ventris. It resembles that bird, excepting that its entire plumage is very dark, due, no doubt, to its living among the mangroves. In the sand-dunes we found Myzantha flavigula and a Sericornis

which seems similar to the one in the samphire country.

Leaving Arno Bay at midnight in a dinghy for the steamer, which lay some distance off the shore, we returned to Port Lincoln, where the boat stayed long enough for us to have a run through the scrub. We saw Turnix varia running over the stony ground in the thick scrub, and came upon another little party of Sericornis. Several specimens of Eopsaltria gularis were observed, and, for the first time during this trip, we heard the song of Pachycephala meridionalis. In the thick bush Malurus cyaneus were nesting. There were still great numbers of Trichoglossus novæ-hollandiæ about, in company with Glossopsittacus porphyriocephalus. They were feeding on the malleeflowers, and guns were being discharged on every side. It being Saturday afternoon, numbers of lads were out from the town bent on bird slaughter. Leaving Port Lincoln that evening, we were home next day, and so ended a very successful trip.

Two families of birds were met with on this trip—namely, Calamanthus and Sericornis—which will take a good deal of looking into, and, from the material we have secured, some new divisions should be made. The distribution should prove very interesting. Expeditions of this character should bring to light, if not new species, at least many variations hitherto overlooked. The light brown variety of Sericornis which we found in many parts of Eyre Peninsula seems to be in two distinct forms. The one noted by the members of the R.A.O.U. at Warunda in 1909 still holds good, and is evidently S. maculata. Comparing specimens taken during the camp-out in 1909 with some taken near Adelaide and those from Western Australia, one cannot tell one from the other; yet, according to Mr. A. J. North's description, this is not maculata. What, then, is it?

Examination of Contents of Stomachs and Crops of Australian Birds.

By J. Burton Cleland, M.D., Ch.M., Principal Assistant Microbiologist, Bureau of Microbiology, Sydney, N.S.W.

In two previous numbers of *The Emu** the results have already been given of the examination of the stomachs and crops of 200 birds found in Australia. The present series is a continuation of this, and consists of the examination of the contents of a further number (105) of birds, making a total so far recorded of 305.

I am again indebted to the valuable information contributed by Mr. W. W. Froggatt, F.L.S., Government Entomologist, New South Wales, and to Mr. J. H. Maiden, F.L.S., Director of the

^{*} Vol. ix., p. 219, and vol. xi., p. 79.

Botanic Gardens, Sydney, under whose direction Mr. E. Mackinnon, B.Sc., has identified seeds, &c., present. I have also to thank the authorities of the Australian Museum, Sydney, for helping on a number of occasions, especially Mr. C. Hedley, F.L.S., and Mr. A. MacCulloch. I am also very much indebted to Dr. T. L. Bancroft, of Eidsvold, Queensland, for kindly forwarding a large number of specimens, which are labelled as from Queensland. These were sent to Dr. Harvey Johnston and myself during our investigations for the presence of parasites. I am indebted to Mr. L. Harrison, R.A.O.U., for the identification of a number of these Queensland specimens of birds.

As in previous papers, Mathews' Hand-list has been followed, the letter M. standing for this list, while Hall's number is also

given, and the vernacular name which he adopts.

Catheturus lathami (M. 7, H. 567). Brush-Turkey.

Queensland.

Full of seeds—round black ones, grass seeds, &c.

(E.M.) Geijera. These may be Xanthoxylum (sp., e.g., thorny yellow-wood), but the size and shape of the embryos seem to be Geijera. As these seeds appear in no less than 15 of the specimens from the Murray to Queensland, I think they are probably Geijera (sp.) Grass seed—only free internal grain, no glumes; cannot identify species or genus.

Geopelia placida (M. 34, H. 547). Peaceful Dove.

Eidsvold, Queensland.

Small, round, dark brown seeds.

(E.M.) Cyperaceæ.

Geophaps scripta (M. 42, H. 555). Partridge Bronze-wing Pigeon. Queensland.

Oval blackish seeds.

(E.M.) Geijera. (See M. 7, H. 567.)

Ibis molucca (M. 194, H. 702).

Portions of crustaceans.

(A. MacCulloch.) Grapsidæ.

Herodias timoriensis (M. 203, H. 710). White Egret.

Remains of a shrimp; portions of grasshoppers (?).

(W.W.F.) Black cricket (Gryllus servillei); young shrimp.

Platycercus pallidiceps (M. 339, H. 503). Pale-headed Parrakeet. Queensland.

Small whitish and brownish seeds.

(E.M.) Two pieces of quartz and many pieces of black mineral matter present. The rest of the specimen consists of the grain of some grass, but only an odd glume or two can be found, and the species cannot be identified. There are many of the free grains present.

Merops ornatus (M. 396, H. 442). Bee-eater.

(a) Queensland.

Portions of beetles (?) and Hymenoptera.

(W.W.F.) Native banded bee (*Podalerius*, sp.) (Hymenoptera); *Sphex*, sp. (Hymenoptera); red-bodied native bee (Hymenoptera); tabanid fly (*Tabanus*, sp.) (Diptera); remains of other flies, bees, and beetles.

(b) Queensland.

Portions of Hymenoptera and other insects.

(W.W.F.) Hymenoptera—Thynnus, sp.; several bees; several froghoppers (Eurymela, sp.); remains of beetles.

(c) Queensland.

Portions of Hymenoptera, &c.

(W.W.F.) Ant-lion (Glenurus, sp.); remains of cricket; forest fly (fam. Dexiidæ); another fly; remains of flies and beetles.

Chalcococcyx plagosus (M. 412, H. 462). Bronze-Cuckoo.

Queensland.

Full, apparently, of remains of hairy caterpillars.

(W.W.F.) Lepidopterous larva (Geometridæ); brown looper caterpillar.

Micrœca fascinans (M. 433, H. 86). Brown Flycatcher.

(a) Queensland.

Portions of beetles.

(W.W.F.) Beetle and ant remains, and remains of small Orthoptera.

(b) Queensland.

Portions of beetles.

(W.W.F.) Remains of ants and beetles.

(c) Queensland.

Portions of beetles.

(W.W.F.) Chiefly ants; a few remains of beetles.

(d) Queensland.

Portions of beetles.

(W.W.F.) Beetle and ant remains, small caterpillar, and remains of small Orthoptera.

(e) Queensland.

A ladybird, fragments of beetles, &c.

(W.W.F.) Wood ants (*Polyrhachis*, sp.); chrysomelid beetle (*Paropsis*, sp.); two small spiders.

Smicrornis brevirostris (M. 449, H. 100). Short-billed Tree-Tit.

(a) Eidsvold, Queensland.

Several oval, rough, dark brownish seeds.

(E.M.) Geijera. (See M. 7, H. 567.) The rough and brownish appearance is due to the testa being digested at numerous points, giving a pitted appearance.

(b) Murray Flats.

Fragments of insects.

(W.W.F.) No insect remains that can be determined.

(c) Eidsvold, Queensland.

Some minute fragments of insects and vegetable tissue.

Rhipidura albiscapa (M. 476, H. 133). White-shafted Fantail. Queensland.

Portions of insects.

(W.W.F.) Small homopterous insect (Cercopida), ants, and several native bees.

Rhipidura tricolor (M. 487, H. 139). Black-and-White Fantail.

(a) Eidsvold, Queensland.

Fragments of insects.

(W.W.F.) Chiefly the remains of ants and small beetles.

(b) Queensland.

Portions of insects.

(W.W.F.) Robber flies (Asilidae), (wings, legs, and head).

Coracina robusta (M. 504, H. 78). Black-faced Cuckoo-Shrike. Coonalpyn, South Australia.

Portions of grasshoppers.

(W.W.F.) Remains of small green mantis and a few beetlewings.

Edoliisoma tenuirostre (M. 509, H. 83). Caterpillar-eater.

Oueensland.

Remains of grasshoppers (?); some large blackish seeds.

(W.W.F.) Orthoptera—long-horned grasshopper, probably a form of tree-cricket, but no thighs or head to identify.

(E.M.) Geijera seeds. (See M. 7, H. 567.)

Cinclosoma castanonotum (M. 516, H. 213). Ground-Bird. South Australia.

Some oval black seeds, some longer yellow ones, and a grass seed.

(E.M.) Geijera. (See M. 7, H. 567.) Some whole, some broken and the cotyledons free, and so appear as yellow seeds. One grass seed (Bromus) appears to be B. sterilis, L.

Drymaædus brunneipygius (M. 521, H. 218). Scrub-Robin.

(a) Coonalpyn, South Australia.

Fragments of a beetle, &c.

(W.W.F.) Ants and heteromerous beetles.

(b) Coonalpyn, South Australia.

Fragments of insects, &c.

(W.W.F.) Remains of ants and small beetles.

(c) Murray Flats, South Australia.

Fragments of insects; about a dozen large, round seeds.

(W.W.F.) Hard black seeds and remains of ants.

(E.M.) Seeds of Geijera. (See M. 7, H. 567.)

Hylacola cauta (M. 525, H. 222). Red-rumped Ground-Wren. Coonalpyn, South Australia.

Fragments of beetles, &c.

(W.W.F.) Remains of beetles, and small leaf-hopper (Cercopida).

Chthonicola sagittata (M. 558, H. 187). Little Field-Wren.

Queensland.

Seeds—(a) small triangular brown ones, (b) larger oval yellowishbrown ones; few minute fragments of insects.

(E.M.) Grass, Setaria glauca; small—8 seeds of Cyperaceæ with triangular cross-section.

Acanthiza pusilla (M. 561, H. 190). Brown Tit.

Middle Harbour, Sydney, 15th April, 1911.

Fragments of insects; small white eggs of insect.

(W.W.F.) Beetle remains and some bits of wings of lace-wings.

Acanthiza pyrrhopygia (M. 568, H. 193). Red-rumped Tit.

(a) Coonalpyn, South Australia. Fragments of small beetles. &c.

(W.W.F.) Termites' (white ants') wings; remains of small beetles.

(b) Coonalpyn, South Australia. Fragments of small beetles, &c.

(W.W.F.) Remains of small beetles, but nothing definite.

Acanthiza uropygialis (M. 573, H. 195). Chestnut-rumped Tit. Murray Flats, South Australia.

Two small, brown, disc-shaped seeds.

(E.M.) Salt-bush, but species not identifiable—seed only present, without membranes, &c. (N.O. Chenopodiacea.) Fragments of insects.

(W.W.F.) Chiefly dipterous remains.

Sericornis brunnea (M. 580, H. 199). Redthroat.

Queensland.

Portions of a large insect; several long, curved yellow "seeds." (W.W.F.) Larvæ of moth; beetle remains.

(E.M.) Not seeds—insect eggs and embryos.

Stipiturus malachurus (M. 610, H. 174). Emu-Wren.

(a) Middle Harbour, Sydney, 15th April, 1911.

Fragments of insects.

(W.W.F.) Small Homoptera and a few beetle remains.

(b) Fragments of insects.

(W.W.F.) Insect remains too indefinite to determine, but probably beetles and some Homoptera.

Grallina picata (M. 646, H. 67). Magpie-Lark.

Oueensland.

Three kinds of seeds—(I) narrow black, (2) rounded black, (3) oval yellow; portion of a grasshopper and other insects.

(E.M.) (1) Insect egg-cases, (2) a legume, (3) grass (Setaria—

probably S. glauca), 3 mm. long.

(W.W.F.) Weevils and other beetles; a long-horned grass-hopper.

Cracticus destructor (M. 658, H. 252). Butcher-Bird.

(a) Eidsvold, Queensland.

Remains of insects; several elongated kidney-shaped "seeds," yellowish-brown to black.

(W.W.F.) Beetle remains, earwig, and wings of Orthoptera.

(E.M.) Not seeds—eggs of insects.

(b) Queensland.

Portions of grasshoppers and beetles.

(W.W.F.) Large mantis; chrysomelid beetles (*Paropsis*, sp.); cockroach; heteromerous beetles; other beetle remains.

(c) Queensland.

Remains of grasshoppers; large brown seeds.

(W.W.F.) Brown moth (Noctuids).

(E.M.) Geijera seeds. (See M. 7, H. 567.) Black testa gone.

(d) Hawkesbury River, 29th June, 1911.

Smell of bugs. One large bug and many remains of insects.

(W.W.F.) Green plant bug (Hemiptera), Cuspiconia, sp.; wings of flies; beetle remains.

Oreoica cristata (M. 662, H. 258). Bell-Bird.

Coonalpyn, South Australia.

Fragments of insects; a grain of wheat.

(W.W.F.) Some grains of wheat; ants (Camponotus, sp.); remains of small beetles.

Pachycephala rufiventris (M. 674, H. 271). Rufous-breasted Thickhead.

(a) Queensland.

About eight rounded, mottled seeds; portions of a grass-hopper (?), &c.

(E.M.) Geijera. (See M. 7, H. 567.) Mottled appearance due

to unequal wearing of testa.

(W.W.F.) Remains of long-horned grasshopper; a few insect remains.

(b) Queensland.

Most of a large grasshopper, and other insect fragments; one brownish "seed."

(W.W.F.) Green grasshopper (Cadicia valida); other insect remains.

(E.M.) Not a seed, but an egg-case (chitinous).

Pachycephala gilberti (M. 676, H. 273). Gilbert Thickhead.

Murray Flats.

Some round black seeds and smaller yellow ones.

(E.M.) Geijera. (See M. 7, H. 567.) Smaller yellow ones are the cotyledons, &c., set free from the hard enclosing testas.

Eopsaltria australis (M. 683, H. 259). Yellow-breasted Shrike-Robin.

Hawkesbury River.

Beetles and other insects.

(W.W.F.) Yellow cicada (Homoptera); chrysomelid beetle (Calomela).

Eopsaltria chrysorrhoa (M. 684, H. 260). Yellow-rumped Shrike-Robin.

Queensland.

Fragments of beetles; one rounded, rough brown seed.

(W.W.F.) Chiefly spiders; a few beetle remains.

(E.M.) Geijera seeds. (See M. 7, H. 567.) Black testa gone.

Aphelocephala leucopsis (M. 689, H. 239). Whiteface.

(a) Murray Flats, South Australia.

Fragments of seeds, amongst them some elongated orange ones and some fragments like wheat.

(E.M.) All grains of wheat, in various stages of digestion and preservation.

(b) Murray Flats.

Fragments of seeds, amongst them one grain of wheat and about a dozen orange-coloured seeds.

(E.M.) All wheat grains.

Neositta pileata (M. 697, H. 289). Black-capped Tree-runner.

(a) Murray Flats, South Australia.

Small beetles, a grub, &c.

(W.W.F.) Small leaf-hoppers (Cercopidæ); Homoptera; a few beetle remains, among them one click beetle, mostly taken under

(b) Murray Flats, South Australia.

Small beetles, grub, &c.

(W.W.F.) Click beetle, ants, froghopper (Fulgorida), small heteromerous beetle—all probably taken on tree-trunk.

Climacteris picumna (M. 704, H. 281). White-throated Treecreeper.

Murray Flats, South Australia.

Fragments of insects; some minute vegetable fragments. (W.W.F.) Nearly all remains of ants; a few beetle remains.

Zosterops cœrulescens (M. 712, H. 301). White-eye.

(a) Oueensland.

Fragments of beetles; a yellow "seed." (W.W.F.) Remains of small beetles.

(E.M.) The "yellow seed" is an insect egg-a round, smooth case with a yellow mass of yolk.

(b) Middle Harbour, Sydney, 24th June, 1911.

Fragments of insects, amongst them a small beetle; some fragments of vegetable tissue, and two smallish, dull green oval seeds (? Exocarpus).

(W.W.F.) A small weevil; mainly remains of a very small

brown weevil. Hardly anything else except this beetle.

(E.M.) Seeds of some legume.

(c) Middle Harbour, Sydney, 24th June, 1911.

Fragments of insects; skin of caterpillar.

(W.W.F.) Mites, hawk-moth larvæ, a number of small caterpillars, remains of aphids.

Pardalotus punctatus (M. 726, H. 379). Spotted Pardalote (Diamond-Bird).

Oueensland.

Fragments of beetles; (?) lerp-scales.

(W.W.F.) Remains of small chrysomelid beetles (chiefly).

Pardalotus melanocephalus (M. 729, H. 382). Black-headed Pardalote.

(a) Eidsvold, Queensland.

Fragments of insects and spiders.

(W.W.F.) Remains of beetles, and a few larvæ, perhaps of Diptera.

(b) Eidsvold, Queensland.

Fragments of insects; some lerp-scales (?). (W.W.F.) Beetle remains (*Chrysomelidæ*).

(c) Eidsvold, Queensland.

Fragments of insects; some white lerp-scales (?); several minute yellow seeds.

(W.W.F.) Indefinite remains of small beetles.

(E.M.) The "seeds" are eggs of insect—about 1 mm.

(d) Eidsvold, Queensland.

Part of a grub; fragments of beetles, &c.

(W.W.F.) Chrysomelid beetles (Cadmus and Cryptocephalus, fam. Chrysomelidæ); moth caterpillar.

(e) Eidsvold, Queensland. Fragments of beetles, &c.

(W.W.F.) Small chrysomelid beetle; a Membracid and other Homoptera.

(f) Eidsvold, Queensland. Fragments of beetles, &c.

(W.W.F.) Remains of beetle, but nothing definite.

(g) Eidsvold, Queensland.

Fragments of insects; (?) skins of grubs; one small yellow seed. (W.W.F.) A looper caterpillar; beetle remains, very indefinite.

(E.M.) The "seed," egg of an insect, 1.5 mm. long. A white chitinous case, with a yellowish-green embryo visible through it. (h) Eidsvold, Queensland.

Fragments of insects.

(W.W.F.) Insect remains—nothing definite; a few bits of beetles.

Melithreptus gularis (M. 737, H. 310). Black-chinned Honeyeater.

Queensland.

Fragments of insects; portion of a grub (?).

(W.W.F.) Beetle and dipterous remains.

Melithreptus brevirostris (M. 741, H. 313). Brown-headed Honeyeater.

Coonalpyn, South Australia.

Fragments of insects.

(W.W.F.) Remains of beetles and several small moth larvæ.

Plectorhamphus lanceolatus (M. 745, H. 316). Striped Honeyeater.

(a) Queensland.

A mass of vegetable hairs; some fragments of insects.

(W.W.F.) Remains of small caterpillar.

(b) Queensland.

Three round, black seeds.

(E.M.) Geijera. (See M. 7, H. 567.)

Ptilotis fusca (M. 769, H. 328). Fuscous Honey-eater.

(a) Murray Flats.

Fragments of insects.

(W.W.F.) Insect remains; wing of fly (Diptera).

(b) Queensland.

Fragments of beetles, &c.

(W.W.F.) Beetle and ant remains.

(c) Queensland.

Fragments of beetles, &c.

(W.W.F.) Remains of very small Coleoptera.

(d) Queensland.

Fragments of beetles, &c.

(W.W.F.) Remains of ants and few beetles.

(e) Queensland.

Fragments of beetles, &c.; a few lerp-scales (?).

(W.W.F.) Remains of ants and some wings of bees.

(f) Queensland.

Fragments of beetles, &c.; a few lerp-scales (?).

(W.W.F.) Beetle remains more plentiful, also ant remains

(g) Queensland.

Fragments of insects.

(h) Queensland.

Fragments of beetles, &c.

(W.W.F.) Small beetle and other ant remains; wings of Neuroptera.

(i) Queensland.

Fragments of beetles, &c.

(W.W.F.) Beetle and ant remains.

(i) Queensland.

Fragments of beetles, &c.

(W.W.F.) Chiefly remains of small beetles.

(k) Queensland.

Fragments of beetles.

(W.W.F.) Remains of beetles and flies.

Ptilotis sonora (M. 772, H. 334). Singing Honey-eater.

Purplish-coloured seeds.

(E.M.) Enchylæna tomentosa, R. Br. (N.O. Chenopodiaceæ).

Small black seeds, and an oval yellow larger one.

(E.M.) All salt-bush, with membrane in various stages of preservation; large yellow one has most of membrane present.

Ptilotis cratitia (M. 783, H. 344). Wattle-cheeked Honey-eater. Coonalpyn, South Australia.

Fragments of insects.

(W.W.F.) Nearly all ant remains, a number winged forms.

Ptilotis penicillata (M. 791, H. 346). White-plumed Honey-eater. Murray Flats, South Australia.

Minute fragments of insects.

(W.W.F.) Very minute fragments of ants and Homoptera.

Meliornis pyrrhoptera (M. 797, H. 353). Crescent Honey-eater. Adelaide, South Australia.

Fragments of insects.

(W.W.F.) Chiefly dipterous remains.

Meliornis novæ-hollandiæ (M. 799, H. 354). New Holland Honeyeater.

(a) Young bird, Coonalpyn, South Australia.

Minute fragments of insects.

(W.W.F.) Insect remains—nothing definite.

(b) Coonalpyn.

Portions of insects.

(W.W.F.) Nearly all remains of white ants (Termetidæ).

Entomyza cyanotis (M. 813, H. 368). Blue-faced Honey-eater. Oueensland.

Chiefly fragments of "fruit or seeds"; a few insect remains. (E.M.) Pieces of shell—effervesce with acid; wax—soluble in

ether. Nothing else distinguishable.

(W.W.F.) Lepidopterous larva; remains of Diptera, and beetle remains.

Philemon citreogularis (M. 819, H. 373). Yellow-throated Friar-Bird.

Eidsvold, Queensland.

Remains of insects; several rounded dark brown seeds.

(W.W.F.) Coleoptera remains, apparently ground beetles (lamellicorn).

(E.M.) Geijera. (See M. 7, H. 567.)

Oriolus sagittarius (M. 850, H. 62). Oriole.

(a) Queensland.

A number of dark brown seeds.

(E.M.) Geijera. (See M. 7, H. 567.)

(b) Queensland.

Several oval black seeds.

(E.M.) Geijera. (See M. 7, H. 567.)

Several white cedar fruits.

(E.M.) Melia Azedarach, Linn.

(c) Queensland.

Some purplish-tinted fruit with an elongated brown seed.

(E.M.)?

(d) Queensland.

Many oval black seeds.

(E.M.) Geijera. (See M. 7, H. 567.)

Sphecotheres maxillaris (M. 852, H. 64). Fig-Bird.

Queensland.

About eight fruits of white cedar.

(E.M.) Melia Azedarach, Linn.

Chibia bracteata (M. 854, H. 66). Drongo.

Numerous large fragments of insects.

(W.W.F.) Wings of Orthoptera (grasshoppers); heads of longicorn beetles; other beetle remains.

Chlamydodera maculata (M. 861, H. 167). Spotted Bower-Bird.

(a) Queensland.

Many black seeds; some legs of insects. (E.M.) Geijera. (See M. 7, H. 567.)

(b) Queensland.

Three white cedar berries.

(E.M.) Melia Azedarach, Linn.

Some fragments of insect wings.

(c) Queensland.

Four white cedar berries; one orange fruit.

(E.M.) White cedar (Melia Azedarach, Linn.)

(d) Queensland.

Two white cedar berries.

(E.M.) Melia Azedarach, Linn.

(e) Queensland.

Four white cedar berries.

(E.M.) Melia Azedarach, Linn.

Corcorax melanorhamphus (M. 883, H. 54). White-winged Chough.

(a) Queensland.

A large beetle; many other fragments of insects; seeds—(a)

small yellowish, (b) large oval brown.

(E.M.) (a) Two Setaria glauca: the rest a mixture of grains free from the glumes, and some with glumes which appear to be a species of panicum; (b)?

(W.W.F.) Locusts (grasshoppers); Heteromera (ground

beetles); spiders.

(b) Portions of large insects (? cockroaches); a number of grass seeds.

(W.W.F.) Large quantity of seeds; remains of heteromerous beetles; two bits of skin-like material, not caterpillars.

(E.M.) Seeds, either Gramineæ or Cyperaceæ.

INTRODUCED BIRDS.

Passer domesticus. Sparrow.

Fragments of grain.

Emus Bogged.—Brewarrina (N.S.W.)—Neither feed nor water is to be had anywhere in the district. Emus make their way to the waterholes, most of which are almost dry, and the birds, in their quest after water, wade through mud and become bogged. They are mostly too weak to extricate themselves, and hundreds are meeting their death in this way. Half a dozen residents of the district are making a lucrative living by shooting Emus and skinning them, the skins bringing from 6s. to 8s. each in Sydney.—

Argus, 1/5/12.



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