a few of these trees were found on the flats amongst the thick mallee). The nest contained three eggs; incubation well advanced; date 7th September. The long-drawn, loud and mournful call of these birds sounds most weird amidst the silence of the bush. Their strange hopping movements when on the ground or passing from branch to branch, often with the wings partially extended, are very noticeable."

Campbell has noted: "The socialistic *Corcorax* has the completed number (seven) to the set. On one nest kept under observation *five* eggs were deposited in *three* days."

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Captain S. A. White, in connection with the Birds of the Lower Murray, has observed: "Met with in large families, mostly in abraded plumage, owing to their having finished nesting. A discussion took place *re* the coloration of the eye. Some contend that when the bird is alarmed or worried it can produce a scarlet membrane in front of the eye. My experience has shown me that the eye is deep red during nesting time."

Cleland, in his *Census of the Birds of the Pilliga Scrub, New South Wales*, wrote: "Of this species, also congregating in 'families,' sixty-two members were seen, distributed mostly in the centre of the scrub. Estimated minimum population, 4,092. The numbers of birds seen in the various 'families' were as follows: Twelve on one occasion, eight on one, seven on two, six on one, five on one, four on two, three on one, two on one and one on two occasions."

No subspecies were named until I prepared my "Reference List," when I admitted three:

Corcorax melanoramphos melanoramphos (Vieillot).

Queensland, New South Wales.

Corcorax melanoramphos subniger Mathews.

"Differs from *C. m. melanoramphos* in being slightly smaller, and in being darker above and below. (Ringwood) Victoria."

Victoria.

Corcorax melanoramphos whiteæ Mathews.

"Differs from *C. m. melanoramphos* in having a shorter bill, 36 m."

Eyre's Peninsula, South Australia.

In my 1913 "List" I only admitted two, synonymising the first two.

FAMILY—STRUTHIIDIDÆ.

GENUS—STRUTHIDEA.

- STRUTHIDEA Gould, Synops. Birds Austr., pt. I., pl (9),
 Jan. 1st, 1837. Type (by monotypy) *S. cinerea* Gould.
Brachystoma Swainson, Classif. Birds, Vol. II., p. 266,
 July 1st, 1837. Type (by monotypy) *B. cinerea* Swainson.
 Not—
Brachystoma Meigen, Syst. Besche. Zweifl. Insekl., Vol. II., p. 12, 1822.
Brachyprorus Cabanis, Mus. Heine., Vol. I., p. 217,
 (after Oct. 23rd) 1851. New name for *Struthidea*
 Gould

THIS genus does not appear to be related to the Crows but may be near *Oreoica*, where Gould placed it.

Large Passerine birds with very short, stout bills, short wings, long wedge tail, and medium legs with small feet.

The bill is very short and deep, strongly laterally compressed with little basal expansion; culmen semi-keeled, strongly arched, tip sharp but not decurved nor posteriorly notched; the lateral edges of the upper mandible sinuate medially; the nostrils circular, open in impression scarcely a groove; nasal bristles noticeable but not hiding the nasal apertures, while fairly strong rictal bristles are present; the under mandible almost as stout as the upper, the interramal space very short and broad and feathered, the gonys two-thirds the length of the mandible, ascending but not angulate.

The wing is rounded, the fourth, fifth and sixth primaries equal and longest, the third equal to the seventh and little shorter than the longest, the second shorter and equal to the secondaries, the first about half the length of the fourth primary.

The tail is very long and wedge-shaped.

The legs are not very long, scutate in front, bilaminate behind; the toes short and comparatively delicate, the hind-toe stoutest, less than mid-toe and claw, the inner and outer toes subequal, the inner toe and claw equal to middle toe alone.

STRUTHIDEA CINEREA.

GREY JUMPER.

(PLATE 599.)

STRUTHIDEA CINEREA Gould, Synops. Birds Austr., pt. I. pl. (9), Jan. 1st, 1837: Interior of New South Wales.

Struthidea cinerea Gould, Synops. Birds Austr., pt. I., pl. (9), Jan. 1837; *id.*, Proc. Zool. Soc. (Lond.) 1836, p. 143, June 27th, 1837; *id.*, Birds Austr., pt. X. (Vol. IV., pl. 18), March 1st, 1843; *id.*, Handb. Birds Austr., Vol. I., p. 472, 1865; Sharpe, Cat. Birds Brit. Mus., Vol. III., p. 140, 1877; Ramsay, Proc. Linn. Soc. N.S.W., Vol. II., p. 188, 1878; *id.*, Tab. List Austr. Birds, p. 12, 1888; Hall, Key Birds Austr., p. 8, 1899; Campbell, Nests and Eggs Austr. Birds, Vol. I., p. 63, 1901; North, Austr. Mus. Spec. Cat., No. 1, Vol. I., p. 18, 1901; A. G. Campbell, Emu, Vol. II., p. 11, 1902 (Vic.); (?) Le Souëf, *ib.*, p. 86 (N.T.); Berney, *ib.*, Vol. VI., p. 158, 1907 (N.Q.); Austin, *ib.*, Vol. VII., p. 28, 1907 (N.S.W.); Barnard, *ib.*, p. 188, 1908 (N.Q.); Mathews, Handl. Birds Austral., p. 108, 1908; S. A. White, Emu, Vol. XI., p. 208, 1912 (Vic.); Barnard, *ib.*, Vol. XII., p. 194, 1913 (Q.); Mathews, List Birds Austr., p. 316, 1913; Macgillivray, Emu, Vol. XIII., p. 186, 1914 (N.Q.); Cleland, *ib.*, Vol. XVIII., p. 282, 1919 (N.S.W.); H. L. White, *ib.*, Vol. XX., p. 103, 1920 (N.S.W.); Shufeldt, *ib.*, Vol. XXIII., p. 9, 1923.

Brachystoma cinerea Swainson, Classif. Birds, Vol. II., p. 266, July 1st, 1837: Interior of New South Wales.

Brachyprorus cinereus Cabanis, Mus. Heine., Vol. I., p. 217, 1851.

Glaucopis struthidea Schlegel, De Dierentuin, p. 165, 1872. New name for *S. cinerea* Gould.

Struthidea cinerea cinerea Mathews, Nov. Zool., Vol. XVIII., p. 445, Jan. 31st, 1912.

Struthidea cinerea swainsoni Mathews, *ib.*: Queensland.

Struthidea cinerea dalyi Mathews, Austral Av. Rec., Vol. V., pts. 2-3, p. 42, Feb. 21st, 1923: Daly Waters, Northern Territory.

DISTRIBUTION. Interior of Queensland and Northern Territory; New South Wales and Victoria.

Adult. Fore-head and top of the head leaden-grey, each feather tipped with lighter grey; feathers of the sides and back of the neck dark leaden-grey, fringed at the extremity with grey; wing-coverts and mantle brownish-grey with black shafts to the feathers; lower back, rump and upper tail-coverts bluish-grey; tail brownish-black, the middle feathers glossed with dull purple and the outer pairs glossed with bluish-green; primaries brownish-ash, margined with dull olive on the outer webs;



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STRUTHIDEA CINEREA
(GREY JUMPER.)

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GREY JUMPER.

secondaries brownish-ash, fringed with brownish-olive on the outer webs; sides of the face, ear-coverts, chin, throat and fore-neck leaden-grey tipped with light grey; remainder of the under-surface of the body leaden-grey, slightly tinged with olive in some lights. Eyes brown, bill and feet black. Total length 335 mm.; culmen 21, wing 151, tail 160, tarsus 43. Figured. Collected in North Queensland, and is the type of *S. c. swainsoni*.

In this form the head is almost uniform with the back.

Adult male. Top of the head, sides of the face and back of the neck dark grey, each feather tipped with lavender-grey, producing a spangled appearance; back, wing-coverts and scapulars brownish-ash; rump and upper tail-coverts leaden-grey; tail-feathers long and broad, black in colour, slightly glossed with steel-blue; primaries ash-brown, margined on the outer web with whitish-brown; secondaries brownish-ash, slightly glossed on the outer webs with greenish-bronze; chin, throat and fore-neck similar to the head, remainder of the under-surface of the body dark lavender-grey, darkest on the sides and flanks. Eyes light brown, bill, legs and feet black. Total length 300 mm.; culmen 21, wing 150, tail 160, tarsus 39. Figured. Collected at Forbes, New South Wales, in September, 1907.

In this form the head is darker than the rest of the back.

Adult female. Similar to the male, but a trifle smaller, and with the head and mantle darker. Eyes yellow-brown, bill, legs and feet black. Total length 290 mm.; culmen 21, wing 137, tail 146, tarsus 39. Collected at Forbes, New South Wales, in September, 1907, and is a pair with the male.

Eggs. Five to eight eggs form the clutch. A clutch of six eggs taken at Bando, near Gunnedah, New South Wales, on the 1st of October, 1908, is of a very pale bluish-white ground-colour, and sparingly marked with short smudges or brush-like streaks of blackish-umber and dull purple; the markings, with few exceptions, confining themselves to the larger ends of the eggs. Ovals in shape. Surface of shell rather coarse and possessing a little gloss. 27-30 by 21-22 mm.

Nest. A bowl- or deep basin-shaped structure, made of mud, bound together and reinforced with grass, etc., usually lined with a layer of very fine grass. The nest closely resembles that built by the Pied Grallina (*Grallina picata*), except that it is a lighter and more neatly made and finished structure. It is usually placed on a horizontal limb of a tree, and at heights varying from 15 to 40 feet or more. The mud used is of various colours—it all depends on the locality. Dimensions over all, varies from 5 to nearly 6 inches across by $3\frac{1}{2}$ to 4 inches in depth; while the egg cavity measures usually $4\frac{1}{2}$ inches across by 2 to $2\frac{1}{2}$ inches deep.

Breeding-months. August to December.

THIS bird was simultaneously described by Gould and Swainson, each proposing a new genus for it and each selecting the same specific name. Gould did not give the source of his specimen, but Swainson stated his was "Found by Mr. Allan Cunningham." No field-notes were given, so that Gould's appear to be the earliest as follows: "From what I personally observed of this bird it would seem to be a species peculiar to the interior, and, so far as is yet known, confined to the southern and eastern portions of Australia. I found it inhabiting the pine ridges, as they are termed by the colonists, bordering the extensive plains of the Upper and Lower Namoi, and giving a decided preference to the *Callitris pyramidalis*, a fine fir-like tree peculiar to the district. It was always seen in small companies of three or four together, on the topmost branches of

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the trees, was extremely quick and restless, leaping from branch to branch in rapid succession, at the same time throwing up and expanding the tail and wings, these actions being generally accompanied with a harsh, unpleasant note; their manners, in fact, closely resembling those of the white-winged *Corcorax* and the *Pomatorhini*. The food, as ascertained by dissection, is insects; the stomachs of those examined were tolerably hard and muscular, and contained the remains of coleoptera."

Mr. T. P. Austin has written me from Cobbora, New South Wales: "A very common bird throughout this district, in fact this is part of the true home of this species, although they usually keep to one class of country, seldom to be met with far away from where native pines are growing, and they do not as a rule enter far into the thicker scrub, preferring the more open forest country. Usually it is seen feeding upon the ground in small flocks of from six to about two dozen, which, when disturbed, fly to the lower branches of a tree close by, uttering their harsh, grating cries, and gradually proceed to the higher branches in a series of leaps, uttering a short, peculiar, squeaky note the while; when they reach the higher branches, they often cluster together on the same branch, perched side by side; in fact, they appear to cuddle up together as close as they possibly can. Once in the trees, they are not, as a rule, shy; in fact, they appear to be quite the reverse, and often quite inquisitive. Flocks which have taken up their abode about camps and dwellings become extremely tame and familiar. At the present time a flock of twenty-four live about my house, roosting in some pepper trees in the fowl-yard, but they are becoming rather a nuisance, as they eat most of the chickens' food, showing little fear; they come almost to one's feet to feed, and as they seem to have discovered the strawberries in the garden, which are not nearly ripe, I am beginning to fear this flock will have to be destroyed. About eighteen years ago I had to annihilate a flock which frequented my garden; they destroyed all vegetable plants as soon as they showed above the ground, especially peas and beans. I can never understand why all authors describing this bird, state that it has pearly-white eyes. I have lived practically amongst these birds for over twenty years and have never seen a single bird with white eyes, and I have often gone out purposely with field-glasses, and searched flock after flock. They certainly do not have white eyes in these parts. They breed here, usually placing their nests in pine trees, and often using the same nest more than one season, and they have a habit of sitting upon nests long before an egg is laid. They usually lay four eggs for a sitting, but I have found as many as nine and have taken their eggs from September 5th up till November 5th."

Le Souëf has described eggs taken in the Port Darwin District as being smaller than those from the south. Is this record reliable?

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Captain S. A. White writes: Have often met with this strange bird in Queensland and New South Wales; it moves about in columns of four or five to twenty birds; they are very much like the Babbler in habits and movements, making a continuous call, and they seem to be always on the move. Both birds assist in building the mud nest. Food consists of minute seeds, etc. Nesting time September to November. Clutch three to four eggs. When some 20 miles from Daly Waters, Northern Territory, in 1922, upon the overland trip to Darwin, I saw several very large communities of this bird and took specimens; they are larger and of a whitish-bluish tinge. These birds were in a low sub-tropical vegetation, at times hopping upon the ground, then climbing all over the big bean tree. I have not seen that this bird has been previously recorded for the Northern Territory.

Berney has written from the Richmond district, North Queensland: "I saw a good many of these noisy birds in April, 1904, about the scrubby country on the road leading from Cambridge Downs to Saxby. This is the only time I have come across them here, the district being mostly unsuited to them."

Macgillivray has recorded: "First met with near Granada, on the Leichhardt River, where a flock of about thirty was disturbed and a specimen obtained. They were common thence onwards. ♀ Irides brown, with yellow outer ring, bill and legs black. Gizzard contained grasshoppers, seeds and coarse sand."

Cleland in his *Census of the Birds of the Pilliga Scrub, New South Wales*, has written: "These 'lousy birds,' as they are popularly called, from the presence of *Mallophaga*, were amongst the most numerous and universally distributed of the species met with. Companies were often seen in the heart of the scrub, apparently often not near water. Altogether, 194 were counted, which, on the previous estimation, gives a minimum population for the scrub of 12,804. From my notes I find that the numbers of birds found together in 'families' during the trip were as follows: fourteen on one occasion, nine on three occasions, eight on three, seven on three, six on five, five on five, four on five, three on five, two on six, and one on six occasions. Possibly in some instances, as when fourteen were seen, two 'families' may have been met with near each other, and probably in many cases not all of the members of the 'family' were counted. It would be interesting to know the sex and age of the members of a 'family,' and also whether 'families' ever amalgamate."

In 1912 I separated the Queensland bird as being darker, but I lumped in 1913; I now admit three subspecies.

Struthidea cinerea cinerea Gould.

New South Wales.

Struthidea cinerea swainsoni Mathews.

Queensland.

Struthidea cinerea dalyi Mathews.

Northern Territory.

Order PASSERIFORMES.

Family CINCLOSOMATIDÆ.

SAMUELA ALISTERI.

BLACK-BREASTED GROUND-BIRD.

(PLATE 600.)

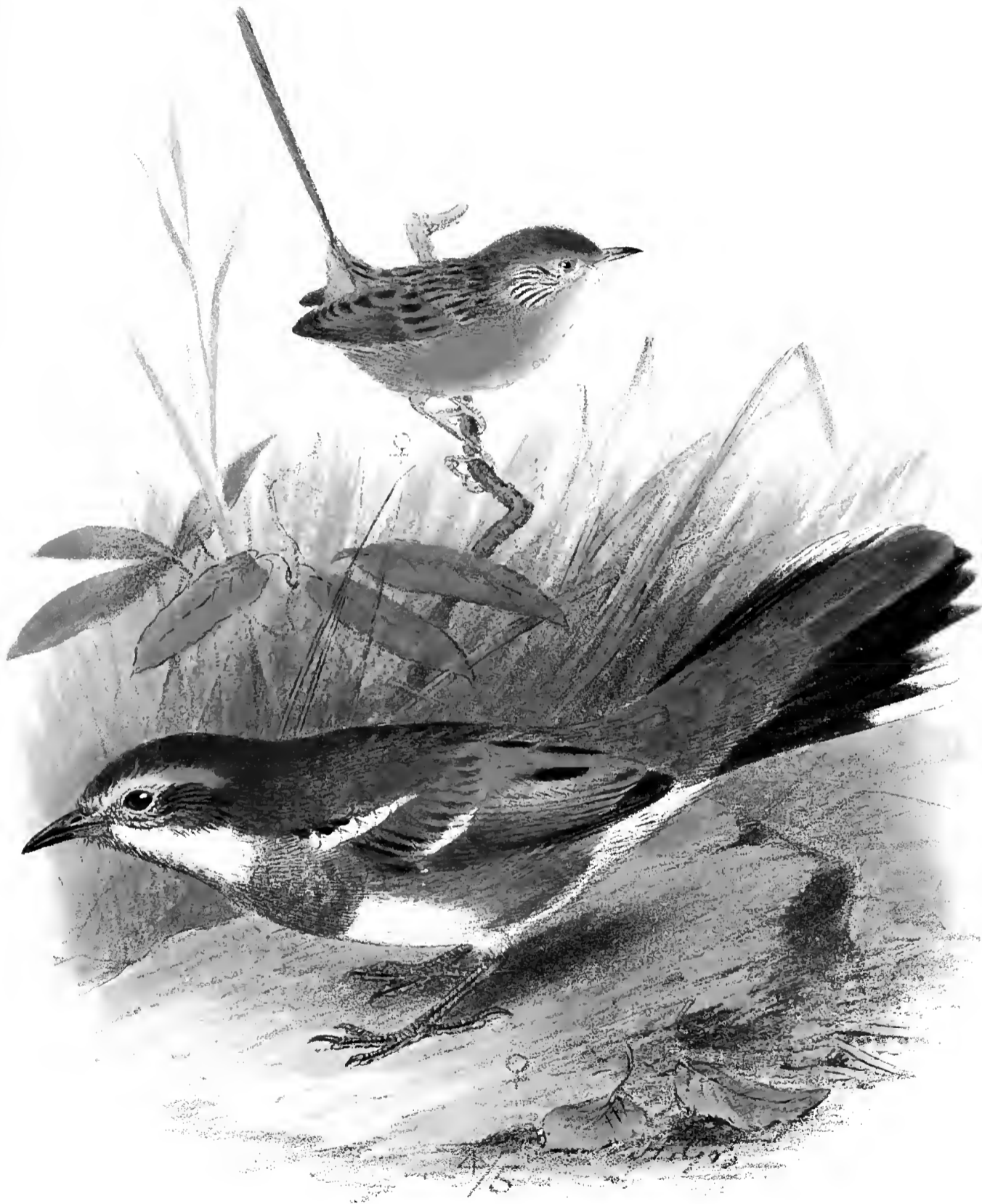
SAMUELA ALISTERI Mathews, Birds Austr., Vol. IX., pt. 5, p. 203, pl. 427, Dec. 15th, 1921;
Campbell, Emu, Vol. XXI., p. 161 and pl. XXII., 1922.

Adult female. Top of head, nape and mantle umber-brown; upper back similar but some of the feathers are rufous on the inner webs; lower back, rump, upper tail-coverts and middle tail-feathers burnt sienna, like the sides of the body; outer tail-feathers black tipped with white—the white increasing in extent towards the outermost; scapulars cinnamon-rufous like the outer margins of the flight-quills; lesser and median upper wing-coverts black tipped with white, the greater series also black margined with umber-brown and fringed with white at the tips; bastard wing and primary-coverts black tipped with white; flight-quills dark hair-brown, some of the primaries edged with greyish-white on the outer webs; a supraloral streak which extends over the eye and along the sides of the crown smoke-white; ear-coverts similar to the top of the head but rather darker; lores and feathers in front of the eye smoke-white with dark bases; rictal bristles black; cheeks and hinder part of face white; chin, throat and fore-neck grey with dark longitudinal streaks and more or less white intermixed on the chin, where many of the feathers have black hair-like tips; breast, abdomen and under tail-coverts cream-white; lesser under wing-coverts white, the greater series grey; under-surface of flight-quills silvery-grey; lower aspect of outer tail-feathers black with white tips and the middle ones burnt sienna like their upper surface. Bill black, eyes coffee-brown, feet lead-grey. Total length 205 mm.; culmen 13, wing 86, tail 77, tarsus 25. Collected at Naretha, West Australia, on the 10th of August, 1921.

Nest. Situated at the foot of a dead blue-bush, and consisted of a hollow scratched in the ground, lined with fine dry grasses, and with a rim of coarse herbage on a level with the ground.

Eggs. Clutch three. Oval in shape, ground-colour dull, creamy-white, with the least perceptible trace of a greenish tinge; well spotted and blotched all over, chiefly at the larger end, with olive-brown and slaty-grey markings; surface of shell very smooth and somewhat glossy. Dimensions, 27 mm. by 19.

Breeding-season. October.



H. Grönvold. del.

Witherby & Co

STIPITURUS RUFICEPS
(RUFIOUS-CROWNED EMU-WREN)

SAMUELA ALISTERI
(BLACK-BREASTED GROUND-BIRD)

RECEIVED

Order PASSERIFORMES.

Family CINCLOSOMATIDÆ.

SAMUELA CINNAMOMEA.

CINNAMON GROUND - BIRD.

SAMUELA CINNAMOMEA Mathews, *Birds Austr.*, Vol. IX., pt. 5, plates 425-6, Dec. 15th, 1921.

IN the *Birds Austr.*, Vol. IX., pt. 5, pp. 196-202, Dec. 15th, 1921, I dealt with this species, making Gould's *Cinclosoma castaneothorax* and Sharpe's *C. marginatum* subspecies only. This was questioned by my Australian friends, and recently, when Mr. Edwin Ashby was in England, skins were sent to him for comparison. We examined the whole matter very closely with somewhat extraordinary results as to details, but with the satisfaction of agreement as to the relationship of the named form.

Gould first named *Cinclosoma cinnamomeus* from South Australia, and recently I selected Finke River as the type locality, as he stated it came from the interior of South Australia. But upon again examining the matter I note that Captain Sturt procured a single specimen during his lengthened sojourn at the Depôt in that sterile and inhospitable region, the interior of South Australia. This gives us the exact type locality, as it is now well known that Sturt's Depôt was fixed in the north-western corner of New South Wales. Gould later described *Cinclosoma castaneothorax* from a single male forwarded by Coxen, who discovered it in the scrubby belt of trees growing on the tableland to the northward of the Darling Downs. Macgillivray, writing in March, 1924, tells me that he obtained a female near Adavale in Queensland. In the British Museum is a specimen catalogued "a ♂ ad. sk. Darling Downs (J. Coxen). J. Gould, Esq. (Type of species)."

This specimen has Gould's small label with "*Cinclosoma castaneothorax* Gould" on the front, and on the back is written the British Museum Register No. "55.11.5.31 ex Gould." Upon reference to the British Museum Register this is described as "*Cinclosoma* bought of Gould" but with no other details. As the specimen was figured by Gould in his Supplement in the part published September 1st, 1855, this can be safely considered as the typical specimen.

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The following year, G. R. Gray registered in the British Museum as 56.12.24, 1 and 2, *Cinclosoma castaneothorax*, and made a note: "From an Australian Expedition, probably Mr. Austin's, W. Austr." These are rough skins and when Sharpe prepared the Catalogue without referring to the Register he guessed the skins were those made by Elsey, as all Elsey's skins were rough flat ones from force of circumstances. He then separated these from *Cinclosoma castaneothorax* as a different species under the name *Cinclosoma marginatum*, writing "a b ♂ ad. sk., N.W. Australia, J. R. Elsey (P.)," which was incorrect.

Of course, as is now known, Elsey never reached the North-west as we know it to-day, but was on the Victoria River, Northern Territory, for a long time.

The facts then are:—

Cinclosoma cinnamomeus Gould.

Depôt, Sturt = North-west New South Wales.

Cinclosoma marginatum Sharpe.

"N.W. Australia Elsey." Error = North-west New South Wales.

Cinclosoma castaneothorax Gould.

Darling Downs.

The form I separated as *Cinclosoma castaneothorax nea* from Day Dawn, West Australia, was compared with Sharpe's types and was much paler as stated. Ashby's specimens from the Murchison agree with mine and disagree with the above-mentioned Sharpe's types in being lighter.

Then, *Emu*, Vol. XXV., p. 152, Feb. 11th, 1926, Mr. F. L. Burney supplied the following information about his rediscovery of a male of *S. castaneothorax* at Barcarolle, Longreach, Queensland, in September, 1925: "Riding home a few evenings ago, I chanced on a dead bird that had flown against a dog-netted fence and killed itself, and closer inspection showed it to be, I believe, Gould's Chestnut-breasted Ground Thrush."

Dr. W. D. K. Macgillivray procured a female near Adavale, Charleville, Queensland, on August 27th, 1923.

STIPTURUS RUFICEPS.

On the same plate as *Samuela* I have figured the female of the Rufous-crowned Emu Wren, *cf.* Vol. X., p. 146, pt. iii., January 30th, 1923.

CORRECTIONS AND ADDITIONS TO MY CHECK LIST.

PART II.

- P. 3. Add Genus *Pygoscelis* Wagler, Isis, 1832, col. 281, heft. iii. for March. Type (by monotypy) *Aptenodytes papua* Forster.
Pygoscelis papua papua (Forster).
Aptenodytes papua Forster, Comment. Götting., Vol. III., p. 140, pl. 3, 1781 (after May 15th): Falkland Islands.
Distr.: Kerguelen, Heard and Marion Islands; Falkland Islands.
Pygoscelis papua tæniata (Peale).
Aptenodytes tæniata Peale, U.S. Expl. Exped., Birds, p. 264, 1848 (on or before October): Macquarie Islands.
Distr.: Macquarie Islands (breeding). Accidental to Tasmania (cf. Emu, Vol. XXV., p. 212, 1926, and Vol. XXVI., p. 137).
- P. 16. To the synonymy of No. 54 add:—*Gallinula hæmatopus* Bonaparte, Comptes Rendus Acad. Sci., Paris, Vol. XLIII, p. 600, September 22nd, 1856.
- P. 17, No. 56. For *Porphyrio bellus* read *Porphyrio cyanophalus* Vieillot.
Porphyrio cyanophalus Vieillot, Nouv. Dict. Hist. Nat., Vol. XXVIII, p. 28, May, 1819: loc. unknown=South-west Australia.
Pterodroma brevirostris (Lesson) (24-409): Kerguelen, Fulmar.
Procellaria brevirostris Lesson, Traite d'Orn., 8 livr., p. 611, June 11th, 1831. No locality =Kerguelen Island (breeding), fig. Godman, Monogr., pl. 60.
Estrelata kidderi Coues, Bull. U.S. Nat. Mus., No. 2, p. 28, November, 1875: Kerguelen Island.
Procellaria unicolor Coues, *ib.* as synonym of *kidderi* Coues, ex Gould.
Distr.: South Atlantic and Indian Oceans; Kerguelen Island and Tristan da Cunha. Accidental to West Australia, cf. Emu, Vol. XXVI., p. 136, October, 1926.
- P. 80, No. 251. *Psittacus magnificus* Shaw & Nodder has a definite date, December 1st, 1790. *Psittacus banksii* Latham has an indefinite date, "before December 9th."
- P. 86, No. 270. Read *Platycercus flaveolus* Gould, Synopsis Birds Austr., pt. II., pl. 23, April, 1837.
- P. 88, No. 277A. Add *Barnardius crommelinæ* Mathews, Bull. Brit. Orn. Club, Vol. XLVI., p. 21, November 4th, 1925: "Australia."
- P. 91, No. 288. Read *Nanodes elegans* Gould, Synopsis Birds Austr., pt. II., pl. 25, April, 1837.
- P. 97, No. 305. For *Dacelo gigas* (Bodd.) after December 1st, 1783, read *Dacelo novæguinæ* (Hermann) before November 15th, 1783.
- P. 106, No. 333. Add *Menura edwardi* Chisholm, Emu, Vol. XX., pt. 4, p. 223, April 23rd, 1921: Stanhope, South Queensland.

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- P. 127, No. 372. For *Kempiella kempi* read *Kempiella griseiceps kempi*.
Micræca griseiceps De Vis, Reports on British New Guinea. Report on Ornith. Spec. Coll. in British New Guinea, p. 101, 1894 (after October 19th): Mt. Maneao, British New Guinea.
 I recorded this on p. 233 of my Check List, September 8th, 1824.
- P. 134, No. 389. For *Leucocirca leucophrys* read *Leucocirca volitans*.
Turdus volitans Latham, Index Ornith. Suppl., p. xli. (after May 30th), 1801: Sydney, New South Wales.
 I am able to add this, as it was founded on "Lambert Drawing," Vol. I., pl. 59. Not on a Watling Drawing.
- P. 139, No. 403. Add *Graucalus papuensis wilkinsi* Kinnear, Bull. Brit. Orn. Club, Vol. XLIV., p. 68, March 31st, 1924: Mt. Driven, South Central Queensland.
- P. 140, No. 408. Add *Lalage leucomela insulicola* Todd, Proc. Biol. Soc. Wash., Vol. 37, p. 119, June 8th, 1924: Friday Island, Torres Straits.
- P. 142, No. 414. Add *Cinclosoma castanotum clarum* Morgan, South Austr. Ornithol., Vol. VIII, pt. 5, p. 138, January 1st, 1926: Wipipippee, Lake Gairdner, South Australia.
- P. 149, No. 438A. Add *Conopoderas orientalis orientalis* (T. & S.).
Salicaria turdina orientalis Temminck & Schlegel, Fauna Japonica, Aves, p. 50, pl. 20B, 1847, Japan.
 Distr.: Japan to Borneo, Macassar and Sumatra.
Conopoderas orientalis melvillensis (Mathews).
Acrocephalus australis melvillensis Mathews, Austral. Av. Rec., Vol. I., pt. 3, p. 77, June 28th, 1912: Melville Island.
 Distr.: Melville Island.
- No. 439A. Add *Cisticola juncidis juncidis* (Raf.).
Sylvia juncidis Rafinesque, Caratteri alc. nuvoi gen. spec. anim. Sicilia, p. 6, spec. 10, 1810, Sicilia.
Cisticola juncidis normani Mathews.
Cisticola exilis normani Mathews, Austral. Av. Rec., Vol. II., pt. 5, p. 98, September 24th, 1914: Norman River, Queensland.
 Distr.: Queensland (West).
- P. 156, No. 456. For *Neosericornis lathamii* read *Neosericornis citreogularis* as *Muscicapa barbata* Latham is indeterminate, and *lathamii* Stephens is founded on the same figure.
- P. 158, No. 461. To the synonymy of *Sericornis maculatus houtmanensis* Zietz add *S. m. fuscipes* Alexander, Journ. Linn. Soc. (Lond.), Zool., Vol. XXXIV, p. 465, February, 1922: Wallaby Island, West Australia.
- P. 174, No. 516. To the synonymy, add *Barita cinerica* Peale, U.S. Expl. Exped., Birds, p. 315, 1848, nude name.
- P. 180, No. 536. Add *Zosterops westernensis flindersensis* Ashby, Emu, Vol. XXV., pt. 2, p. 117, October 9th, 1925: Flinders Island, Bass Straits.

CORRECTIONS TO MY CHECK-LIST.

- P. 181, No. 539. Add *Zosterops lutea montebellænsis* Ashby; *ib.*, Monte Bello Islands, Mid.-West Australia.
- P. 186, No. 555. *Certhia sanguinolenta* Latham, 1801, is indeterminable. Read *Myzomela dibapha* (Latham).
Certhia dibapha Latham, Index Ornith. Suppl., p. xxxvii., 1801 (after May 30th): New South Wales (Watling drawing No. 108, not 107, and is the Coehineal Creeper).
- P. 191, No. 572. For *Glycichæra claudi* read *Glycichæra fallax claudi*.
Glycichæra fallax Salvadori, Ann. Mus. Civ. Genova, Vol. XII., p. 335, June 4th, 1878: New Guinea.
- P. 199, No. 598. For *Xanthotis flaviventer* read *Xanthotis chrysotis*.
Philedon chrysotis Lesson, Voy. Coquille, livr. 6, pl., 21, March 22nd, 1828.
- P. 203, No. 611. Add to the synonymy *Ph. corn.* var. *minor* Sassi, Journ. f. Orn., July, 1909, p. 378, nude name.
- P. 208, No. 622A. Read *Donacola lepidothorax* Caley, Emu, Vol. XXV., pt. 3, p. 133, pl. 26, February 11th, 1926: "Northern Territory."

Since I first put forward my theory that there were a great many "islands" in Australia (that is to say, that birds from a certain prescribed area differ, in some way, from those that live in the surrounding localities) I have found many more, as have other ornithologists. I have known a small stream mark off birds that are common just across the water, thus making a boundary of an "island."

While working up my subject I found that little was known of the life histories of our birds, so I sent out a circular in 1907 to very many people in Australia whom I thought able to help science by observing the following points:—

- A.—Are the young born blind? If so, how old are they before they are able to see? Are they born naked or feathered; if the former how old are they before they get their feathers, and how many plumage changes are there before they become adult? Are they born able to take care of themselves; if not, how old are they before they can? What is the colour of the inside of the mouth?
- B.—How old are they before they leave the nest, and for how long after do the parents feed them?
- C.—Do the young resemble the female for the first year? Do they get adult plumage first moult? If not, through how many do they go before being fully adult?
- Nest.—Where built, height from ground; do both birds build, if not, which does? How long does it take to construct? Do the birds enlarge it after the young are hatched? Of what material is it built?
- Eggs.—Number of clutch; at what intervals are the eggs laid and at what hour? How many clutches are hatched in a season? Is a new nest constructed for a new clutch? What is the incubation period and do the birds begin to sit as soon as the first egg is laid, or do they wait for the complete clutch before doing so? Do both birds sit, if not, which? Do both parents feed the young, if not, which one does?
- Are the birds migratory or not; if the former, where do they go? Are they insectivorous; if not, what is their food? Are they destructive or useful? On what trees or shrubs do the birds usually live, and what is their song?

This resulted in much information being published in the Emu, as many of the points above noted were made the special study of some keen worker, and interest was stimulated as soon as information on certain points was requested.

APPENDIX.

Continued from Supplement No. 2, pp. vii. to xvi., 1923.

The following are the dates of the works in which the names appear; a * indicates that Mr. T. Iredale is part author.

1923.

- Birds of Australia, Vol. X., pt. iii., January 30th.
Reviewed Ibis, April, 1923, pp. 340-342; Auk, April, 1923, p. 349.
- Austral Avian Record, Vol. V., Nos. 2-3, February 21st.
Additions and Corrections to my Lists of the Birds of Australia.
*More Notes of Interest.
*Type Designation.
- Birds of Australia, Vol. X., pt. iv., March 19th.
Reviewed Ibis, July, 1923, pp. 545-546; Auk, July, 1923, pp. 556-557.
- Birds of Australia, Vol. X., pt. v., April 24th.
Reviewed Ibis, October, 1923, pp. 759-762; Auk, July, 1923, pp. 556-557.
- Birds of Australia, Vol. X., pt. vi., June 5th.
Reviewed Ibis, October, 1923, pp. 759-762; Auk, October, 1923, p. 705.
*British Birds, Vol. XVII., No. 2, July 2nd, pp. 47-48.
- Remarks on Storm Petrels.
Palæarctic Ornithologists and Australian Birds.
Gould's North-west Coast of Australia.
Emu, Vol. XXIII., pt. i., July 4th, pp. 51-58, 76-77.
- Birds of Australia, Vol. X., pt. vii., July 26th, and
Check List of the Birds of Australia, pt. ii., July 26th.
Reviewed Ibis, October, 1923, pp. 759-762; Auk, October, 1923, p. 705.
- Birds of Australia, Vol. XI., pt. i., October 8th.
Reviewed Ibis, January, 1924, pp. 176-177; Auk, January, 1924, p. 183.
- New Subspecies and Names.
Bulletin British Ornithologists' Club, Vol. XLIV., p. 15, November 5th.
- Birds of Australia, Vol. XI., pt. ii., November 21st.
Reviewed Ibis, July, 1924, pp. 569-572; Auk, January, 1924, p. 183.
- Birds of Australia, Vol. XI., pt. iii., December 27th.
Reviewed Ibis, July, 1924, pp. 569-572; Auk, April, 1924, p. 368.

1924.

- Birds of Australia, Vol. XI., pt. iv., February 20th.
Reviewed Ibis, July, 1924, pp. 569-572; Auk, July, 1924, p. 500.
- New Subspecies and Names.
Bulletin British Ornithologists' Club, Vol. XLIV., pp. 69-70, March 31st.
- Birds of Australia, Vol. XI., pt. v., April 2nd.
Reviewed Ibis, July, 1924, pp. 569-572; Auk, July, 1924, p. 500.
- Birds of Australia, Vol. XI., pt. vi., June 21st.
Reviewed Ibis, October, 1924, pp. 796-798; Auk, October, 1924, p. 625.
- Type Description; Nomenclature.
South Australian Ornithologists, Vol. VII., pt. 7, pp. 211-214, July 1st.
- White's Journal of a Voyage to New South Wales.
Emu, Vol. XXIV, pp. 70-71, July 4th.

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- Birds of Australia, Vol. XI., pt. vii., July 31st.
Reviewed Ibis, October, 1924, pp. 796-798; Auk, October, 1924, p. 625.
- Birds of Australia, Check List, pt. iii., September 8th.
Reviewed Ibis, January, 1925, pp. 277-278; Auk, January, 1925, p. 158.
- Birds of Australia, Vol. XI., pt. viii., October 25th.
Reviewed Ibis, January, 1925, pp. 277-278; Auk, January, 1925, p. 158.
- Description of a New bird.
Bulletin British Ornithologists' Club, Vol. XLV., p. 17, October 29th.
- Description of New birds.
Bulletin British Ornithologists' Club, Vol. XLV., p. 41, December 5th.
- Birds of Australia, Vol. XI., pt. ix., December 22nd, 1924.
Reviewed Ibis, April, 1925, p. 505; Auk, 1925, p. 295.
- 1925.
- Birds of Australia, Vol. XII., pt. i., March 3rd.
Reviewed Ibis, October, 1925, pp. 926-928; Auk, July, 1925, pp. 454-455.
Nomenclatural notes:--Bull. Brit. Orn. Club, Vol. XLV., pp. 86-87, March 31st.
- Birds of Australia (Bibliography, pt. i.), April 6th.
Reviewed Ibis, July, 1925, p. 732; Auk, July, 1925, pp. 454-455.
Nomenclatural notes as above, pp. 93-94, April 25th.
- Birds of Australia, Vol. XII., pt. ii., May 11th.
Reviewed Ibis, July, 1925, p. 731; Auk, July, 1925, pp. 454-455.
Nomenclatural notes as above, p. 106, May 30th.
- Birds of Australia, Vol. XII., pt. iii., and Bibliography, pt. 2, June 22nd.
Reviewed Ibis, pp. 926-928; Auk, October, p. 600.
- Birds of Australia, Vol. XII., pt. iv., August 31st.
Reviewed Ibis, January, 1926, pp. 209-210; Auk, January, 1926, p. 121.
New form of *Barnardius* and new names; Remarks on German Ornithologists' Union.
Bulletin British Ornithologists' Club, Vol. XLVI., pp. 20-21, November 4th.
- Birds of Australia, Vol. XII., pt. v., November 23rd.
Reviewed Ibis, April, 1926, p. 419; Auk, April, 1926, p. 262.
- 1926.
- Austral Avian Record, Vol. V., No. 4, January 11th.
Another new book which necessitates changes in nomenclature.
- New names.
Bulletin British Ornithologists' Club, Vol. XLVI., p. 60, January 30th; p. 76, February 25th, and p. 93, March 29th.
- Birds of Australia, Vol. XII., pt. vi., March 24th.
Reviewed Ibis, July, p. 609; Auk, July, p. 393.
- Birds of Australia, Vol. XII., pt. vii., June 28th.
Reviewed Ibis, October, pp. 815-816; Auk, p. 569.
- On a change in name.
Bulletin British Ornithologists' Club, Vol. XLVI., p. 131, July 13th.
- Birds of Australia, Vol. XII., pt. viii., September 6th.
Reviewed Ibis, January, 1927, pp. 158-159; Auk, January, 1927, p. 135.
- On some changes in names.
Bulletin British Ornithologists' Club, Vol. XLVII., p. 40, November 6th.
- Birds of Australia, Vol. XII., pt. ix., December 9th.
- Description of subspecies.
Bulletin British Ornithologists' Club, Vol. XLVII., pp. 67-68, December 29th.

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