

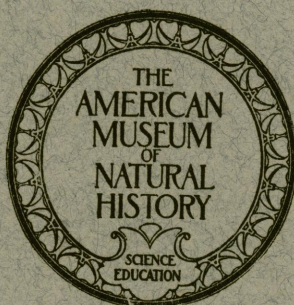
# RESULTS OF THE ARCHBOLD EXPEDITIONS. No. 42

BIRDS OF THE 1936-1937 NEW GUINEA EXPEDITION

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BY A. L. RAND

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## Article IV.—RESULTS OF THE ARCHBOLD EXPEDITIONS. NO. 42

### BIRDS OF THE 1936-1937 NEW GUINEA EXPEDITION

By A. L. RAND

This report covers the collections made between February, 1936, and January, 1937, in south New Guinea, chiefly at and near Daru, along the Fly and Palmer Rivers and in the Wassi Kussa area. A summary of the field work and results of this expedition has already been published (1940, Rand, A. L., and Brass, L. J., Results of the Archbold Expeditions, No. 29, Summary of the 1936-1937 New Guinea Expedition, Bull. Amer. Mus. Nat. Hist., LXXVII, pp. 341-380, Pls. XXI-XLII, 2 maps) to serve as an introduction to this paper.

Some three hundred and fourteen forms were recorded by the expedition. Twelve new races have been described from the collection in preliminary papers, and no new names are proposed here.

The sequence of species follows that of Mayr's "List of New Guinea Birds" (1941, Amer. Mus. Nat. Hist., N. Y.).

I am indebted to Mr. J. T. Zimmer and Dr. Ernst Mayr of the American Museum for assistance and advice in the working up of the collection.

#### *Casuarus casuarus sclaterii* Salvadori

Tarara: 1 ♂ subad.; January 7.

Sturt Island Camp: ♀ chick; October 28.

Lake Daviumbu: 3 ♂ ad., 2 ♀ ad.; August 27-September 7.

TARSUS.—♂ ad. 274 mm.

The above material consists of a skin (♂) and 2 ♂, 2 ♀ heads in alcohol; 2 pairs ♂ and 2 pairs ♀ wings, all of adults from Lake Daviumbu; the chick is a skin; the subadult is represented by a tuft of rump feathers. In addition many other cassowaries were shot and not saved, but notes and sketches were made on their soft parts; these include Tarara, 1 ♂ imm., 2 ♀ ad.; Gaima, 1 ♀ ad., 1 sex? ad.; Sturt Island Camp, 9 ♂ ad., 4 ♀ ad.; Lake Daviumbu, 5 ♂ ad., 5 ♀ ad.; Palmer

Junction Camp, 1 ♂ ad.; Black River Camp, 1 ♂ ad., 1 ♀ ad.

These are evidently this race, with a high, thin casque which has the top curved to the right (recorded in twenty specimens), the neck-wattle divided at the tip. The color areas agree in general with those of this race.

However, there are a number of variations in the color and its distribution on the head and neck. Compared with a plate of this race from the Fly River (under the name *C. beccarii* Salvadori, 1883, Mem. Acad. Sci. Torino, XXXIV, Pl. 11) most of the present material has the posterior area of the side of the neck more blue or purple; in a number of specimens it is dark blue like the middle of the side of the neck; in only a few specimens does a purplish pink line extend from each side of the base of the wattle up each side of the neck to join the yellow and pinkish purple area at the corner of the jaw; in the rest the fore neck is all blue; in most specimens the area shown in Salvadori's plate as red is pinkish, or purple, and in some is dark blue. The females usually have a wider, higher and more backward-curving casque, and fewer specimens have purple in the lateral posterior area of the neck.

In addition there is variation of the wattle, including one specimen with the wattle split into three lobes; one adult lacked the wattle entirely, having only a pink spot in the blue fore neck where it should have been. Thirteen specimens have a third wattle, varying from a low button to a wattle about 10 mm. long; this is situated in the mid-line, below the main wattle, near the edge of the feathered area.

Two adults have well-developed claws on each wing; one adult male has a claw on one wing, none on the other; neither adult female has claws on the wings.

Cassowaries pass through several plum-

ages before reaching the adult black plumage. A number of nearly adult cassowaries I collected were in a mixed black and brown plumage. The foreparts of the body were usually black, the amount of brown in the plumage increasing posteriorly. This was sometimes caused not by a mixture of black and brown feathers, but by many of the feathers being brown at the tip, and black toward the base. However, in one bird there is a difference in color between the main feather and the aftershaft. In cassowaries the aftershaft is as large as the main feather and lies just behind it. In a number of cases the main part of the feather is black, while the aftershaft is more or less brown. Both parts of the feather grow at the same time from the same feather follicle, so that this is evidence against a hormonal control of the color change in the plumage of this species.

***Poliiocephalus novaehollandiae***  
(Stephens)

Lake Daviumbu: 1 ♀; September 6.  
Found near sea level.  
WING.—107 mm.

This specimen was one of two grebes in a weed-grown lagoon. They were not shy and allowed the canoe to be paddled within range. They were the only ones seen—somewhat surprising in view of the apparently suitable habitat of considerable extent. The specimen collected showed no signs of breeding.

***Pelecanus conspicillatus* Temminck**

No specimens were secured, but two pelicans were seen near Daru in 1936. On March 28 one flew high over our camp on Daru; on March 31 a single bird was seen sitting on a sand spit on the water's edge on the mainland beach opposite Daru Island. It was wary, and I was unable to get within one hundred yards of it.

***Sula sula rubripes* Gould**

Daru: 1 sex?; 1936.  
WING.—360+ mm.  
Referred to this race on geographical grounds.

***Sula leucogaster plotus* (Forster)**

Bristow Island, 12 miles south: 2 ♂ imm.; April 10.

WING.—392 mm., 392.

Assigned to this race on geographical grounds.

This was a common species in the Torres Strait just south of Daru in April.

***Haliastur melanoleucos melanoleucos***  
(Vieillot)

Gaima: 1 ♀; November 15.

Lake Daviumbu: 2 ♂, 1 ♀; August 27–September 8.

Found near sea level.

WING.—♂ 243 mm.; ♀ 230, 242.

This white-breasted cormorant was occasionally seen perched on stubs along the lower and middle Fly River. On Lake Daviumbu it was fairly common, feeding in the bays of the lake and roosting on exposed or isolated trees. Sometimes there were as many as eight or ten on a single tree. A few were seen along the Wassi Kussa River, where they apparently feed in the brackish water. Two September specimens had gonads slightly enlarged, but none was in breeding condition.

***Anhinga rufa papua* Rand**

Lake Daviumbu: 2 ♀ ad., 1 ♀ imm.; August 27–September 3.

Found near sea level.

WING.—♀ ad. 332 mm., 336; ♀ imm. 329.

The Anhinga was not uncommon on Lake Daviumbu but was shy. They fed singly in the bays, and sometimes two or three perched on isolated trees. One stomach contained fish. The two adult specimens (August and September) were both laying.

***Notophox novaehollandiae* (Latham)**

Mabadauan: 1 ♀ ad.; April.

Daru: 2 ♂ ad., 1 ♀ ad.; March 12, April 26.

WING.—♂ 318 mm., 320; ♀ 297, 308.

I have already reported on this series (1938, Amer. Mus. Novitates, No. 990, p. 2).

Though I secured no specimens, a few



solitary individuals were seen along the upper Fly River. None was seen on the big marshes of the middle Fly River. One stomach contained crayfish; another, small crabs.

**Notophoxyx picata** (Gould)

Bugi: 1 ♂ ad.; January 2.

Lake Daviumbu: 5 ♀ ad., 1 ♀ imm.; September 9-24.

Found near sea level.

WING.—♂ 230 mm.; ♀ 219, 225, 226, 228, 230.

These little herons did not appear about Lake Daviumbu until after the grasslands were burned, and then flocks up to twenty or thirty in number came and fed over the burned savannas. They rarely visited the marshes. One stomach examined contained locusts. None showed any signs of breeding.

**Butorides striatus moluccarum** Hartert

Penzara: 1 ♀ ad.; December 16.

Daru: 1 sex? ad.; 1936.

Lake Daviumbu: 1 ♂ ad., 1 ♀ ad.; September 3, 16.

Found near sea level.

WING.—♂ ad. 188 mm.; ♀ ad. 179, 185; sex? 186.

CULMEN.—♂ ad. 64 mm.; ♀ ad. 62, 66; sex? 67.

In addition I have two adult females from Daru, collected on the 1934 expedition, and one male from Hall Sound.

Five of these birds, including two females, are quite similar to each other in having a whitish throat with few markings, rather pale gray underparts with only a light rufous wash and buffy to pale ochraceous upper wing coverts. In color they are somewhat intermediate in character between typical *moluccarum* and *idenburgi*. However, in color they can be matched by two of the four Key Island birds available, and the one Ceram bird available; three Buru males are but slightly darker below, with somewhat more rufous in the throat.

The other two females (Penzara and Daviumbu) are, however, quite different. Perhaps they are not yet in fully adult plumage? One is very similar to an adult male from Cape York; the other is still

darker below, with little rufous tinge, and a broken, very conspicuous line of white from chin to upper breast.

**Cosmerodius albus modestus** (Gray)

Lake Daviumbu: 3 ♂, 1 ♀; August 23-September 6.

Alligator Island, 5 miles below: 1 ♂; August 2.

Oroville Camp: 1 ♀; August 10.

Black River Camp: 1 ♂; July 27.

Found up to 100 meters altitude.

WING.—♂ 363 mm., 374, 382, 391; ♀ 345, 349.

This big egret was not uncommon along the banks of the Fly River, feeding in shallow places. Here it was usually solitary, or accompanied by a single *Egretta garzetta*. On Lake Daviumbu it was fairly common on the narrow fringe of floating marsh grass along the lake shore, but was much more common in the nearby lagoons and marshes. There it walked about on the floating vegetation. Sometimes four or five hunted and flew as a small flock, and often in company with larger flocks of *Mesophoxyx*. When feeding they were very shy, but when perched on trees fringing the water they were more easily approached.

Of four stomachs examined, all four contained fish, and one in addition contained a crayfish. None of the specimens showed signs of breeding.

**Mesophoxyx intermedia plumifera**  
(Gould)

Lake Daviumbu: 1 ♂, 1 ♀; August 20, September 6.

Found near sea level.

WING.—♂ 286 mm.; ♀ 283.

The male has no ornamental plumes; the female is just acquiring them. I have already reported on this series (1938, Amer. Mus. Novitates, No. 990, p. 2).

The habitat preference of this species was very different from that of *Egretta garzetta*, being extensive grassy marshes. The fact that these wary birds fed in such relatively inaccessible places, and that less attention was paid to "common, widespread species" by early collectors, helps to explain why this bird has only recently become known as a

common, widespread bird where suitable habitat occurs in New Guinea.

***Egretta garzetta nigripes* (Temminck)**

Reef 12 miles off the mouth of the Benituri River: 1 ♀; April 21.

Gaima: 2 ♀; November 13, 20.

Found near sea level.

WING.—♀ 247 mm., 249, 256.

Occasional birds were seen all along the Fly River up to the junction of the Black and the Palmer Rivers. None was found on the extensive marsh areas of Lake Daviumbu, though seen on the river banks just opposite. It was usually solitary, but the bird collected on the reef off the Benituri River was in a small flock that might have been this species. Feeding in shallow places along the river bank it often accompanied a single *Cosmerodius albus*, and the frequency of this association seemed more than coincidence. Of two stomachs examined, both contained crayfish, and one, in addition, a small fish. The April (1) and November (2) specimens showed no signs of breeding.

***Nycticorax caledonicus hilli* Mathews**

Penzara: 1 ♂ imm.; January 16.

Daru: 1 ♂ imm.; March 15.

Lake Daviumbu: 2 ♂ subad., 3 ♀ subad., 2 ♀ imm.; September 12–28.

Found near sea level.

WING.—♂ subad. 281 mm., 287; ♀ subad. 276, 279, 285.

***Zonerosdius heliosylus* (Lesson)**

Tarara: 1 ♀ ad., 1 sex? ad.; December 7, January 1.

Gaima: 1 ♂ ad.; November 16.

Oroville Camp: 1 ♂ ad.; August 11.

Found near sea level.

WING.—♂ ad. 309 mm., 320; ♀ 303.

There is considerable variation in this small series, chiefly evident in the upperparts. The female has the crown and nape grayish black, the rest of the upperparts with black and narrower buffy bars, the bars in the remiges whitish. One male is similar but with darker ferruginous bars in the upperparts; the other male has the crown and nape barred buffy, ferruginous bars on the rest of the upperparts as broad

as the dark bars, and the markings in the remiges deep buffy.

Of three stomachs examined, two contained crayfish remains; one, some small fish, and one, a snake twelve inches long. The August and November birds were not breeding; the December female had a somewhat enlarged ovary.

***Ixobrychus minutus dubius* Mathews**

Lake Daviumbu: 1 ♀ ad.; September 13.

Found near sea level.

WING.—123 mm.

I have already reported on this specimen (1938, Amer. Mus. Novitates, No. 990, p. 3), the first record for the species in New Guinea.

This, and another in its company that was not collected, were the only ones seen. They were in the edge of the tall reed areas at the outlet to Lake Daviumbu. The female was ready to lay.

***Dupetor flavicollis gouldi* (Bonaparte)**

Tarara and Penzara: 2 ♂ ad., 1 ♂ imm., 2 ♀ ad.; December 19–January 22.

Daru: 1 ♂ ad.; March 23.

Found near sea level.

WING.—♂ ad. 210 mm., 212, 213; ♀ ad. 198, 209.

The Tarara and Penzara birds were found in the small dense forest areas about water holes. It was a scarce bird in south New Guinea.

***Xenorhynchus asiaticus australis* (Shaw)**

Daru: 1 ♀ imm.; March 22.

WING.—60.4 mm.

In 1938 (Amer. Mus. Novitates, No. 990, p. 2) I reported this specimen and listed sight records for the Fly River.

***Threskiornis moluccus moluccus* (Cuvier)**

Penzara: 1 ♂; December 17.

Gaima: 1 ♀; November 18.

Lake Daviumbu: 1 ♂, 2 ♀; September 5, 12.

Found near sea level.

WING.—♂ 371 mm., 374; ♀ 362.

At Penzara only a few of these birds were



seen on the grassy margin of a pond in the savanna; about the mouth of the Fly River a few were seen on mud bars. At Lake Daviumbu this ibis appeared only after the savannas were burned, and then small parties came and fed over the burned areas, sometimes in company with flocks of the wattled plover (*Lobibyx*).

#### *Dendrocygna arcuata* (Horsfield)

Lake Daviumbu: 3 ♂, 1 ♀; September 3.

Found near sea level.

WING.—♂ 200 mm., 200, 210; ♀ 215.

The absence or scarcity of ducks in most of the places we visited in south New Guinea was surprising. At Lake Daviumbu, the only place we collected this duck, it and *D. guttata* were common in small flocks up to twenty-five or so resting in the grassy margins of the lagoons or standing on little islets. Some mornings in September flocks of several hundred tree ducks, either this species or *D. guttata*, circled about low over the lagoon and marsh country. Two of the males and the female were in breeding condition (September).

#### *Dendrocygna guttata* Schlegel

Lake Daviumbu: 2 ♂, 3 ♀; August 27–September 6.

Found near sea level.

WING.—♂ 216 mm., 221; ♀ 211, 215, 216.

As with *D. arcuata* I found this species at only a few places in south New Guinea. At Lake Daviumbu it was common and had habits similar to those of *D. arcuata*. It was also encountered on the middle Fly River. One night there, just after dark, I saw several dozen fly in with lispings whistles to settle on the branches of a dead tree on the river's edge, evidently to spend the night. They flew in in small parties up to a dozen or so in number and at various times, as though this were a common roosting place. Of three stomachs examined, one was full of small snails; two, of small seeds. The August and September specimens were not in breeding condition.

#### *Tadorna radjah radjah* (Lesson)

Bugi: 2 ♂ imm.; January 7.

Mabadauan: 1 ♂ ad., 2 ♀ ad.; April.

Daru and mainland opposite: 1 ♂ ad., 1 ♀ ad.; March 2–July 9.

Found near sea level.

WING.—♂ ad. 272 mm., 283; ♀ ad. 250, 260, 261.

These birds are somewhat intermediate between Buru and north Australian specimens, as Stresemann and Paludan have pointed out (1935, Mitt. Zool. Mus. Berlin, XX, p. 453), but appear closer to the Buru birds.

#### *Cheniscus pulchellus* (Gould)

Lake Daviumbu: 3 ♂ ad., 3 ♀ ad.; August 21–September 21.

WING.—♂ 162 mm., 172, 174; ♀ 159, 165, 169.

Compared with a series of Australian specimens from the Northern Territory and west Australia the iridescent green of the back and neck of the males is slightly darker, but this difference is not great enough to be of subspecific value.

This was a common species in the lagoons about Lake Daviumbu, and in the sheltered bays of the lake itself, where the floating vegetation was open. The August and September specimens showed no indications of breeding.

#### *Aviceda subcristata stenozone* (Gray)

Tarara and Penzara: 2 ♂; December 15, 24.

Daru: 1 ♂, 2 ♀; March 17–July.

Sturt Island Camp: 2 ♂; October 7, 14.

Black River Camp: 1 ♂; July 18.

Found up to 100 meters altitude.

WING.—♂ 278 mm., 282, 283, 288, 294, 309; ♀ 284, 294.

This was usually a forest bird but was occasionally seen in the savanna. Of four stomachs examined, one contained a frog, one, large grasshoppers and three, other insects. A July female was in breeding condition; the March, July, October and December specimens were not.

#### *Henicopernis longicauda longicauda* (Garnot)

Palmer Junction Camp: 2 ♀; May 27, 30.

Black River Camp: 1 ♀; June 24.

Mt. Mabiom: 1 ♀; July 18.

Found up to 750 meters altitude.

WING.—♀ 395 mm., 406, 424, 436.

This hawk was an uncommon bird, usually seen soaring over the forest. One stomach examined was filled with wasps and their larvae, one, other insects and one, remains of the eggs of some small bird. The May female was in breeding condition. One female had a small right ovary present.

***Haliastur indus girrenera* (Vieillot)**

Gaima: 1 ♀ ad., 1 ♀ imm.; November 15, 20.

Sturt Island Camp: 1 ♂ ad.; October 12.

Lake Daviumbu: 1 ♂ ad.; September 14.

Found near sea level.

WING.—♂ 340 mm., 341; ♀ 352.

This kite favors clearings, edges of rivers and the sea shore, and forest margins, as well as savannas. One stomach contained insect and reptile remains. One female had a small right ovary present. None was in breeding condition.

***Haliastur spheurnus* (Vieillot)**

Bugi: 1 ♀; January.

Daru: 1 ♀; March 20.

Lake Daviumbu: 5 ♂, 1 ♀; August 22–September 18.

Found near sea level.

WING.—♂ 396 mm., 398, 401, 402, 413; ♀ 415, 421, 426.

The whistling kite was a common bird of the savannas and was occasionally seen along the ocean beach. The March, August and September specimens showed no indications of breeding.

***Accipiter novaehollandiae leucosomus* (Sharpe)**

Tarara: 1 ♀ ad., 1 ♀ imm.; December 31, January 29.

Old Mawatta: 1 ♀ imm.; April 9.

Daru: 3 ♀ imm.; March 21, April 3.

Gaima: 1 ♀ ad., 2 ♀ imm.; November 11, 18.

Sturt Island Camp: 1 ♂ ad.; October 18.

Found near sea level.

WING.—♂ ad. 216 mm.; ♀ ad. 250, 257; ♀ imm. 247, 247, 248, 251, 252, 255, 258.

No birds in white plumage were seen in this area. Six of the immature birds are in the rufous plumage, one in the pale plumage.

Presumably these birds are this race; I have no material from the type locality for comparison. The adult male is unbarred below; one of the adult females has a faint indication of barring below.

This species appears to favor open country and the edge of forest and is fairly common in south New Guinea. Of six stomachs examined, two contained insect remains, three contained lizards, one, unidentified reptile remains, one, a rodent and one, a small pigeon's remains. Seven females had a right ovary present in addition to the left, and in six of these the right ovary was equal in size to, or only slightly smaller than, the left. None of these specimens was in breeding condition.

***Accipiter fasciatus dogwa* Rand**

*Accipiter fasciatus dogwa* RAND, 1941, Amer. Mus. Novitates, No. 1102, p. 1—Dogwa, Oriomo River, Territory of Papua, New Guinea.

Daru: 1 ♂ ad., 1 ♂(?) imm., 1 ♀ ad.; March 11–30.

Tarara and Penzara: 1 ♀ ad., 1 ♀ imm.; December 17, January 29.

Found near sea level.

WING.—♀ ad. 245 mm., 256.

These hawks were found sitting up in trees in the forest edge or in the savanna. One was being scolded by a party of leatherheads (*Philemon corniculatus*). The stomachs of four birds contained lizards only. Two females each had a right ovary present.

***Accipiter poliocephalus* Gray**

Palmer Junction Camp: 1 ♂ ad.; June 2.

Black River Camp: 1 ♀ imm.; June 26. Found up to 100 meters altitude.

WING.—♂ ad. 190 mm.

The female had a right ovary present, about one-quarter the size of the left.



**Accipiter cirrhocephalus papuanus**  
(Rothschild and Hartert)

Penzara and Tarara: 3 ♀ imm.;  
December 17, 20.

Found near sea level.

WING.—♀ imm. 212 mm., 214, 214.

Of two stomachs examined, one contained remains of a passerine bird, and one, remains of a mammal. The three females each had a right ovary present, equal in size to the left. None was in breeding condition.

**Harpyopsis novaeguineae** Salvadori

Sturt Island Camp: 1 ♀ ad.; November  
2.

Found near sea level.

WING.—434 mm.

**Uroaëtus audax** (Latham)

Gaima: 1 ♀ ad., 1 ♀ imm.; November  
13, 14.

WING.—♀ ad. 550 mm.; ♀ imm. 558.

I have already recorded this second record of this species for New Guinea (1938, Amer. Mus. Novitates, No. 990, p. 4).

**Haliaeetus leucogaster** (Gmelin)

Tarara: 1 ♀ imm.; January 23.

Sturt Island Camp: 1 ♂ ad.; October  
25.

Lake Daviumbu: 1 ♂ ad., 2 ♀ ad., 3 ♀ nestlings; August 9–September 6.

Found near sea level.

WING.—♂ ad. 549 mm., 550; ♀ ad. 582, 601.

A fairly common eagle from the middle Fly River to its mouth. The call of this species, occasionally heard at Lake Daviumbu, was a loud, almost duck-like "que" repeated a number of times. An August female was breeding, and several young eagles were brought into camp at Lake Daviumbu by natives in August and September. These young were kept alive for a time. At feeding time the larger eaglet often viciously pecked the smaller bird, and the latter would crouch down, without attempting to retaliate, and would discontinue attempts to reach the food.

At Sturt Island I saw a sea eagle follow

and strike at a whistling kite (*Haliastur sphenurus*), causing it to drop the food it was carrying, which the eagle seized before it reached the water.

**Circus spilonotus spilothorax** Salvadori  
and D'Alberty

No specimens were secured, but silvery adult males, presumably of this species, were occasionally seen at Lake Daviumbu in August and September, and one silvery male was seen at Gaima in November. I have already recorded these (1938, Amer. Mus. Novitates, No. 990, p. 3) and discussed the status of this form (1941, Amer. Mus. Novitates, No. 1102, p. 1, where unfortunately the Gaima record was omitted).

**Circus approximans gouldi** Bonaparte

Lake Daviumbu: 1 ♀ imm.; September  
8.

Found near sea level.

WING.—391+ mm.

I have already discussed this specimen (1941, Amer. Mus. Novitates, No. 1102, p. 2).

The specimen had a right ovary present, equal in size to the left.

**Pandion haliaetus melvillensis** Mathews

Mainland opposite Daru: 1 ♂; March  
7.

Daru: 1 ♂; June or July.

Found near sea level.

WING.—♂ 407 mm., 412.

The fishhawk was found only in the vicinity of Daru, where it was scarce, feeding in both fresh and salt water. The March specimen was not breeding.

**Falco longipennis longipennis** Swainson

Daru: 2 ♀; March 28, June 28.

Lake Daviumbu: 2 ♀; August 26, 28.

Found near sea level.

WING.—260 mm., 264, 267, 268.

I have already recorded these birds (1938, Amer. Mus. Novitates, No. 990, p. 3).

**Ieracidea berigora novaeguineae** Meyer

Penzara: 1 ♂; December 18.

Found near sea level.

This specimen, in non-breeding condition, was the only one seen in south New Guinea.

**Megapodius freycinet duperryi** Lesson  
and Garnot

Tarara: ♂, ♀; December 10–January 20.

Mabadauan: ♂; April.

Daru: ♂, ♀; April 1, May 27.

Gaima: ♀; November 19.

Sturt Island Camp: ♂, ♀; October 8–November 3.

Lake Daviumbu: ♂, ♀; August 21–September 23.

Palmer Junction Camp: ♂, ♀; May 27–June 2.

Found up to 80 meters altitude.

WING.—♂ (10) 226–243 mm. (av. 232.4).

There is considerable variation in the birds from any locality. The birds from the upper Fly River do not differ from ones taken near the coast.

Breeding birds were taken in December (1), January (1), August (2), October (3) and November (4). An egg removed from the oviduct of a bird November 2 at Sturt Island was nearly oval in shape; shell slightly rough; gloss none; color pale buffy brown, with the pigmented surface layer now flaking off the specimen; size 55 by 87 mm. Two eggs removed from a mound August 30 at Lake Daviumbu were similar, but darker, warmer brown in color, the pigmented surface layer is badly flaked off, and they measure 48.5 by 83 mm. and 51.5 by 84 mm. The mound from which these eggs were taken was one that had evidently been in use a number of years. It was a rather high, steep mound, about six feet high, twelve feet across the top, and twenty-five feet across the bottom.

**Talegalla fuscirostris occidentis** White

Tarara: 2 ♂, 1 ♀; December 8–January 4.

Gaima: 1 ♂; November 22.

Sturt Island Camp: 2 ♂, 2 ♀; October 17–28.

Lake Daviumbu: 3 ♂, 1 ♂ downy chick, 2 ♀; August 19–30.

Palmer Junction Camp: 2 ♂, 1 ♂

downy chick, 1 ♀ downy chick; May 22–June 4.

Black River Camp: 1 ♂; July 12.

Found up to 100 meters altitude.

WING.—♂ (10) 256–290 mm. (av. 269.); ♀ 252, 261, 265, 269, 269.

Birds in breeding condition were taken in August (5), October (4), December (1) and January (1).

An egg taken from a mound at Lake Daviumbu was surely that of this species, judging by its size. It was oval in shape; shell slightly rough; gloss none; color light pinkish brown, the pigment began to flake off almost as soon as the egg was taken from the ground; size 59 by 97 mm. The mound from which this egg was taken was apparently an entirely new one: a wide, flat structure about three and a half feet high, eight feet across the top, and twelve feet across the bottom. Both flat and high conical mounds were common at Lake Daviumbu, and possibly the number of seasons a mound has been used may help determine its size and shape.

**Synoicus ypsilophorus dogwa** Mayr and  
Rand

Penzara and Tarara: 5 ♂, 1 ♀; December 14–January 11.

Found near sea level.

WING.—♂ 87 mm., 89, 90, 90, 90; ♀ 89.

The female compares well with the type. Two males are unpatterned gray below; three males are somewhat patterned.

The quail was not common in the savanna of the Wassi Kussa River, and none was seen at Lake Daviumbu, though the habitat there seemed suitable. One December male had enlarged gonads.

**Excalfactoria chinensis papuensis** Mayr  
and Rand

Lake Daviumbu: 4 ♂; September 14–17.

Found near sea level.

WING.—♂ 65 mm., 66, 66, 66.

These compare fairly well with Mafulu birds, though they have on the average a larger chestnut area in the abdomen.

This little quail was fairly common on the



Lake Daviumbu savanna, where the grass was short or open. All four males collected were in breeding condition.

***Turnix maculosa horsbrughii* Ingram**

Lake Daviumbu: 1 ♀ ad.; September 8.  
Found near sea level.

WING.—♀ 78 mm.

This agrees with *horsbrughii* in its small size. Compared with a female from the Aroa River, near the type locality, the present specimen has the crown blacker, with narrow, gray edgings to the feathers; there is no central, light line in the crown; the foreback and scapulars are much grayer with more rufous markings; the lower back and upper tail coverts have the barring reduced and darker in color.

This, the only individual seen, was flushed from the fringe of grass along the lake shore that had escaped the fire when the savanna was burned.

***Grus rubicunda* (Perry)**

The only cranes seen were two birds flying low over the Tarara savanna on January 11.

***Poliolimnas cinereus minimus* (Schlegel)**

Lake Daviumbu: 1 ♂; September 13.

Found near sea level.

WING.—91 mm.

Tate also secured a specimen from Sogeri, at 410 meters altitude, Astrolabe Range, southeast New Guinea, wing 95 mm. These two birds agree with each other, and they differ from a series of *leucophrys* from northwest Australia, wing ♂ 93–95 mm., ♀ 86–92, in being whiter on throat and abdomen; in having the black markings in the feathers of the back larger, darker, and more conspicuous, especially in the foreback; and in having the black mark before the eye slightly smaller, making it advisable to recognize this lightly defined race.

This bird was taken in the edge of a dense bed of floating grass near the outlet of the lake. It was not in breeding condition.

***Rallina tricolor tricolor* Gray**

Daru: 1 ♀; March 6.

Lake Daviumbu: 1 ♂; August 28.

Palmer Junction Camp: 1 ♀; May 30.

Black River Camp: 1 ♂; June 24.

Found up to 100 meters altitude.

WING.—♂ 135 mm., 150; ♀ 133, 137.

A March female was in breeding condition.

***Gymnocrex plumbeiventris hoeveni* (Schlegel)**

Fly River, 5 miles below Palmer Junction: 1 ♂, 2 ♀; May 23–30.

WING.—♂ ad. 192 mm.; ♀ ad. 187, 196.

I have already discussed this race (1938, Amer. Mus. Novitates, No. 990, p. 4).

***Megacrex inepta inepta* D'Albertis and Salvadori**

Sturt Island Camp: 1 ♀; October 20.

Lake Daviumbu: 2 downy young ♂; September 13.

Found near sea level.

WING.—183 mm.

This is nearly topotypical.

The young are completely clad in down, brownish black below, darker above, and black on the heads.

The only adult individual secured walked through the bamboo thickets along the river and into the edge of camp where the cook caught it alive in his hands. It was uninjured and I kept it alive, tethered, for a time. A striking feature of its activities was an upward and forward flitting of its wings as it walked or ran, an action that probably would be conspicuous in the wild. This bird occasionally gave a short, complaining, whistled call.

***Amauornis olivaceus ruficrissum* (Gould)**

Daru: 1 ♂ ad.; March 3.

Found near sea level.

WING.—150 mm.

I have already recorded this specimen (1938, Amer. Mus. Novitates, No. 992, p. 1), the first record for this race in New Guinea.

***Choriotis australis* (Gray)**

I have recorded the sight records and the securing of a primary of this species from a

native, all in the Tarara area (1938, Amer. Mus. Novitates, No. 990, p. 5).

**Irediparra gallinacea novaehollandiae**  
(Salvadori)

Lake Daviumbu: 1 ♂ imm., 1 ♀ ad., 2 ♀ imm.; August 28–September 4.  
Found near sea level.

WING.—♀ ad. 143 mm.

I have already recorded this series (1938, Amer. Mus. Novitates, No. 990, p. 5).

**Lobibyx miles** (Boddaert)

Mabadauan: 1 ♂; April 15.

Lake Daviumbu: 2 ♀; August 23, September 23.

Found near sea level.

WING.—♂ 229 mm.; ♀ 218, 221.

Mayr (1938, Amer. Mus. Novitates, No. 1007, p. 14) has shown that no races of this species can be recognized.

The wattled plover was fairly common about the gardens on Daru in March and April, where none was collected. At Lake Daviumbu, before the natives burned the grass of the savanna, the wattled plover was rarely seen, but once the grass was burned they became common, feeding on the burned country. Flocks of three to twenty were then almost always in evidence. Their loud calls, as they sighted an intruder, were characteristic of the burned savanna and were a frequent source of annoyance when I was stalking something else. While not very wary, they usually sprang into the air while I was forty to seventy yards away, and their clamor often startled other birds into flight. One September female was in breeding condition.

**Pluvialis dominica fulva** (Gmelin)

Lake Daviumbu: 2 ♂, 2 ♀; September 9, 21.

WING.—♂ 162 mm.; ♀ 163.

These plover appeared September 8 on the freshly burned savanna and were present in small numbers for the rest of the month. They were not shy, unless feeding with the noisy and more wary wattled plover.

**Charadrius dubius papuanus** Mayr

Black River Camp: 1 ♂, 1 ♀; June 10.  
Found at 100 meters altitude.

WING.—♂ 107 mm.; ♀ 112.

These specimens have the characters of this race pronounced: the outer tail feathers pure white; the lower part of the base of the upper mandible yellow; and the grayish white line back of the black on the crown distinct.

The two birds were together on a gravel bar of the river and were the only ones seen. They were not breeding.

**Charadrius mongolus mongolus** Pallas

Gaima: 1 ♀, 1 sex?; November 13.

WING.—128 mm., 128.

**Numenius phaeopus variegatus** (Scopoli)

Daru: 3 ♂; March 4.

Gaima: 1 ♀; November 12.

WING.—♂ 224 mm., 229, 237; ♀ 246.

**Numenius madagascariensis** (Linnaeus)

Daru, mainland opposite: 1 ♂; March 31.

WING.—295 mm.

**Actitis hypoleucos** (Linnaeus)

Tarara: 1 ♀; January 14.

Gaima: 1 ♀; November 12.

Sturt Island Camp: 1 ♂; October 19.

Found near sea level.

WING.—♂ 108 mm.; ♀ 111.

**Heteroscelus brevipes** (Vieillot)

Reef near Daru: 3 ♂ ad., 1 ♂ imm., 1 ♀ ad.; April 21.

WING.—♂ ad. 156 mm., 161, 162; ♀ ad. 165.

**Capella megala** (Swinhoe)

Tarara: 2 ♂, 1 ♀; January 11, 12.

Lake Daviumbu: 3 ♂; September 21–24.

Found near sea level.

WING.—♂ 136 mm., 139, 142, 144, 146; ♀ 141.

The snipe appeared September 24 at Lake Daviumbu and was common the rest of the month, feeding on the burned

savanna ridges. Twenty or more were often found on one ridge a half mile long. In January I found the snipe common on the wet Tarara savanna, apparently in parties of ten or twelve.

***Erolia acuminata* (Horsfield)**

Reef near Daru: 1 ♀; April 21.

Lake Daviumbu: 1 ♀; September 21.

WING.—120 mm., 126.

***Chlidonias hybrida fluviatilis* (Gould)**

Lake Daviumbu: 6 ♀; August 20–September 24.

WING.—205 mm., 213, 215, 218, 223.

This tern was not uncommon at Lake Daviumbu, feeding over the weedy bays of the lake or the big lagoons, usually in parties of three to eight in number. In feeding they usually beat up wind, twenty feet or so above the water, and dive down on their prey (small fish in one stomach examined); when the end of the area is reached, they sweep away down wind and beat up wind again. For roosting places they frequently chose the seed stalks of the lotus lilies. Only about one in fifteen of the birds seen was in breeding plumage; only one showed slight enlargement of the gonads.

***Chlidonias leucoptera* (Temminck)**

Benituri River, reef 12 miles off shore: 2 ♂; April 21.

WING.—198 mm., 212.

This species was fairly common about the reef.

***Sterna albifrons sinensis* Gmelin**

Daru: 3 ♂, 1 ♀, 1 sex?; March 4, 28.

Found at sea level.

WING.—♂ 175 mm., 179, 184; ♀ 176.

***Thalasseus bergii cristatus* (Stephens)**

Daru: 1 ♀; March 4.

WING.—362 mm.

***Anous stolidus pileatus* (Scopoli)**

Bristow Island, 12 miles south: 1 ♀ ad.; April 10.

Wapa Reef, Torres Strait: 1 ♂ imm., 1 ♀ imm.; April 20.

WING.—♀ ad. 268 mm.

The specimens are assigned to this race on geographical grounds.

***Anous minutus minutus* Boie**

Mabadauan: 1 ♂ imm., 1 ♀ imm.; April 23.

Daru: 1 ♀ ad.; July 18.

WING.—♀ ad. 230 mm.

These specimens are assigned to this race on geographical grounds.

***Ptilinopus regina* Swainson**

Daru: 1 ♂ ad., 1 sex? imm.; June 9.

Found at sea level.

WING.—♂ 135 mm.

These specimens have already been reported on (1938, Amer. Mus. Novitates, No. 990, p. 5). The species has not yet been taken in New Guinea, but its presence on this islet so close to New Guinea makes its occurrence seem probable.

***Ptilinopus superbus superbus*  
(Temminck)**

Tarara: 2 ♂, 1 ♀; December 22–January 6.

Gaima: 1 ♀; November 16.

Sturt Island Camp: 8 ♂, 4 ♀; October 12–30.

Lake Daviumbu: 2 ♂; September 12, 24.

Palmer Junction Camp: 4 ♂; May 17–26.

Black River Camp: 2 ♂; June 28, July 19.

Found up to 100 meters altitude.

WING.—♂ (10) 125–136 mm. (av. 130.1); ♀ 126, 126, 127, 128.

A common species at the Black River and Palmer Junction Camps, uncommon at Lake Daviumbu, common at Sturt Island, and fairly common at Tarara. It is a forest species, usually seen singly or in pairs, but numbers also gather to feed in fruit trees with other birds. Not only do they gather in the tops of tall fig trees, but they also come into low, substage fruiting trees, within a few yards of the ground. When startled from a feeding tree they do not fly off in a flock, as does *P. iozonus*, for instance, but they usually leave singly or in twos and threes. Approaching a tree in

which a number are feeding a few may fly away, while the rest remain motionless for a long period, making them difficult to locate. Then another may start into flight, and the noise of its wings may startle others, so that from the tree, apparently deserted a moment before, a dozen birds may dart out.

The flank markings make this species fairly easy to identify in the tree tops. Breeding birds were taken in May, June, July, September, October, December and January.

***Ptilinopus pulchellus pulchellus***  
(Temminck)

Sturt Island Camp: 1 ♂, 1 ♀; October 10.

Palmer Junction Camp: 3 ♂, 1 ♀; May 14–June 1.

Black River Camp: 5 ♂, 2 ♀; June 16–July 19.

Found up to 100 meters altitude.

WING.—♂ 102 mm., 104, 105, 106, 107, 107, 111, 111; ♀ 103, 104, 104, 106.

The rose-fronted pigeon was common at the Palmer Junction and Black River Camps, but only the two specimens were found at Sturt Island. None was found elsewhere, and strangely enough *P. coronulatus* was not found on the upper Fly River, though common elsewhere. This pigeon was commonly encountered singly, feeding or sitting quietly in slender, substage trees low in the forest. It was quite tame and could be closely approached. However, it also fed high in the forest, and I have seen it perched on a dead tree projecting above the general forest level.

Three nests were found on June 16 and July 13 and 19, and the October Sturt Island birds were breeding. The nests were scanty platforms of slender sticks and a few dead leaves, placed from seven to ten feet above the ground near the tops of slender, substage trees, where several lateral branches gave a foundation against the central shoot. Two nests contained a single young each; one, a single white egg. None of these nests was collected at once, and the contents of each nest disappeared in a few days. The adults were not shy about the nest and flushed with a slow, fluttering flight, very different from their usual swift, direct flight.

***Ptilinopus coronulatus coronulatus*** Gray

Tarara and Penzara: 2 ♂; December 14, January 2.

Daru: 1 ♂; March 18.

Gaima: 2 ♂; November 12, 16.

Sturt Island Camp: 2 ♂, 2 ♀; October 7–29.

Lake Daviumbu: 3 ♂, 6 ♀; August 28–September 12.

Found near sea level.

WING.—♂ (10) 111–120 mm. (av. 116.2); ♀ 106, 110, 111, 111, 112, 112, 113, 114.

These agree well with six Aru Island birds, which have wing measurements of ♂ 114 mm., 115, 119, 119; sex? 110, 113.

This is a forest bird, but was not found at the Black River or at the Palmer Junction Camp. It was common at the other Fly River Camps and in the Wassi Kussa area.

Sometimes when I approached a low, substage fruiting tree in the forest, where a number of these birds were feeding, only some of them flew, while others became perfectly still and remained so for some time. The fluttering of the escaping birds attracted my attention, and it was some time before I learned to look for those remaining immobile in the tree.

At Tarara and Penzara, though this bird ventured into the edge of the savanna, it was absent from the extensive areas of it.

One nest was found at Lake Daviumbu in September and four nests at the Sturt Island Camp in October.

Their nests were all scanty structures of a few crossed twigs, measuring 100 to 120 mm. across.

The nests were all placed from six to fifteen feet up in the forest; two were on the flat fronds of gora palms, where a few leaves had accumulated; one was on the horizontal frond of a fan palm where a few leaves had gathered; one was on a small mass of fallen dead leaves which had accumulated in a fork near the top of a slender, sapling-like tree, and another was on a flat, leafy branch of a tree on the edge of a forest glade. This last nest had been placed so that several green leaves gave a foundation for the nest, and in addition one fresh, green leaf had been placed under the



twigs of the nest. Possibly some of the dead leaves at the other nests had been placed thus by the bird. The nest of this species is so flimsy that without the flat, supporting foundations of leaves, it would hardly support the egg.

Each nest contained but a single egg, the description of one following: shape nearly oval; shell fairly smooth; gloss medium; color white; size 26.1 by 19.1 mm. Some brooding birds allowed a close approach; others flew from the nest while I was some distance away. Some birds left the nest with a fluttering flight very different from the usual swift, direct flight of the species. On a number of occasions the bird, when flushed from the nest, flew nearly straight up to a near-by perch. The incubating birds collected were males.

***Ptilinopus iozonus pseudohumeralis***

Rand

Palmer Junction Camp: 1 ♂; June 3.

Black River Camp: 2 ♂, 1 ♀; July 7, 10.

Found at 80 and 100 meters altitude.

WING.—♂ 124 mm., 126, 128; ♀ 122.

This is the form occurring on the upper Fly River.

***Ptilinopus iozonus finschi* Mayr**

Tarara and Penzara: 2 ♂; December 1, 17.

Sturt Island Camp: 3 ♂, 1 ♀; October 12-25.

Lake Daviumbu: 2 ♂, 2 ♀; September 2-25.

Found near sea level.

WING.—♂ 116 mm., 118, 119, 120, 120, 121; ♀ 116, 117, 118.

These agree well with southeast New Guinea specimens.

Especially at Sturt Island this bird was common. It usually lived high in the forest and, unlike many members of the genus in New Guinea, fed and flew about in flocks of a dozen or so birds. One September and one October female were in breed- ing condition.

***Ptilinopus aurantiifrons* Gray**

Penzara and Tarara: 2 ♂, 1 ♀; January 20.

Daru: 2 ♂; March 18, June 16.

Lake Daviumbu: 9 ♂, 1 ♀; August 19-September 19.

Found near sea level.

WING.—♂ (10) 131-139 mm. (av. 135.8); ♀ 131, 132.

The yellow-fronted fruit pigeon was common at Lake Daviumbu. As well as frequenting the forest and its edges and perching on exposed branches above the forest, it commonly frequented the savanna.

Four nests were found September 7-24. They were platforms of dead twigs and sticks, placed on a flat fork of a tree. While they were loose, open structures, they were somewhat more substantial than the nests of most of the others of the genus and had a slight depression on the top for eggs.

One nest had the central portion of the nest about 90 mm. across, with loose ends of the crossed twigs projecting so as to give a measurement of 300 mm. over all; it was about 40 mm. thick in the middle. The other nests were similar; one was 70 mm. thick in the middle where it fitted down into the fork of the supporting branch.

The location of these nests varied. One was ten feet above the water in one of the low, shrubby trees forming the narrow fringe between the open lake and the savanna; one was in a similar tree on an islet composed of a clump of three or four such trees standing a half mile out in the lake; the two other nests were on flat forks eight and twelve feet up in trees in the open savanna.

Each nest contained one egg or one young only.

A young bird was fairly well covered with down, white with a slight brownish tinge, except on the rump where it was brownish white.

The adults always flushed from the nest while I was forty to fifty yards away and usually flew some distance before alighting. One collected at the nest about noon was a male.

The species was fairly common at Tarara, usually found in the forest along the water courses. A female collected January 20 was laying.

***Ptilinopus ornatus kaporensis***

Rothschild and Hartert

Palmer Junction Camp: 1 ♂; May 20.

Found at 80 meters altitude.

WING.—♂ 156 mm.

This specimen compares well with the type from the Onin Peninsula.

***Ptilinopus perlatus zonurus* Salvadori**

Sturt Island Camp: 1 ♂; October 14.

Lake Daviumbu: 1 ♂, 2 ♀; September

1.

Found near sea level.

WING.—♂ 156 mm., 159; ♀ 154, 161.

These compare well with an Aru Island specimen, wing 169 mm.

A September female was in breeding condition.

***Megaloprepia magnifica interposita***

Hartert

Tarara: 1 ♂; January 17.

Sturt Island Camp: 5 ♀; October 20–31.

Lake Daviumbu: 6 ♂, 2 ♀; August 19–29.

Oroville Camp: 1 ♂; August 10.

Palmer Junction Camp: 2 ♂, 3 ♀; May 17–25.

Black River Camp: 2 ♂, 2 ♀; June 20–July 12.

Found up to 100 meters altitude.

WING.—♂ (10) 165–174 mm. (av. 169.2); ♀ (10) 159–171 (av. 163.6).

In 1937 Mayr and I (Bull. Amer. Mus. Nat. Hist., LXXIII, p. 34) recorded a single specimen from Wuroi as *poliura*, while noting that the under tail coverts were brighter yellow than in others of that race. Junge (1937, Nova Guinea, [N. S.] I, p. 132) synonymizes *interposita* with *puella*. However, the present series compares well with the type of *interposita* and differs from four Arfak specimens (wing 158 mm., 161, 162, 163) in averaging larger, and in having the under tail coverts more yellowish, less greenish; the under side of the rectrices is not black, as in the type of this race, but is brownish black, not gray as in southeast New Guinea birds. This race is close to *septentrionalis* but is larger, brighter yellow on the vent and

under tail coverts, and darker on the under side of the rectrices.

This is a common, widespread, fruit-eating pigeon of the upper part of the forest. It contrasts with most *Ptilinopus* in being solitary in habits, though sometimes one or two come to feed in a fruiting tree with other birds.

Birds in breeding condition were taken in May (2), August (3), July (1) and October (4); nests were found August 22, one egg; August 23, one young; September 29, one egg; October 16, one egg; October 28, one egg.

The nests were all very similar and differ considerably from those of *Ptilinopus*. They were placed twelve to twenty feet up on flat forks of lateral branches of substage trees. Every nest was composed largely of a pad of the woody tendrils of a creeper, with the addition of some slender twigs or herbaceous stems. They average 80 to 100 mm. wide, and 15 to 40 mm. thick. The incubating bird completely overshadows the nest. One incubating bird proved to be the male.

The description of one egg is: shape elongate ovate; gloss slight; shell fairly smooth; color white; size 34.1 by 22.3 mm. The young bird had short, yellowish brown down on the tips of most of the feathers.

***Ducula spilorrhoa tarara* Rand**

*Ducula spilorrhoa tarara* RAND, 1941, Amer. Mus. Novitates, No. 1102, p. 5—Tarara.

Penzara and Tarara: 3 ♂, 2 ♂ nestlings, 2 ♀, 1 ♀ nestling; December 7–January 12.

Mabadauan: 2 ♂, 1 ♀; April.

Daru: 1 ♀, 1 sex?; May 27, June 13.

Lake Daviumbu: 5 ♂, 6 ♀; August 18–September 29.

Found near sea level.

WING.—♂ ad. (10) 234–248 mm. (av. 239.9); ♀ ad. 226, 231, 236, 241, 242, 247.

The nutmeg pigeon was common at Lake Daviumbu in the taller, denser savanna, the savanna forest and into the forest edge, where I found one flock feeding on the fruit of the lawyer cane. Though some individuals were breeding, small flocks of five to twenty birds were commonly seen. Some of these spent the night

in the neighborhood, for one night I found a flock of a dozen or so roosting in a savanna tree, but also each evening small flocks were commonly seen flying westward, seventy to one hundred yards above the savanna as though going to a distant roost. The species was fairly common at Tarara, frequenting the taller and more dense savanna. The type of habitat chosen for the nest varies considerably.

At Lake Daviumbu a nest found about September 8 was in a shrubby tree of a clump growing out in the lake; of two nests found September 12, one was on the flat fork of a branch of a tea tree, projecting over the lake shore, where a stand of savanna forest fringed the lake; the other nest was in an isolated clump of leafy trees on a grassy point projecting into the lake.

Of two nests found at Tarara one, January 11, was on a flat fork of a savanna tree; one, January 20, was on a lateral branch of a mangrove tree fringing the river. The nests varied in height from ten to twenty feet above the ground or water. They were all similar in construction, being flat, open platforms of slender, dead twigs and sticks; the main part of the nest was 180 to 300 mm. across and 60 to 100 mm. deep, with loose ends of sticks projecting beyond. Each nest contained a single egg. The description of one is: shape ovate; shell smooth; gloss medium; color white; size 44.5 by 31.4 mm.

This species and some other species of *Ducula* have an aerial evolution that is probably part of the mating ceremony. Occasionally, as two birds are flying along, one sets its wings in a depressed position and glides sharply upward. When its momentum is lost, it raises its wings and swoops downward to continue its flight.

***Ducula mülleri mülleri* (Temminck)**

Tarara: 2 ♂, 1 ♀; December 7-21.

Daru: 1 ♂ nestling, 1 ♀; April 7, 28.

Mainland opposite Daru: 1 ♂; March 31.

Sturt Island: 1 ♂; October 22.

Lake Daviumbu: 3 ♂, 1 ♀; August 21-September 24.

Found near sea level.

WING.—♂ 228 mm., 231, 236, 236, 238, 240, 241; ♀ 228, 230, 230.

There is some individual variation in this series, especially in the depth of color of the underparts. There are no significant differences when compared with other south New Guinea birds from the Setekwa River to the Brown River, and from the Aru Islands.

At Daviumbu this was a common species in the denser tree growth along the water's edge. It was fairly common along the river at Sturt Island. At Tarara it was common, singly or in pairs, especially in the mangroves along the river, but occasionally was found feeding in the forest. Breeding birds were taken in March (1), August (1), September (1) and October (1). Nests with eggs were found September 12, 16, 22 and 29, and October 22. The nests were all in similar situations, on flat densely leafy branches, six to twenty feet above the water, in trees fringing the lake or rivers. At Lake Daviumbu they were in the shrubby *Barringtonia* trees, sometimes some distance from the forest; at Sturt Island the nest found was in a forest tree.

The nests were all similar, being scanty, flat platforms of slim twigs and sticks; the main part of the nest was 250 to 300 mm. across, and 60 to 70 mm. deep, with many loose ends of sticks projecting considerably beyond.

Each nest contained one white egg. The description of one is: shape nearly oval, one end being only slightly pointed; shell smooth; gloss slight; color white; size 47.7 by 34.3 mm. Another egg measured 47.4 by 33.7 mm. This species also has the aerial courtship maneuver of the genus: an upward glide on stiff, downward extended wings; a downward swoop following a raising of its wings; and then its ordinary, swift, direct flight is continued. One bird, shot on the nest, was a male. The adults were usually shy at the nest, flushing with rapid, direct flight when I was twenty to thirty yards away, thus revealing the site of the well-concealed nests.

***Ducula pinon pinon* (Quoy and Gaimard)**

Tarara: 1 ♀; December 8.

Sturt Island Camp: 1 ♂, 1 ♀; October 17, 18.

Lake Daviumbu: 1 ♀; September 22.

Oroville Camp: 1 ♀; August 11.

Palmer Junction Camp: 4 ♀; May 14–21.

Black River Camp: 1 ♂, 1 ♀; July 10.

Found up to 100 meters altitude.

WING.—♂ 257 mm., 259; ♀ 245, 253, 254, 256, 260, 261, 262, 264, 267.

This series is inseparable from four Waigeu birds (wing 269 mm., 272, 272, 273) and five Misol birds (wing 251 mm., 251, 256, 258, 265).

This is a fairly common bird, usually single or in pairs, of the tree tops in the forest but is sometimes found in the taller, denser savanna. Breeding birds were taken in May (2), July (2), September (1), October (1) and December (1). One nest was seen sixty feet up on a flat branch of a tall savanna tree. It appeared to be a typical, flat nest of slender sticks and to contain a single, white egg.

***Ducula rufigaster rufigaster*** (Quoy and Gaimard)

Tarara: 1 ♂; January 4.

Lake Daviumbu: 1 ♂, 1 ♀; September 20.

Palmer Junction Camp: 1 ♂, 2 ♀; May 23–29.

Black River Camp: 4 ♂; June 13–July 10.

Found up to 700 meters altitude.

WING.—♂ 187 mm., 189, 194, 198, 202, 206, 208; ♀ 185, 192, 204.

These birds agree much better with Arfak than with Astrolabe Bay birds in the color of the head, rump and upper tail coverts. It was a fairly common species of the forest and into the edge of the savanna. Birds in breeding condition were taken in May (2), July (1) and September (2).

***Ducula zoeae*** (Lesson)

Tarara: 2 ♂; January 2, 5.

Gaima: 1 ♂, 1 ♀; November 11, 12.

Sturt Island Camp: 1 ♂; October 12.

Lake Daviumbu: 1 ♂, 1 ♀; August 23, September 15.

Palmer Junction Camp: 3 ♂; May 18, 21.

Black River Camp: 2 ♀; June 19, July 12.

Found up to 100 meters altitude.

WING.—♂ 210 mm., 212, 212, 215, 216, 217, 218, 221; ♀ 211, 214, 216, 216, 223.

This was a fairly common pigeon of the forest tree tops. Birds in breeding condition were taken in May (1), July (1) and September (1).

***Gymnophaps albertisii albertisii***

Salvadori

Palmer Junction Camp: 1 ♂, 1 ♀; May 19, 25.

Found at 80 meters altitude.

WING.—♂ 203 mm.; ♀ 202.

This pigeon was seen only on the Palmer River and was not common.

***Macropygia amboinensis kerstingi***

Reichenow

Tarara: 1 ♂ ad.; December 12.

Gaima: 1 ♀ ad.; November 19.

Sturt Island Camp: 4 ♂ ad., 2 ♀ ad.; October 19–31.

Lake Daviumbu: 1 ♀ ad.; August 24.

Oroville Camp: 1 ♂ ad.; August 10.

Palmer Junction Camp: 2 ♂ ad.; May 29–June 6.

Black River Camp: 3 ♂ ad., 7 ♀ ad.; June 16–July 19.

Found up to 100 meters altitude.

WING.—♂ ad. (10) 160–173 mm. (av. 167.3); ♀ (10) 158–172 (av. 166.1).

I have two males from Astrolabe Bay, near the type locality, for comparison. One is within the range of variation of the present series; the other is somewhat darker brown below. Compared with a large series from southeast New Guinea (*cinereiceps*), the present series is somewhat darker on the upperparts; the underparts of both series average about the same. Compared with a large series from north New Guinea (*kerstingi*), the present series averages considerably darker on the underparts, but the upperparts of the two series are about the same.

There is considerable individual variation in any series of this species, and though it is doubtful that, when this species is thoroughly investigated, the present ar-



agement will be followed, it seems advisable now to refer this series to *kerstingi* on the basis of the similarity of coloring in the upperparts.

This was a fairly common solitary bird of the forest substage, more common in second growth forests. Stomachs examined contained small seeds and fruits. Birds in breeding condition were taken in June (3), August (1) and October (2). A female taken June 18 was ready to lay, yet was undergoing wing and body moult. A nest found August 24 at Lake Daviumbu was about fifteen feet up, near the top of a slender, sapling-like tree in the open substage of tall, closed forest. It was placed next to the main shoot, resting on several lateral branches. The nest was a large, bulky nest for a pigeon, about 250 by 90 mm. deep outside, with a firm, basin-shaped depression in the top, about 130 by 50 mm. deep. The nest was a rather untidy, though fairly firmly put together, structure.

The inside of the nest was entirely of clean, dead twigs; the rest was composed of leaves, twigs and sticks. From a little distance it looked like an accumulation of debris. It contained one egg of which the description is: shape nearly oval; shell fairly smooth; gloss medium; color yellowish white; size 31.5 by 22.7 mm. The adult flushed from the nest while I was twenty-five feet away, and flew swiftly and strongly away through the forest; later it returned and was collected on the nest, proving to be a male.

**Macropygia nigrirostris nigrirostris**  
Salvadori

Palmer Junction Camp: 1 ♀; May 27.  
Found at 80 meters altitude.

WING.—♀ 137 mm.

This bird has a somewhat longer bill (culmen 20 mm.) than most New Guinea specimens.

This species appeared to be absent from most of the Fly River area.

**Reinwardtoena reinwardtsi griseotincta**  
(Hartert)

Palmer Junction Camp: 1 ♀; May 30.  
Black River Camp: 1 ♂; July 11.

Found at 80 and 100 meters altitude.

These compare well with southeast New Guinea birds.

This dove appeared to be absent from most of the Fly River area.

**Geopelia humeralis gregalis** Bangs and Peters

Tarara and Penzara: 6 ♂, 6 ♀; December 8–January 23.

Bugi: 2 ♂; January.

Daru: 5 ♂, 1 ♂ nestling, 1 ♀; March 3–April 24.

Lake Daviumbu: 3 ♂, 4 ♀; August 21–September 24.

Found near sea level.

WING.—♂ (10) 128–144 mm. (av. 135.5); ♀ (10) 127–135 (av. 131.9).

Worn and faded specimens are considerably paler than fresh-plumaged birds.

This dove was fairly common at Lake Daviumbu, where it appeared to be restricted to places along the lake shore where grass was short or sparse. With the burning of the savannas it spread out over them to feed. It was also fairly common at Tarara. Females in breeding condition were taken in March (1), September (2) and December (1).

**Geopelia striata papua** Rand

Tarara and Penzara: 3 ♂, 3 ♀; December 15–22.

Mabadauan: 1 ♂; April 24.

Daru: 4 ♂, 2 ♀; March 9–April 24.

Found near sea level.

WING.—♂ (9) 101–107 mm. (av. 103); ♀ 99, 100, 100, 100, 102.

This species occupies more barren and open habitat than *G. humeralis* and is consequently more restricted in range. It was not present at Lake Daviumbu. Three birds in breeding condition were taken in March.

**Chalcophaps indica chrysochlora**  
(Wagler)

Tarara: 2 ♂ ad., 1 ♀ ad.; December 24–27.

Sturt Island Camp: 1 ♂ ad., 1 ♂ imm., 1 ♀ ad., 1 ♀ imm.; October 17–29.

Found near sea level.

WING.—♂ ad. 142 mm., 145, 145; ♀ ad. 143, 145.

Though these specimens differ from New South Wales birds in their smaller size, more grayish, less pinkish wash on the breast and neck and in the grayer subterminal portion of the rump feathers, I am provisionally referring them to *chrysochlora*.

A female with an enlarged ovary was taken in October.

**Chalcophaps stephani stephani** Pucheran

Daru: 1 ♂ ad.; April 2.

Gaima: 1 ♀ imm.; November 11.

Sturt Island Camp: 1 ♂ ad.; October 23.

Lake Daviumbu: 1 ♂ ad., 1 ♀ ad.; September 19, 27.

Oroville Camp: 1 ♂ ad.; August 11.

Palmer Junction Camp: 1 ♂ ad.; May 30.

Found up to 100 meters altitude.

WING.—♂ ad. 137 mm., 138, 138, 139, 144; ♀ ad. 146.

A male with enlarged gonads was taken in August and another in September.

**Henicophaps albifrons albifrons** Gray

Gaima: 2 ♂, 1 ♀; November 10–19.

Sturt Island Camp: 3 ♂; October 11–23.

Lake Daviumbu: 1 ♂; September 2.

Oroville Camp: 1 ♂; August 10.

Black River Camp: 3 ♂, 5 ♀; June 9–July 7.

Found up to 100 meters altitude.

WING.—♂ (10) 189–201 mm. (av. 195.1); ♀ 177, 185, 187, 189, 192, 193.

Compared with two Waigeu birds (wing 194 mm., 197), this series is slightly less iridescent greenish on the back.

On June 15 at the Black River Camp I saw a pair of these birds flying from branch to branch low in the forest, one bird occasionally giving a series of low coos. Apparently it feeds on the ground much of the time. Four breeding females were taken in June and one in July. An egg, removed from the oviduct of one of these birds, was oval in shape; gloss medium; shell smooth; color white; size 38.9 by 28 mm.

**Gallicolumba rufigula alaris** Rand

*Gallicolumba rufigula alaris* RAND, 1941, Amer. Mus. Novitates, No. 1102, p. 7—Lake Daviumbu.

Sturt Island Camp: 1 ♂ ad., 1 ♀ ad.; October 18.

Lake Daviumbu: 1 ♂ ad., 1 ♀ ad.; August 28–September 24.

Palmer Junction Camp: 1 ♀ ad., 1 ♀ imm.; May 26, 28.

Black River Camp: 1 ♀ ad.; June 30.

Found up to 100 meters altitude.

WING.—♂ ad. 138 mm., 139; ♀ ad. 131, 132, 134, 137.

The yellow and brown quail dove was a bird of the forest floor. It flushed and flew with quick, pigeon-like flight. It was uncommon on the upper and middle Fly River, fairly common at Sturt Island.

Besides three nests found in September and October, breeding birds were taken in May and June. The three nests were similarly placed in shady, dark forest where the undergrowth of lianas, palms, pandanus and woody plants was dense. One was three feet up on the shelf-like platform provided by a "bird's nest" fern, one was on a flat palm frond seven feet up, and one was supported five feet above the ground by several pandanus leaves which crossed to give a foundation. The nest always rested on a foundation of dead leaves; in one case it appeared to be a natural accumulation; in the others the leaves appeared to have been brought by the bird. The nest itself was a number of flat, dead leaves laid flat on the foundation; in one case a few slender twigs had been added. Two nests contained one egg each (September 24 and October 27), and one a small young (October 22). Two of the nests were robbed by some predator a few days after being found. The incubating bird at one nest, collected at 5 p.m., proved to be a female.

**Gallicolumba jobiensis jobiensis** (Meyer)

Palmer Junction Camp: 1 ♀ ad.; May 30.

Found at 80 meters altitude.

WING.—146 mm.

**Trugon terrestris leucopareia** (Meyer)

Palmer Junction Camp: 3 ♂ ad.; May 22-26.

Collected at 80 meters altitude.

WING.—♂ 177 mm., 179, 181.

For notes on this series and field notes on habits and nesting, see 1938, Amer. Mus. Novitates, No. 990, pp. 6-8.

**Goura scheepmakeri sclaterii** Salvadori

Mainland opposite Daru: 1 ♀; March 13.

Near Everill Junction: 1 sex?; May 6.

Palmer Junction Camp: 1 ♂, 1 ♀; May 15, 17.

Found up to 100 meters altitude.

WING.—♂ 378 mm.; ♀ 348, 356.

A few gouras were found in the forest at most of the camps, but they were common only in the drier forests of Lake Daviumbu and the dry, and also the flooded, forests at Sturt Island.

Five nests were found, on September 28, October 24 and November 1. One nest was forty-five feet up on a large, lateral bough of a forest tree, where several lateral branches provided a substantial flat base; another was in a similar situation in a multiple fork thirty-five feet up; another was thirty-five feet up on the horizontal part of a fallen, lodged tree trunk, the nest being placed where a lateral branch gave additional support; the fourth nest was twelve feet up on a ten-inch branch that had fallen and become wedged in the branches of another tree; and the fifth nest was fifty feet up on the flat fork of a big branch of a forest tree. All these nests were in forest, in situations where there was little obscuring substage, so that they could be seen from some distance. The nest itself was a much more solid, compact structure than many pigeon's nests. One nest was composed throughout of dead, coarse herbaceous stems, palm and lawyer cane leaves, and sticks, some up to 25 mm. in diameter. Most of the material was in short pieces so that there were no projecting loose ends, and where a palm leaf fragment had projected it had been bent back into the nest. This gave a rather neat nest. In the slight concavity, for what would correspond to a lining, were a dozen or so rachises of some

large, compound leaf, recalling the flimsy twig nests of some other pigeons. The nest was oval and measured 450 by 350 mm. on top and 160 mm. deep. However, it still appeared much too small for the bird, and standing under the nest I could see the incubating bird's tail, head and breast.

The other nest examined was similar, but dead leaves had been used plentifully; there was no lining, and there was a more definite cavity for the eggs. It measured 500 by 180 mm. deep outside, 300 by 40 mm. deep inside. The three other nests, not examined, appeared similar. Two nests examined contained one egg each; one was: shape nearly oval; shell fairly smooth; gloss medium; color white; size 52 by 37.5 mm.

**Chalcopsitta scintillata scintillata**

(Temminck)

Tarara: 5 ♂; December 9-January 10.

Daru: 4 ♂, 1 ♀; March 11-April 4.

Gaima: 2 ♂; November 12, 18.

Sturt Island Camp: 6 ♂, 3 ♀; October 20-31.

Lake Daviumbu: 7 ♂, 3 ♀; August 24-September 15.

Found near sea level.

WING.—♂ (10) 160-172 mm. (av. 164.6); ♀ 163, 163, 166.

This series is fairly uniform in the heavy yellow streaking above and below, averaging considerably heavier than in southeast New Guinea birds. They also show only minor variations in the character of the under wing, having an anterior, green band of under wing coverts, the rest being red, usually mixed with a little green. The yellow under wing area is well pronounced. In these characters they agree fairly well with four Setekwa River birds and differ from eleven southeast New Guinea birds. These are not intermediate between *scintillata* and *chloroptera* but are definitely *scintillata*. All the southeast New Guinea birds I have seen (eleven) have some red in the under wing coverts; in one specimen half the under wing coverts are red; similarly all specimens of *scintillata* I have seen (three Setekwa River, two Arfak [?], one Waropen and

one north New Guinea [?] have at least some green in the under wing.

The streaked lory was common in both savanna and forest, where it moves about and feeds usually in noisy flocks up to thirty or so in number. Its local abundance appears to be influenced by the presence or absence of trees in flower, on the blooms of which it feeds.

At Sturt Island during one mid-morning I saw two of these lorries exploring a dead, hollow pipe-like palm stub. One, then the other, went into the cavity, and I could hear them rattling around inside. Perhaps they were looking for a nest site, but none of the specimens collected was breeding.

***Chalcopsitta scintillata chloroptera***  
(Salvadori)

Black River Camp: 1 ♂; June 17.

Found at 100 meters altitude.

WING.—165 mm.

This specimen has only a trace of yellow in the under wing, and the under wing coverts are less than half red. I have seen only one specimen of this species, with data, that had no red in the under wing coverts nor yellow in the under wing. It is from the Eilanden River. The variation in this species will be considered in a later paper.

***Pseudeos fuscata incondita*** (Meyer)

Gaima: 7 ♂, 8 ♀; November 10–22.

Black River Camp: 5 ♂, 3 ♀; June 23, 24.

Found up to 700 meters altitude.

WING.—♂ (10) 154–165 mm. (av. 158.1); ♀ (10) 147–159 (av. 152.6).

This is predominantly a yellow series; only one bird is in the red phase, and six are in a yellowish orange phase of plumage; the rest are in the yellow phase.

This is a bird of both savanna and forest, flying in compact flocks and feeding in flowering trees. As with many lorries their local distribution depends on the presence of trees in flower. None of the specimens was in breeding condition. One female had a small right ovary.

***Trichoglossus haematodus haematodus***  
(Linnaeus)

Black River Camp: 3 ♂, 1 ♀; June 15–24.

Found at 100 meters altitude.

WING.—♂ 132 mm., 136, 139; ♀ 130.

I have already recorded this series (1938, Amer. Mus. Novitates, No. 990, p. 8), which considerably extends the eastward range of this race to east of the Fly River.

***Trichoglossus haematodus caeruleiceps***  
D'Albertis and Salvadori

Tarara: 7 ♂, 8 ♀; December 7–January 23.

Daru: 4 ♂, 1 ♀; March 11–June 16.

Gaima: 1 ♂, 1 ♀; November 18, 19.

Lake Daviumbu: ♂, 4 ♀; September 14–18.

Found near sea level.

WING.—♂ (10) 134–148 mm. (av. 140.4); ♀ (10) 132–140 (av. 136.9).

I have already recorded this series and shown how it differs in its smaller size from Aru Island birds (1941, Amer. Mus. Novitates, No. 1102, p. 7).

This is a common species of both forest and savanna, usually found in small, noisy flocks. Its local presence depends on the presence of flowering trees, and at Lake Daviumbu the bursting into bloom of a yellow flowered tree resulted not only in the appearance of this lory, but also of numbers of fruit bats. On September 16 I watched a party of lorries in a tree top that was continually breaking up into couples. One bird would approach another, they would reach out as though trying to seize each other by the head, or would stand on one foot, reaching out with the other and grappling each other's foot. Usually the bird approached would swing under the branch, often with outspread, quivering wings, and the grappling and billing were continued. This usually ended by the upper bird moving off, the hanging bird climbing to the top of the branch with the aid of its bill and then resuming feeding. As one of the birds collected from this flock was a female with an enlarged ovary, this indicates that pairing occurs in the flock. But on January 7 at Tarara I saw a



lone pair of birds copulate on a high branch in the forest. There was no ceremony, the birds were quiet, and flew quietly away afterwards. One female had a small right ovary present.

***Domicella lory rubiensis* (Meyer)**

Lake Daviumbu: 1 ♀; September 5.

Palmer Junction Camp: 3 ♂; May 26–31.

Black River Camp: 9 ♂, 9 ♀; June 16–July 1.

Found up to 100 meters altitude.

WING.—♂ (10) 154–163 mm. (av. 158.3); ♀ (10) 145–159 (av. 150).

The paler blue under tail coverts and average smaller size separate these birds from southeast New Guinea *erythrothorax*. The birds Junge (1937, Nova Guinea, [N.S.] I, p. 154) lists as *erythrothorax* from the south slopes of the Snow Mountains undoubtedly belong to this form.

This is a fairly common forest bird, usually found in pairs in the upper part of the forest. It does not travel in flocks, and only rarely do a number of them gather to feed on some flowering tree. At the Black River Camp, however, numbers gathered to feed on the scarlet flowers of the D'Alberty creper. A common food is the flower of the climbing *Freycinetia*. One May male had enlarged gonads.

***Charmosyna multistriata* (Rothschild)**

Palmer Junction Camp: 2 ♀ imm.; June 4.

Found at 80 meters altitude.

WING.—94 mm., 98.

I have already recorded these specimens and how they differ from Snow Mountains birds (1938, Amer. Mus. Novitates, No. 990, pp. 8, 9).

***Charmosyna placensis placensis***

(Temminck)

Tarara: 6 ♂ ad., 1 ♂ imm., 5 ♀ ad.; December 7–January 24.

Gaima: 1 ♂ ad.; November 19.

Sturt Island Camp: 2 ♂ ad., 1 ♀ ad.; October 22–November 2.

Lake Daviumbu: 1 ♂ ad., 1 ♀ ad., 1 ♀ imm.; August 30, September 4.

Palmer Junction Camp: 2 ♂ ad., 1 ♀ ad.; May 21.

Found up to 80 meters altitude.

WING.—♂ (10) 82–88 mm. (av. 86.3); ♀ 83, 83, 84, 85, 85, 86, 87, 89.

This was both a savanna and a forest species and was uncommon. At Sturt Island, in a tea tree swamp, I found a pair of these birds excavating a tunnel in a large, arboreal termite mound, twenty feet above the ground, probably for a nest. One September and one December female were in breeding condition.

***Psittaculirostris desmarestii* (godmani)**

Ogilvie-Grant × *cervicalis* Salvadori and D'Alberty

Palmer Junction Camp: 1 ♂, 1 ♀; May 21.

Black River Camp: 1 ♂, 1 ♀; July 7, 8.

Found at 80 and 100 meters altitude.

WING.—♂ 109 mm., 120; ♀ 116, 120.

This series is very uniform in pattern; the males differ from the females only in having the abdomen and lower breast brighter yellow. They are almost exactly intermediate between examples of *godmani* Ogilvie-Grant from the Eilanden River, and examples of *cervicalis* from southeast New Guinea. For a discussion of the hybridization of these two races on the Fly River, see Rothschild, 1920, Bull. Brit. Ornith. Club, XL, pp. 64–67.

At Palmer Junction a number of these parrots were found feeding together in the top of a tall, forest tree. A large, gnarled tree with many cavities in its trunk on a ridge top near the Black River Camp was found on several visits to have one to three pairs of these birds going in and out of the cavities; a female collected here was in breeding condition. These were the only places this species was encountered.

***Opsittia gulielmi-terti fuscifrons***  
(Salvadori)

Tarara and Penzara: 2 ♂; December, 18, 30.

Gaima: 3 ♂, 3 ♀; November 14.

Lake Daviumbu: 5 ♂, 2 ♀; August 20–September 18.

Black River Camp: 1 ♀; July 18.

Found up to 100 meters altitude.

WING.—♂ 72 mm., 74, 75, 75, 77, 77, 77, 78, 79; ♀ 73, 75, 75, 76, 76, 77, 79.

I have already reported on this series (1938, Amer. Mus. Novitates, No. 990, p. 9), which shows that this race reaches the east bank of the Fly River from its mouth to the headwaters, with a slight tendency toward the eastern race *suavissima* on the east bank near the mouth of the Fly.

***Micropsitta keiensis viridipectus***  
(Rothschild)

Lake Daviumbu: 3 ♀; September 24, 25.

Oroville Camp: 1 ♀; August 12.

Palmer Junction Camp: 8 ♂, 3 ♀; May 16–June 4.

Black River Camp: 1 ♂; July 1.

Found up to 50 meters altitude.

WING.—♂ (9) 58–64 mm. (av. 61.3); ♀ 58, 59, 59, 59, 59, 62, 64.

***Probosciger aterrimus goliath*** (Kuhl)

Palmer Junction Camp: 3 ♂; May 23, 26.

Black River Camp: 1 ♂, 2 ♀; June 25, 29.

Found at 80 and 100 meters altitude.

WING.—♂ 381 mm., 390, 397; ♀ 364, 364.

These specimens support Mayr's (1937, Amer. Mus. Novitates, No. 947, p. 8) assumption that the range of *goliath* is continuous along the south of the central New Guinea range. One immature bird has some barring on the underparts.

Though usually in the tree tops, the black cockatoo was occasionally flushed from the ground in the forest where it had been feeding on fallen fruit.

What may be a form of mating display was seen once. Three birds were sitting in an exposed tree top, two with erected crests, and giving harsh screams; one then spread its wings and continued screaming. Shortly all three flew away.

***Probosciger aterrimus aterrimus***  
(Gmelin)

Tarara: 1 ♂, 5 ♀; December 8–January 21.

Daru, mainland opposite: 1 ♂; April 9.

Mabadauan: 1 ♂, 1 ♀; April 16.

Gaima: 2 ♂, 2 ♀; November 10–18.

Lake Daviumbu: 3 ♀; August 18–September 23.

Found near sea level.

WING.—♂ 350 mm., 370, 372, 389; ♀ 328, 334, 335, 339, 339, 341, 344, 345, 347, 350, 351.

I include all these birds with the Australian race, though one male is very large. One immature bird has some barring on the underparts and a white tip to the bill; some other specimens, apparently immature, have no barring below.

The black cockatoo was only fairly common; rarely were more than two or three seen together, and though occasionally seen on some conspicuous perch or flying through the tree tops, it was much less conspicuous than the white cockatoo, and its loud whistled calls less often heard than the screaming of *Cacatua*. It frequented both forest and savanna. This bird apparently feeds to some extent on the ground. One bird had in its gullet about two teaspoonfuls of the small seeds of a sedge that grows on the ground in the forest; the seeds were all shelled, few were broken, and there was very little chaff mixed with them. It was amazing that the black cockatoo could have removed and husked these seeds, only a few millimeters across, without breaking them, and it seems an odd task for its huge bill.

Two females in breeding condition were taken in August.

***Cacatua galerita triton*** Temminck

Tarara: 5 ♂, 3 ♀; December 10–January 22.

Bugi: 3 ♀; January 4.

Mabadauan: 1 ♂; April 23.

Daru: 1 ♂, 3 ♀, 1 sex?; March 6–July 8.

Gaima: 3 ♂, 1 ♀; November 10–22.

Sturt Island Camp: 4 ♂, 1 ♀; October 10–31.

Lake Daviumbu: 6 ♂, 1 ♀; September 4–29.

Oroville Camp: 1 ♀; August 11.

Palmer Junction Camp: 2 ♂, 2 ♀; May 15–27.

Black River Camp: 1 ♂, 1 ♀;  
June 26, July 10.  
Found up to 100 meters altitude.

Locality	WING MEASUREMENTS	
	Male	Female
Upper Fly River	324 mm., 324, 338	301, 312, 316
Oroville Camp to Gaima	291, 296, 299, 300, 301, 302, 303, 304, 304, 311, 316	288, 292, 297, 302
Daru to Tarara	276, 278, 281, 281, 282, 286	266, 272, 273, 279, 279, 280, 284, 285, 290

For a discussion of size variation in this subspecies, see Mayr, 1937, Amer. Mus. Novitates, No. 947, p. 7.

The white cockatoo was a common species of both the forest and the savanna. Though none of the specimens collected was in breeding condition, at Lake Daviumbu and Sturt Island these birds were frequently seen going in and out of natural holes high in the trunks or branches of forest trees, and at Gaima, on November 22, I found a nest containing one young bird which left the nest at my approach. The nest was in a natural cavity twelve feet up in the trunk of a tea tree in tall, fairly dense savanna.

#### *Psitttrichas fulgidus* (Lesson)

Palmer Junction Camp: 8 ♂, 1 ♀; May 15–June 1.

Black River Camp: 2 ♂, 1 ♀; June 23–July 19.

Mt. Mabiom: 1 ♂; July 20.

Found from 80 to 750 meters altitude.

WING.—♂ (10) 276–293 mm. (av. 282.6); (Mt. Mabiom ♂ 303); ♀ 273, 281.

For a discussion of variation in this species, see Mayr, 1937, Amer. Mus. Novitates, No. 947, p. 8.

The vulturine parrot was fairly common on the upper Fly River. It was rather conspicuous, singly or in twos or threes, in the tree tops or flying over the forest. Its flight was distinctive, a few quick wing beats, then a short sail; in flight it frequently called a hoarse "aaar" repeated a number of times. Two stomachs examined contained figs. One May male had enlarged gonads.

#### *Lorius roratus pectoralis* (Müller)

Tarara: 7 ♂, 2 ♀; December 7–30.

Bugi: 1 ♀; December.

Daru: 3 ♂, 1 ♀; March 30, June 16.

Gaima: 2 ♂, 1 ♀; November 11, 21.

Sturt Island Camp: 4 ♂; October 15–November 3.

Lake Daviumbu: 1 ♂; September 22.

Oroville Camp: 1 ♂; August 9.

Palmer Junction Camp: 1 ♂, 1 ♀; May 21.

Found up to 80 meters altitude.

WING.—(10) 247–265 mm. (av. 255.1); ♀ 239, 242, 242, 245, 248, 250.

There is no variation in size correlated with distribution in this area. As has long been recognized, south New Guinea birds are smaller than north New Guinea birds. The females also average somewhat paler in color.

Three females had a right ovary present. A nest found November 21 at Gaima was in a natural cavity in a tea tree about sixty feet above the ground, in tall, dense savanna. It contained two eggs which were: shape broadly ovate; shell somewhat rough; gloss slight; color white; size 42 by 31.8 and 41.4 by 31 mm.

#### *Geoffroyus geoffroyi aruensis* (Gray)

Tarara and Penzara: 4 ♂ ad., 2 ♂ imm., 2 ♀; December 7–January 16.

Daru: 2 ♂ ad.; August 3.

Sturt Island Camp: 1 ♂ imm., 1 ♀; October 18, 24.

Black River Camp: 1 ♂ imm., 2 ♀; June 17–24.

Found up to 100 meters altitude.

WING.—♂ ad. 152 mm., 152, 153, 155, 156, 158; ♀ 147, 150, 150, 153, 154.

The immature males have a brown head like the females.

The pink-headed *Geoffroyus* frequented both the rain forest and savanna. It was fairly common at the Black River Camp, heard but not secured at Lake Daviumbu and was fairly common at Sturt Island, Tarara and Penzara. It was usually found singly or in pairs; sometimes small parties of four to six were seen. It fed in the tree tops and frequently flew about over the forest giving its distinctive call, a repeated harsh "kik."

At the Black River Camp a nest was found June 28. The nest hole was thirty-five feet up near the top of an old, dead stub. The large litter of fresh chips on the ground indicated that it had been freshly excavated by the bird which looked out of the hole when I thumped on the stub. I visited the nest several times, and it was always the female that was in it.

On October 29 at Sturt Island Camp I collected a nest of this species. It was a cavity near the top of a dead stub which was standing in the heavy forest near the river. The heavy canopy overhead cast a deep shade; substage trees were few, and the stub stood in the open below the canopy. It was too rotten to climb, and the boys had to rig a scaffolding to collect the nest. The stub was about 180 mm. in diameter where the nest was excavated. The whole cavity had apparently been freshly excavated in the soft, punky wood by the bird. Two small knots projecting into it had proved too tough for the bird and had been left. The entrance in the side of the stub was not circular but had a rather straight top and deeply rounded sides and bottom. A slight lip had been cut away on the lower edge of the opening. The sides of the cavity were smooth and a layer of wood chips about 40 mm. deep had been left in the rounded bottom of the nest. The dimensions of the nest were: entrance 80 mm. across, 90 mm. from top to bottom; the cavity extended about 420 mm. below the lower edge of the entrance and was about a uniform 100 mm. in diameter throughout its length. It contained three roundish white eggs.

One female collected January 12, at Tarara, had a small right ovary present.

***Aprosmictus erythropterus papua* Mayr  
and Rand**

Tarara: 5 ♂ ad., 3 ♀; December 7–January 5.

Mabadauan: 5 ♂ ad., 3 ♂ imm., 4 ♀; April 15–17

Found near sea level.

WING.—♂ ad. 181 mm., 182, 186, 186, 190, 195, 195, 196; ♀ 180, 180, 181, 183, 184, 185, 189.

The long-tailed savanna parrot was

fairly common in the Wassi Kussa area, usually found in parties up to twelve in number. But Mr. Brass, who visited Mabadauan in April, told me that he saw flocks of several hundred at that time. They sometimes feed on the fruit of the tea tree.

***Alisterus chloropterus callopterus*  
(D'Albertis and Salvadori)**

Black River Camp: 1 ♂ ad., 1 ♀ ad.; June 20, July 2.

Found at 100 meters altitude.

WING.—♂ 186 mm.; ♀ 184.

These are nearly topotypical. Mayr (1937, Amer. Mus. Novitates, No. 942, p. 10) has suggested that *wilhelminae* may prove to be a synonym of *callopterus*. The present specimens, which cannot be separated from birds from the south slopes of the Snow Mountains (Meek Collection), support this view.

***Loriculus aurantiifrons* (Schlegel)**

No specimens were collected, and only one of these birds was seen, a solitary bird that flew up and perched within five feet of me for a moment on a sapling in the heavy forest at the Black River Camp on June 20.

***Cuculus saturatus* Blyth**

Penzara: 1 ♂; December 17.

Daru: 1 ♂; March 10.

Found near sea level.

WING.—194 mm., 212.

Both these cuckoos were taken in savanna country. A few others were seen in March at Daru.

***Cacomantis variolosus infaustus* Cabanis  
and Heine**

Tarara and Penzara: 4 ♂ ad., 3 ♀ ad., 1 ♀ imm.; December 14–16.

Daru: 6 ♂ ad., 1 ♂ imm.; April 2–June 30.

Gaima: 1 ♂ imm.; November 13.

Sturt Island Camp: 1 ♂ imm.; November 3.

Lake Daviumbu: 2 ♂ ad., 1 ♀ ad.; September 1, 9.



Palmer Junction Camp: 1 ♂ ad.; May 27.

Found up to 80 meters altitude.

WING.—♂ ad. (10) 119–126 mm. (av. 123.4); ♀ ad. 116, 120, 124.

Two females, listed as immature, are in a somewhat barred plumage on the underparts, intermediate in character between the "typical" barred and blotched immature plumage and the unbarred, or nearly unbarred, adult plumage; their wing measurements are 112 mm., 118; they were both in breeding condition. There is great variation in color in this series. The single bird from the upper Fly River is rather dark rufous below with only the chin gray. The two Lake Daviumbu male birds are paler, but still fairly rufous below, with the gray of the chin spreading down onto the breast; the female is entirely pale gray below, with scarcely a rufous tinge. Five of the Daru males are similar to the Lake Daviumbu males; one is very different in the very dark gray underparts with a pale wash of rufous on the breast, increasing in intensity posteriorly. The Tarara and Penzara males average somewhat paler below than the Daru birds. I have two Misol males for comparison. In color both are very similar to each other and very different from the south New Guinea series. They are very dark gray below, only faintly tinged rufous, except on the abdomen which is strongly rufous-washed; they are much less rufous below than the gray Daru male. I can detect no constant difference in the bill to use in separating them. Many specimens from Arfak, Jobi and the Weyland Mountains have the bill much compressed at the base, but these specimens appear to have had the bill closed in drying by a thread through the nostrils tied around the lower mandible. Probably this has compressed the base of the bill, making it more slender. The present south New Guinea series is remarkably uniform, and it may be possible to separate races on color differences in this area.

This cuckoo was found in both forest and savanna. One November and four December females were laying.

**Cacomantis castaneiventris arfakianus**  
(Salvadori)

Tarara: 1 ♂ ad.; January 2.

Found near sea level.

WING.—112 mm.

I cannot distinguish this from an Arfak series. For a discussion of *arfakianus* and *weiskei*, see Stresemann and Paludan, 1936, Mitt. Zool. Mus. Berlin, XXI, p. 229.

**Chalcites lucidus plagosus** (Latham)

Mabadauan: 1 ♂ ad.; April 24.

Found near sea level.

WING.—♂ 100 mm.

**Chalcites malayanus poecilurus** (Gray)

Lake Daviumbu: 1 sex?; August 26.

Found near sea level.

WING.—89 mm.

Stresemann and Paludan (1935, Mitt. Zool. Mus. Berlin, XX, p. 454) record the larger race *russatus* (Gould) from Merauke (1 ♀, wing 101).

Though only this one specimen was seen, and that was brought in by natives, some cuckoo, probably this species, was common at Lake Daviumbu judging by the high percentage of nests of *Gerygone magnirostris* in which the eggs of a cuckoo were found.

**Microdynamis parva parva** (Salvadori)

Sturt Island Camp: 1 ♀; October 20.

Found near sea level.

WING.—105 mm.

A pale, rather rufous bird.

This individual, the only one seen, was actively feeding on clusters of yellow fruit of a vine which was fruiting abundantly in the top of a second story tree in the forest.

**Caliechthrus leucolophus** (Müller)

Oroville Camp: 1 ♂; August 12.

Black River Camp: 1 ♂; June 29.

Found up to 100 meters altitude.

WING.—174 mm., 183.

**Eudynamis scolopacea rufiventer**  
(Lesson)

Daru: 1 ♂ ad., 1 ♂ imm.; March 30.

Lake Daviumbu: 1 ♂ ad.; September 25.

Palmer Junction Camp: 1 ♀ ad.; June 3.

Found up to 80 meters altitude.

WING.—♂ ad. 185 mm., 188; ♂ imm. 180; ♀ ad. 189.

I have already recorded this series (1941, Amer. Mus. Novitates, No. 1102, p. 8).

**Eudynamys cyanocephala subcyanocephala** Mathews

Daru: 7 ♂ ad., 1 ♂ imm., 7 ♀; March 7–July 8.

Gaima: 1 ♂ imm.; November 11.

Sturt Island Camp: 1 ♂ imm., 1 ♀; October 29–November 1.

Lake Daviumbu: 2 ♀; September 9, 24. Found near sea level.

WING.—♂ ad. 200 mm., 204, 204, 207, 209, 212, 219; ♂ imm. 198, 199, 207; ♀ 199, 200, 202, 203, 203, 205, 205, 207, 209, 215.

I have already recorded this series and have shown why *cyanocephala* must be considered a species (1941, Amer. Mus. Novitates, No. 1102, p. 9).

**Scythrops novae-hollandiae** Latham

Mabadauan: 2 ♂ ad., 2 ♀ ad.; April 15–21.

Sturt Island Camp: 1 ♂ ad.; October 18.

Lake Daviumbu: 2 ♀ ad., 2 ♀ imm.; August 25–September 1.

Found near sea level.

WING.—♂ ad. 331 mm., 341, 342; ♀ ad. 322, 333, 336, 341.

**Centropus menbeki menbeki** Lesson

Black River Camp: 1 ♀; July 6.

Lake Daviumbu: 3 ♂, 1 ♀, 1 sex?; August 26–September 22.

Sturt Island Camp: 4 ♀, 1 fledgling; October 15–27.

Found near sea level.

WING.—♂ 226 mm., 227, 230; ♀ 215, 216, 224, 227, 229, 232.

Only one bird, sex?, has a barred tail. This bird also has some of the feathers of the upper back tipped with dark chestnut. That this is not an age character is shown by the young bird, with tail less than half grown, that has a completely black plumage like the adult.

These birds have average longer bills than north and northwest New Guinea birds.

A very shy forest bird at the Black River Camp, where its typical *Centropus* call was often heard at dusk, but none was seen except the specimen brought in by natives. At Sturt Island it was fairly common and frequently seen in the lower part of the denser substage and in the undergrowth. Of four stomachs examined, three contained insects and one, a twelve-inch snake. A female with enlarged ovary was taken in September, and a fledgling not long out of the nest, October 15.

Three males had the left testis smaller than the right but not rudimentary.

**Centropus bernsteinii bernsteinii**  
Schlegel

Gaima: 1 ♂; November 21.

Found near sea level.

WING.—♂ 168 mm.

This agrees well with measurements of north New Guinea birds (see Mayr, 1937, Amer. Mus. Novitates, No. 939, p. 3).

This specimen was taken in the edge of the savanna and was the only one of the species seen. The left testis was much smaller than the right.

**Centropus phasianinus thierfelderi**  
Stresemann

Tarara and Penzara: 1 ♂, 1 ♀; December 15, 23.

Mabadauan: 1 ♂; April.

Daru: 1 ♂, 3 ♀; March 17–July 1.

Gaima: 3 ♂, 1 ♀; November 11–18.

Lake Daviumbu: 2 ♂, 3 ♀; August 23–September 27.

Found near sea level.

WING.—♂ 205 mm., 210, 210, 211, 219, 219, 222, 222; ♀ 235, 242, 244, 244, 246, 251.

A common bird of the forest edge, second growth and savanna. In addition to the loud bubbling call, a "ko" rapidly repeated many times, it has a sharp "tschew" of alarm. Four stomachs examined contained insects. Of five males recorded, all had the left testis missing or rudimentary. Birds in breeding condition were taken in

March (1), July (1), September (1), November (1) and December (2).

**Tyto novaehollandiae** (Stephens)

Tarara: 1 ♀; January 21.

Daru: 2 ♂; April 8, 11.

Found near sea level.

WING.—♂ 303 mm., 305; ♀ 330.

The subspecific identification of these specimens must await a review of the species. They probably represent an undescribed subspecies.

The Tarara specimen was roosting in a savanna tree in the daytime. One stomach contained remains of a rodent; one, a rodent and a marsupial.

**Ninox theomacha theomacha**  
(Bonaparte)

Palmer River Camp: 1 ♂, 1 ♀; May 29.

Found at 80 meters altitude.

WING.—♂ 186 mm.; ♀ 179.

The two stomachs examined both contained insects.

**Ninox novaeseelandiae pusilla** Mayr and  
Rand

Penzara and Tarara: 2 ♂ ad., 2 ♀ ad., 2 ♀ imm.; December 17–January 19.

Found near sea level.

WING.—♂ ad. 191 mm., 201; ♀ ad. 195, 204.

Three of the adults are in very worn plumage. The male, in fairly fresh plumage, is somewhat more rufous above than the type. On the underparts there is considerable individual variation in coloration. This is the second time the species has been taken in New Guinea.

This little owl was not an uncommon bird of the savanna where it spent the day roosting in small parties of two to four, well up in some tree. They were shy, and the party usually flushed, flying in various directions, while I was still forty or more yards distant. If it had not been for the persistent mobbing of these birds by the leatherheads (*Philemon*) they would usually have escaped unnoticed. Four stomachs examined contained insect remains. None was in breeding condition. One female had a right ovary present.

**Ninox connivens assimilis** Salvadori and  
D'Albertis

Daru: 3 ♂, 3 ♀; March 11–June 6.

Lake Daviumbu: 1 ♂, 1 ♀; August 23, September 4.

Found near sea level.

WING.—♂ 258 mm., 258, 264, 271; ♀ 253, 253, 254, 254.

On the underparts there is considerable variation in this series. The streaks vary from narrow to broad and dark to light, they are sharply defined on a nearly pure white background, or the underparts are heavily tawny-tinged (in one specimen). The series averages considerably whiter below than do four birds from southeast New Guinea. Above there is slightly less of a brownish tinge to the upperparts than in southeast New Guinea birds; the variation in the white spotting in the scapulars and wing is considerable in both series. With the variation shown by the southeast New Guinea, Dampier and Vulcan Islands birds recorded by Mayr (1937, Amer. Mus. Novitates, No. 939, p. 6) it is inadvisable to separate these birds.

The Lake Daviumbu specimens were taken in rain forest. Seven stomachs examined contained insects. The August female was nearly ready to lay.

**Ninox rufa humeralis** (Bonaparte)

Tarara: 1 ♀ ad.; January 18.

Found near sea level.

WING.—310 mm.

This specimen is very much paler, especially on the underparts, than some recently collected specimens from southeast and north New Guinea. However, it is not very different from a specimen from southeast New Guinea collected in 1902 by the Pratt brothers. There is evidently great individual variation in this species, as is shown by comparing specimens of nearly equal age from southeast New Guinea.

**Podargus papuensis** Quoy and Gaimard

Tarara and Penzara: 5 ♂, 3 ♀; December 9–January 22.

Mabadauan: 2 ♂, 2 ♀; April 17.

Gaima: 1 ♂, 2 ♀; November 10–21.

Lake Daviumbu: 7 ♂, 8 ♀, 3 nestlings;  
August 23–September 27.

Palmer Junction Camp: 1 ♀; June 4.

Black River Camp: 2 ♂; June 27–  
July 5.

Found up to 100 meters altitude.

Locality	WING MEASUREMENTS	
	Male	Female
Tarara, Pen- zara and Ma- badauan	271 mm., 273, 275, 275, 275, 284, 287	260, 261, 265 269, 271
Gaima	293	271, 290
Other Fly River localities	(9) 281–296 (av. 287.7)	(9) 263–305 (av. 281.3)

Mayr (1937, Amer. Mus. Novitates, No. 939, p. 8) has discussed the size variation in this species and the irregular distribution of populations of different sizes.

In color the males of this series average slightly paler above than north and north-west New Guinea birds, the gray areas in the plumage being larger and whiter. One female is in the rufous phase of plumage; two are intermediate between that and the gray phase.

The big frogmouth was a fairly common bird in both the savanna and the rain forest, and I have found it sleeping perched on branches in both habitats. There is some confusion in the literature about the calls of this bird. In this area it gives two: a commonly heard deep "uum uum" that might be called weird or mournful, and a call that I recorded only once, a low, deep, muffled series of notes rapidly repeated and recalling a *Centropus* call, and ending with a quite different click. This last call might be written "bu-bu-bu-bu-bu click." Seven stomachs examined all contained insects. One August and one September female were in breeding condition. On September 29 at Lake Daviumbu a shooting boy brought in a nest with a half-grown young of this species. He later showed me where the nest had been, about twenty feet up in the fork of a tree in open savanna. The nest itself was a flat structure composed of slender, dead twigs; it measured about 150 mm. across the main part with loose ends of twigs projecting considerably beyond, and was about 60 mm. thick.

**Podargus ocellatus ocellatus** Quoy and Gaimard

Tarara: 1 ♂; January 21.

Lake Daviumbu: 1 ♀; August 21.

Found near sea level.

WING.—♂ 185 mm.; ♀ 186.

**Aegotheles cristatus major** Mayr and Rand

Tarara: 1 ♂, 1 ♀; January 11, 17.

Found near sea level.

WING.—♂ 138 mm.; ♀ 142.

I have already recorded these two specimens (1938, Amer. Mus. Novitates, No. 990, p. 10).

**Aegotheles wallacii wallacii** Gray

Palmer Junction Camp: ♂ ad.; June 3.

Found at 100 meters altitude.

WING.—♂ 119 mm.

I have already recorded this specimen (1938, Amer. Mus. Novitates, No. 990, p. 9).

**Aegotheles insignis tatei** Rand

*Aegotheles insignis tatei* RAND, 1941, Amer. Mus. Novitates, No. 1102, p. 10—5 miles below the Palmer Junction.

Palmer Junction Camp: 2 ♀ ad.; May 24, June 2.

Found at 80 meters altitude.

WING.—138 mm., 145.

One stomach examined contained insects. Both females had enlarged gonads.

**Caprimulgus macrurus yorki** Mathews

Tarara: 1 ♂, 3 ♀; December 4–January 24.

Mabadauan: 1 ♂; April 22.

Daru: 1 ♂, 2 ♀; April 2–July 8.

Sturt Island Camp: 3 ♂, 3 ♀, 1 sex?; October 20–30.

Lake Daviumbu: 4 ♂, 4 ♀; August 19–September 27.

Found near sea level.

WING.—♂ (10) 178–188 mm. (av. 183.4); ♀ (10) 171–186 (av. 179.1).

The nightjar was especially common in the forest with bamboo undergrowth, plentiful enough to cause breaks in the forest, and the forest edge at Lake Daviumbu and Sturt Island. Elsewhere it was a

bird of the forest edges and open, second growth. One of these birds was found near the Black River Camp, flushed from the edges of the tall cane grass along the river.

Breeding birds were taken in August (3), September (4) and October (4). Six nests were found in September and October; all were similar, the two eggs being laid on the leaf litter on the ground with no pretense of a nest. Four were placed under bamboo thickets; two were in open forest near its edge.

**Eurostopodus mysticalis mysticalis**  
(Temminck)

Lake Daviumbu: 1 ♀; September 18.

Found near sea level.

WING.—♀ 247 mm.

This bird was flushed in the forest edge fringing savanna. It was the only one seen.

**Eurostopodus papuensis astrolabae**  
Ramsay

Sturt Island Camp: 1 ♂ ad., 1 ♀ ad.; October 23.

Found near sea level.

WING.—♂ 192 mm.; ♀ 199.

I have reported on the taxonomic status, nest and eggs of these birds (1938, Amer. Mus. Novitates, No. 990, p. 10).

**Apus pacificus pacificus** (Latham)

Gaima: 1 ♂; November 11.

Found near sea level.

WING.—♂ 184 mm.

On October 16 ten or so of these swifts were seen over the river bank forest at Sturt Island, and on November 11 and 12 another small party of about ten was seen at Gaima.

**Hirund-apus caudacutus caudacutus**  
(Latham)

Gaima: 1 ♂, 1 ♀; November 11, 20.

Sturt Island Camp: 1 ♂, 1 sex?; October 19.

Found near sea level.

WING.—♂ 194 mm., 205; ♀ 207.

The Sturt Island specimens were from a party of about twenty-five feeding over the river and forest; the Gaima specimens were

from a party of ten, in company with *Apus pacificus*, feeding over the savanna.

**Mearnsia novaeguineae novaeguineae**  
(D'Albertis and Salvadori)

Lake Daviumbu: 1 ♀; September 17.

Oroville Camp: 1 ♂, 5 ♀; August 12.

Found near sea level.

WING.—♂ 131 mm.; ♀ 121, 127, 128, 129, 131, 131.

This swift was common at Oroville Camp, feeding over the river. It was occasionally seen at Lake Daviumbu, and several were seen at Sturt Island.

**Collocalia vanikorensis granti** Mayr

Palmer Junction Camp: 2 ♂, 2 ♀; May 20.

Black River Camp: 2 ♂, 2 ♀, 1 sex?; June 2–July 15.

Found at 80 to 100 meters altitude.

WING.—♂ 113 mm., 117, 117, 117; ♀ 116, 117, 118, 118.

These differ from the type and agree with a series from southeast New Guinea in the characters mentioned by Mayr (1937, Amer. Mus. Novitates, No. 915, p. 8).

These swiftlets were fairly common on the upper Fly River, usually seen high over the forest but occasionally coming down to feed over the river. None was breeding. They were absent from the flat country of south New Guinea, perhaps because of the lack of nesting and roosting places.

**Hemiprocne mystacea mystacea** (Lesson)

Tarara: 1 ♂, 3 ♀; December 21.

Palmer Junction Camp: 1 ♂; May 29.

Found up to 80 meters altitude.

WING.—♂ 222 mm.; ♀ 225, 229, 232, 236.

These birds are somewhat paler gray, above and below, than birds from other parts of New Guinea, but a 1934 specimen from Wuroi does not show this paleness. They are somewhat smaller than north New Guinea birds.

This swift was rarely met with in south New Guinea; the Palmer Junction specimen was taken from the top of a dead stub in a garden clearing; the Tarara specimens were part of a small flock feeding

along gallery forest in the savanna. A December female was breeding.

***Alcyone azurea lessonii* Cassin**

Sturt Island Camp: 1 ♂, 1 ♀; October 21, 27.

Lake Daviumbu: 1 ♂; September 27.

Black River Camp: 1 ♂; July 7.

Found up to 100 meters altitude.

WING.—♂ 73 mm., 73, 75; ♀ 74.

These are somewhat darker on the throat and rest of the underparts than a series from north New Guinea and compare well with Arfak material.

This kingfisher was found sitting up on branches low over river or lake margins, or swamp. Of three stomachs examined, one contained fish, one, remains of a crayfish and one, insects and a large spider. The July, September and October specimens were not breeding.

***Alcyone pusilla pusilla* (Temminck)**

Tarara and Penzara: 2 ♂ ad., 1 ♂ imm., 2 ♀ ad., 1 sex? imm.; December 11–January 12.

Sturt Island Camp: 2 ♂ ad., 1 ♂ imm., 1 ♀ ad.; October 21–29.

Lake Daviumbu: 1 ♂ ad., 1 ♀ ad.; September 10, 30.

Found near sea level.

WING.—♂ ad. 50 mm. 50, 51, 52, 53; ♀ ad. 51, 51, 52, 52.

The tiny kingfisher was fairly common at Lake Daviumbu, Sturt Island and at Tarara where it was found perched low in the shrubbery over water. One stomach contained a fish; another, insects. The September to December specimens showed no indication of breeding; the January female had the ovary somewhat enlarged.

***Ceyx lepidus solitarius* Temminck**

Tarara: 1 ♂, 2 ♀; December 24–January 13.

Sturt Island Camp: 8 ♂, 1 ♀; October 8–30.

Lake Daviumbu: 1 ♂; September 23.

Palmer Junction Camp: 2 ♂, 1 ♀; May 23–June 1.

Black River Camp: 1 ♂, 1 ♀; June 17, July 20.

Found up to 100 meters altitude.

WING.—♂ (10) 51–54 mm. (av. 52.3); ♀ 53, 55, 56, 56, 56.

This is apparently not a fish-eating kingfisher, but while it is often found in the forest, usually low in the substage, it appears to prefer the vicinity of water and was often found along streams. Its flight is swift and direct, and when perched it often bobs its head in typical kingfisher manner. Of eleven stomachs examined, all contained insects and two, in addition, contained spiders. One January female had an enlarged ovary; none of the others showed signs of breeding.

***Syma torotoro pseutes* Mathews**

Gaima: 1 ♂, 3 ♀; November 11–21.

Sturt Island Camp: 3 ♂, 3 ♀; October 10–29.

Lake Daviumbu: 4 ♂, 2 ♀; August 21–September 24.

Oroville Camp: 1 ♂; August 11.

Palmer Junction Camp: 1 ♂, 1 ♀; May 17–31.

Black River Camp: 1 ♂; June 29.

Found up to 100 meters altitude.

WING.—♂ 70–78 mm.; ♀ 72–76.

For a discussion of the status and range of this form, see 1938, Amer. Mus. Novitates, No. 990, pp. 11, 12.

Breeding saw-billed kingfishers were taken in October and November. A nest was found on September 2 at Lake Daviumbu. The nest was in an arboreal termite mound ten feet up on the trunk of a large tree in fairly heavy rain forest. The nest cavity, apparently excavated by the bird itself, had a circular entrance about 40 mm. in diameter, a 40 mm. long tunnel leading into the oval nest chamber, which was about 120 mm. by 90 mm. by 95 mm. high. The floor of the chamber was about 45 mm. below the entrance level. There was no lining. This termite mound was still inhabited by termites, as I found when I opened it.

The nest contained a single egg. It was broadly ovate, nearly round in shape; shell smooth with a high gloss; color white; and measured 25.1 by 22.2 mm.

The male was snared at the nest, indicating that both male and female share nest



duties. Two stomachs examined contained only insects; another contained a lizard, and another a lizard and a locust.

***Syma torotoro breviostris* Rand**

Tarara: 7 ♂, 5 ♀; December 8–January 19.

Found near sea level.

WING.—♂ 71–76 mm.; ♀ 71–74.

See 1938, Amer. Mus. Novitates, No. 990, p. 12.

***Melidora macrorhina macrorhina*  
(Lesson)**

Sturt Island Camp: 3 ♂; October 24–November 4.

Palmer Junction Camp: 2 ♂; May 20, 29.

Black River Camp: 2 ♀; June 15, July 17.

Found up to 100 meters altitude.

WING.—♂ 114 mm., 115, 115, 117, 118, 118; ♀ 117, 120.

The natives insisted that the hook-billed kingfisher was nocturnal, and that a distinctive, whistled call of several notes, often heard after dark, was that of this bird. It was a common species, much more so than the specimens collected indicated. During the day I always found it solitary, perched in the shaded, lower part of the forest, sometimes near the ground. It was not shy, allowed a fairly close approach, and always sat quietly, doing nothing. However, once after flushing a bird from its nest, the bird disappeared into the forest, and I heard the characteristic night call, two whistled notes of equal length followed by several descending shorter notes, probably from this bird. Three stomachs examined contained insects. One bird had the inside of its bill incrustated with mud, perhaps an indication that it digs for its prey like *Clytoceyx* (see 1937, Bull. Amer. Mus. Nat. Hist., LXXIII, p. 82).

Two nests were found in October at Sturt Island. Both nests were similar in construction and location—excavations in arboreal termite mounds about twenty feet up on the sides of forest trees, in fairly well-shaded places. In one instance the entrance was about in the middle of

the mound, slanting upward to enter the nearly spherical nest chamber near the top. The nest cavity was about 115 mm. across; there was no lining. One nest contained one egg and one young (October 24), the other two eggs (October 28). The eggs were broadly ovate in shape; gloss medium; shell smooth; color white, very much stained; they measured 34 by 26.5, 35.1 by 28.4 and 37 by 29 mm.

The nest containing the one young also contained the egg shell from which it hatched. The shell was neatly cut around the greatest circumference, and the halves were lying separately in the nest. The young was completely naked, light pink in color except for a dusky area on bill ahead of nostril, a small white egg tooth on the maxilla and one on the tip of the mandible. The bill was strongly hooked, more so than in the adult, and the tip was more sharply pointed.

In both instances the male was flushed from the nest and shot, the female not being seen. At one nest the adult flew about giving a typical kingfisher chatter of protest while the nest tree was being climbed.

***Clytoceyx rex rex* Sharpe**

Black River Camp: 1 ♂ imm., 1 ♀ imm.; June 9, 25.

Taken at 100 meters altitude.

WING.—♂ 163 mm.; ♀ 162.

I have already reported this record in 1938, Amer. Mus. Novitates, No. 990, p. 14.

***Dacelo leachii intermedia* Salvadori**

Tarara: 4 ♂, 3 ♀; December 7–January 20.

Bugi: 1 ♂, 1 ♀, January.

Mabadauan: 1 ♀; April 21.

Gaima: 2 ♂, 1 ♂ fledgling, 1 ♀; November 10–20.

Lake Daviumbu: 2 ♂, 1 ♀, 1 sex?; September 11–16.

Found near sea level.

WING.—♂ (9) 186–211 mm. (av. 195.8); ♀ (7) 192–313 (av. 203).

This savanna species was found at all the camps where this habitat occurred. At Tarara and Penzara it was common, usually in pairs or small parties. During a

morning's walk of five or six miles I was hardly ever out of earshot of at least one party. They frequently perched on some dead, exposed branch and called from there. Besides a quickly repeated croak they have a rolling or rattling call, which is accompanied by pointing the bill upward and cocking the tail over the back. They were always wary. The species was fairly common at Gaima. At Lake Daviumbu it was common in the tall savanna and the light forest and stands of swamp mahogany fringing the savanna. It was absent from the low savanna of *Banksia* trees. In the savanna forest along the lake shore were many large arboreal termite mounds, fifteen to thirty feet up on the tree trunks. A number of these contained cavities which, from the size of the openings, must have belonged to this species. None of those examined was in use, but on September 18 I saw a pair starting an excavation in such a place. No eggs had been laid by September 29, my last visit to the locality. Some of the September, November and December specimens had their gonads somewhat enlarged; a fledgling was taken in November. Two stomachs examined contained insects.

***Sauromarptis gaudichaud* (Quoy and Gaimard)**

Mabadauan: 1 sex?; April.

Daru: 1 ♀; May 31.

Gaima: 1 ♀; November 20.

Sturt Island Camp: 1 ♂, 1 ♀; October 12, 17.

Lake Daviumbu: 1 ♂; September 1.

Palmer Junction Camp: 1 ♂, 2 ♀; May 20–June 1.

Black River Camp: 4 ♂, 5 ♀; June 9–July 13.

Found up to 100 meters altitude.

WING.—♂ (7) 125–140 mm. (av. 133.1); ♀ (10) 131–143 (av. 137.5).

This is one of the commonest New Guinea kingfishers. It is a dry-land bird and occurs both in the forest and in the savanna, often perched well up in the trees. Especially at Lake Daviumbu I saw many arboreal termite mounds with holes in them, probably the nesting sites of this species. On September 16 I saw a pair of

birds about such a termite mound twenty feet up on the trunk, and occasionally one of the birds would fly to it and work at excavating a nesting cavity. Eggs had not been laid when I left the area. Birds in breeding condition were recorded in September, October and November.

Of six stomachs examined, all contained insects including locusts, and one had, in addition, remains of a crab.

***Sauromarptis tyro archboldi* Rand**

Penzara and Tarara: 8 ♂ ad., 13 ♀; December 8–January 20.

Found near sea level.

WING.—♂ ad. (8) 146–156 mm. (av. 150.7); ♀ ad. (13) 148–156 (av. 152.6).

For a discussion of this form and its habits, see 1938, Amer. Mus. Novitates, No. 990, pp. 13, 14.

***Halcyon nigrocyanea stictolaema* (Salvadori)**

Sturt Island Camp: 3 ♂ ad.; October 15–27.

Taken near sea level.

WING.—♂ ad. 93 mm., 94, 94.

I have reported on this species in 1938, Amer. Mus. Novitates, No. 990, p. 14.

This dark kingfisher was a rare bird, only one other being seen in addition to the three specimens secured. Three of them were found sitting on branches from one to eight feet above the water in the flooded tea tree swamp at the Sturt Island Camp; the other was perched low in shrubbery over a small creek. Of the three stomachs examined, one contained crab remains, one, fish remains and one, a four-inch lizard. None showed any enlargement of gonads.

***Halcyon macleayii macleayii* Jardine and Selby**

Mabadauan: 1 ♂ ad., 1 sex? imm.; April 18.

Daru: 1 ♀ ad.; April 15.

Lake Daviumbu: 2 ♀ ad.; September 4.

Found near sea level.

WING.—♂ ad. 87 mm.; ♀ ad. 89, 89, 93.

These birds all have greenish blue backs.

For a discussion of this species, see Mayr, 1937, Amer. Mus. Novitates, No. 939, pp. 10-12.

***Halcyon sancta sancta* Vigors and Horsfield**

Daru: 3 ♀; March 20-April 7.  
Lake Daviumbu: 2 ♀; August 20, September 7.  
Palmer Junction Camp: 1 ♀; May 27.  
Black River Camp: 2 ♂; July 8, 16.  
Found up to 100 meters altitude.  
WING.—♂ 86 mm., 93; ♀ 87, 87, 89, 91, 96, 97.

***Halcyon chloris sordida* Gould**

Daru: 1 ♂ ad.; March 14.  
Found near sea level.  
WING.—♂ 104 mm.  
The stomach contained remains of crabs.  
The gonads were not enlarged.

***Tanysiptera hydrocharis* Gray**

Tarara: 1 ♂ ad., 1 ♀ ad.; January 3.  
Lake Daviumbu: 1 ♀ imm.; September 16.  
Found near sea level.  
WING.—♂ ad. 92 mm.; ♀ ad. 86; ♀ imm. 83.

This third record of the species for New Guinea was published in 1938, Amer. Mus. Novitates, No. 990, p. 14.

The habitat and general appearance of this bird are similar to that of *T. galatea*.

***Tanysiptera galatea minor* Salvadori and D'Albertis**

Sturt Island Camp: 6 ♂ ad., 2 ♂ imm., 3 ♀ ad., 2 ♀ imm.; October 5-November 1.  
Lake Daviumbu: 1 ♂ ad., 1 ♂ imm., 7 ♀ ad.; August 19-September 29.  
Oroville Camp: 2 ♂ ad.; August 8, 11.  
Palmer Junction Camp: 1 ♂ imm., 1 ♀ ad.; May 20.  
Found up to 100 meters altitude.  
WING.—♂ ad. (9) 100-106 mm. (av. 103); ♀ ad. (10) 99-106 (103.3).

About Sturt Island the paradise kingfisher was a common, solitary bird usually found perched on some twig or small branch within a few yards of the ground in

the heavily shaded forest. It usually sat quietly upright, apparently paying little attention to its surroundings, and could be closely approached. Alarmed it flew but a short distance to another perch. Sometimes, while perched, the long tail was raised and depressed through a ninety-degree angle, the long streamers attracting attention to a bird that otherwise would have escaped notice. The song, a series of plaintive calls quickening to a soft trill, was often heard here, and couples were seen occasionally chasing one another, but there was no evidence of breeding (October). In feeding, the bird usually darted down to seize its insect prey from the ground, but one I saw darted to a small branch ten feet up and secured something from it.

This bird was also a common forest species at Lake Daviumbu. Though I found no evidence of breeding here, I saw one curious gathering. A party of four or more birds were calling continually from the leafy substage trees, twenty to thirty feet up. The birds were sitting upright, tail pointing down as is their custom, but as a bird called its tail was somewhat spread. Frequently one bird darted at another, and there was a chase of short duration, the birds circling about so that they stayed in a small area. Several times, however, the attacked bird did not flee but moved so as to cling to the opposite side of the branch, spreading its wings and tail. This was apparently a defense display. Several times the attacker actually struck the other bird, and both fell some feet together with fluttering wings. None of these was collected, and it was impossible to distinguish sexes, but this may have been part of some mating ceremony despite the fact that no birds collected at this time were breeding.

None of the specimens collected in May, August, September, October and November was breeding. Five stomachs examined contained insects, including caterpillars.

***Tanysiptera sylvia sylvia* Gould**

Lake Daviumbu: 1 ♂ imm.; September 5.

Palmer Junction Camp: 1 ♂ ad., 1 ♀ ad.; May 28, June 4.

Found up to 100 meters altitude.

WING.—♂ 101 mm.; ♀ 93.

I have already recorded (1938, Amer. Mus. Novitates, No. 990, p. 15) these specimens, and pointed out that New Guinea birds are very close to Cape York birds, differing only in averaging slightly paler below. Dr. Mayr has pointed out to me that *sylvia* from Australia probably migrates to New Guinea. Hence any color differences must be the result of wear and fading.

This was a scarce bird; very few were seen besides those collected. Of the three stomachs examined, all contained insects, including beetles. None showed any enlargement of gonads.

#### **Merops ornatus** Latham

Mabadauan: 1 ♂ imm., 1 ♀ ad.; April 23.

Daru: 2 ♂ ad., 2 ♀ imm., 1 sex?; March 20–April 13.

Lake Daviumbu: 1 ♀ ad.; September 7.

Black River Camp: 1 ♂ imm.; July 16.

Found up to 100 meters altitude between March 20 and September 7.

WING.—♂ ad. 106 mm., 111; ♀ ad. 106, 110.

This bee eater became very common about Lake Daviumbu in the latter part of September.

#### **Merops philippinus salvadorii** Meyer

Lake Daviumbu: 1 ♂; September 2.

Found near sea level.

WING.—127 mm.

#### **Eurystomus orientalis waigiouensis**

Elliot

Tarara: 1 ♂ ad.; January 5.

Found near sea level.

WING.—203 mm.

#### **Eurystomus orientalis pacificus**

(Latham)

Mabadauan: 1 ♂ imm.; April 21.

Daru: 1 ♂ ad., 1 ♀ ad.; March 15, 20.

Gaima: 1 ♂ ad., 1 ♀ ad.; November 14, 17.

Sturt Island Camp: 2 ♀ ad.; October 19.

Lake Daviumbu: 3 ♂ ad., 1 ♀ ad.; August 18–September 19.

Found near sea level from March 15 to September 19.

WING.—♂ ad. 182 mm., 190, 190, 192, 195; ♀ ad. 183, 189, 190, 192, 192.

#### **Rhyticeros plicatus ruficollis** (Vieillot)

Sturt Island Camp: 3 ♂, 1 ♀; October 8–16.

Lake Daviumbu: 3 ♂, 3 ♀; August 20–September 25.

Palmer Junction Camp: 1 ♂; May 22.

Black River Camp: 2 ♂, 2 ♀; June 12–July 18.

Found up to 100 meters altitude.

WING.—♂ ad. (9) 402–440 mm. (av. 424.6); ♀ ad. 394, 400, 407.

The size of the adult male wing is very close to the average of west New Guinea birds (423.7 mm.) which Mayr included in *ruficollis* when he described the race *jungei* from north New Guinea (1937, Amer. Mus. Novitates, No. 939, p. 13).

One immature female, with no fold in the casque, has the plumage similar to the male plumage, as Stonor (1937, Ibis, [14] I, p. 178) has recorded for this species.

Birds in breeding condition were taken in May (1), July (2) and October (1). Mr. Brass found a nest October 12 by felling a tree which fell against the nest tree. The female that had been sealed in the nest cavity broke her way out and flew to a neighboring tree. The material that had been used in the walling up of the nest opening appeared to be composed of seeds and blackened pulp of a fig, with a few bits of rotten wood. Figs would be full of a latex that would make an excellent binder. The nest was in a natural cavity sixty feet up in a *Bombax* tree in forest, and the opening appeared to be about 8 by 16 inches in size.

#### **Pitta macklotii macklotii** Temminck

Tarara: 3 ♂ ad., 4 ♀ ad.; December 27–January 27.

Gaima: 1 ♂ ad., 1 ♀ ad.; November 13.

Sturt Island Camp: 1 ♀ ad., 1 ♀ imm.; October 9, 26.

Palmer Junction Camp: 9 ♂ ad., 2 ♀ ad.; May 24–June 2.

Black River Camp: 3 ♂ ad.; June 28, 30.

Found from sea level to 100 meters.

WING.—♂ (10) 100–108 mm. (av. 105.5); ♀ (8) 100–109 (av. 104.9).

There is considerable variation in the color of the nape of birds from the same locality. The whole series averages somewhat duller and paler on the nape than a series from Arfak and Kapaur, but a few individual birds are nearly as dark as the darkest of these. The birds from Tarara are slightly paler than those from the upper Fly, but again individual variation prevents separation. The females average slightly duller and paler than the males in the color of the nape.

Birds in breeding condition were taken in May (2), December (2) and January (1).

***Pitta versicolor simillima* Gould**

Daru: 1 sex?; June or July, 1936.

WING.—120 mm.

I have already recorded this specimen (1938, Amer. Mus. Novitates, No. 991, p. 1) of a species previously recorded but once for the mainland of New Guinea (two specimens from Katau River by D'Alberty).

***Pitta novaeguineae novaeguineae* Müller and Schlegel**

Tarara: 4 ♂ ad., 1 ♀ ad.; January 6–19.

Gaima: 1 ♂ ad.; November 18.

Sturt Island Camp: 3 ♂ ad.; October 15–21.

Palmer Junction Camp: 1 ♂ ad.; May 23.

Black River Camp: 1 ♀ ad.; June 19.

Found up to 100 meters.

WING.—♂ 98 mm., 100, 101, 102, 102, 102, 104, 105, 106; ♀ 100, 104.

***Hirundo tahitica frontalis* Quoy and Gaimard**

Black River Camp: 2 ♂, 2 ♀; June 11, 21.

Taken at 100 meters.

WING.—♂ 110 mm.; ♀ 107, 107.

On the upper Fly River this swallow was occasionally seen feeding over the river.

***Petrochelidon nigricans nigricans* (Vieillot)**

Mainland opposite Daru: 1 ♂ imm.; March 31.

Lake Daviumbu: 2 ♂ ad., 4 ♂ imm., 1 ♀ ad., 1 ♀ imm., 1 sex? ad., 1 sex? imm.; August 22–September 16.

Found near sea level.

WING.—♂ 98 mm., 102, 102, 108.

The March bird was the only specimen not showing wing moult. The birds listed as adult are just completing their moult, and I cannot say whether they have moulted from immature to adult or adult to adult plumage. Some birds taken at the same time (September) still bear part of the first year plumage.

This swallow was first seen March 28 about Daru, but they were not common. In August and September they were very common at Lake Daviumbu, feeding over the lake and roosting in the bamboos and the savanna trees in flocks up to a hundred or more in number.

***Campochaera sloetii flaviceps* Salvadori**

Black River Camp: 2 ♂ ad.; July 12, 18.

Fly River, 30 miles above D'Alberty Junction: 2 ♂ ad., 1 ♀ ad.; August 9.

Found up to 100 meters altitude.

WING.—♂ 104 mm., 105, 107, 109; ♀ ad. 107.

I have already reported on this series (1938, Amer. Mus. Novitates, No. 991, p. 1).

***Lalage leucomela polygrammica* (Gray)**

Tarara: 3 ♂ ad., 3 ♀ ad.; December 8–January 21.

Daru: 5 ♂ ad., 2 ♂ imm., 2 ♀ ad., 1 ♀ imm.; March 6–April 11.

Gaima: 1 ♀ imm.; November 17.

Sturt Island Camp: 1 ♂ ad.; October 22.

Lake Daviumbu: 1 ♂ ad.; September 22.

Palmer Junction Camp: 1 ♀ ad.; May 23.

Found up to 80 meters altitude.

WING.—♂ ad. (10) 94–97 mm. (av. 95.7); ♂ imm. 88, 93; ♀ ad. 90, 91, 92, 92, 94, 96; ♀ imm. 93, 93.

There is some individual variation in this series. In the adult males the general color of the underparts is whitish or grayish, the barring faint, almost obsolete in most specimens, but one male from Tarara and one from Lake Daviumbu have distinct barring on the underparts. In some males there is little or no brownish tinge on the abdomen, in others there is considerable; the gray edgings to the rump feathers vary so that sometimes the rump is almost all gray. In the immature males one is similar to the adult females; the other is much paler, especially paler gray on the upperparts. The adult females show considerable variation in the amount of gray edgings to the rump feathers. One immature female is in first year plumage similar to that of the adult; the other retains part of the nestling plumage which appears to be similar to that of the adult on the underparts, but on the upperparts the feathers are more brownish gray, with brownish white tips.

For comparison I have one adult male (wing 93 mm.), one immature male (wing 92) and two adult females (wing 90, 90) from the Aru Islands. The adult male has grayish white underparts with fairly distinct barring but not so much so as some New Guinea birds; it has a brownish tinge on the abdomen. The two adult females have a brownish gray tinge to the upperparts, probably the result of foxing, and one of them has a brownish tinge to upper tail coverts and brownish instead of gray tips to the feathers of the rump and upper tail coverts, as does the immature male. Except for the brownish tips to the rump and upper tail coverts of two of the four Aru Islands birds they fall within the range of variation of the present New Guinea material.

***Edolisoma melan meeki* Rothschild and Hartert**

Tarara: 6 ♂, 6 ♀; December 11–January 21.

Sturt Island Camp: 8 ♂, 3 ♀; October 10–November 1.

Palmer Junction Camp: 1 ♂, 1 ♀; May 15, 28.

Found up to 80 meters altitude.

WING.—♂ (10) 122–129 mm. (av. 126.5); ♀ (9) 119–126 (av. 122.5).

There is considerable variation in birds from any locality, but females from extreme east New Guinea are considerably paler, less rufous than those from western New Guinea. The present series is somewhat intermediate, as would be expected, but is closer to the pale east New Guinea birds. Junge (1939, Nova Guinea, [N. S.] III, p. 6) recorded birds from south of Mt. Wilhelmina as *melan*, and specimens in the American Museum from the Setekwa River are also *melan*.

A fairly common cuckoo shrike of the tree tops and substage of the forest, where it often consorts with other species of small birds as part of the mixed bird parties. Four stomachs examined contained insects. An October female was breeding.

***Edolisoma schisticeps poliopsa* Sharpe**

Palmer Junction Camp: 3 ♂ ad., 1 ♀; May 24–29.

Black River Camp: 5 ♂ ad., 1 ♂ imm., 4 ♀; June 12–July 13.

Found at 80 to 100 meters altitude.

WING.—♂ 114 mm., 114, 115, 115, 116, 117, 118, 120; ♀ 108, 109, 109, 110.

In the females there is some variation in the general color of the upper and underparts, in the amount of rufous in the end of the tail, and in the amount of slate in the chin. One apparently fully adult female has some rufous streakings in the ear coverts, while in two others they are uniform slate. Three females have some rufous feathers scattered through the crown as well as on the side of the head, apparently a relic of the immature plumage.

For comparison I have two males and four females from the southern Snow Mountains and two females from southeast New Guinea, with which the present series agrees well.

This was a fairly common cuckoo shrike

in the upper parts of the forest trees on the upper Fly River. One stomach examined contained fruit.

***Edolisoma tenuirostre aruense* Sharpe**

Tarara and Penzara: 7 ♂ ad., 1 ♂ imm., 3 ♀ ad., 1 ♀ imm.; December 7–January 19.

Daru: 4 ♂ ad., 2 ♂ imm., 2 ♀ ad.; March 10–June 2.

Gaima: 2 ♂ ad., 2 ♂ imm., 1 ♀ imm.; November 15–22.

Lake Daviumbu: 1 ♂ imm., 1 ♀ ad.; August 31, September 7.

Black River Camp: 1 ♀ imm.; June 28.

Found up to 100 meters altitude.

WING.—♂ ad. 115 mm., 115, 117, 117, 117, 119, 120, 121, 121, 124, 125, 133; ♂ imm. 117, 117, 127, 128, 130; ♀ ad. 113, 116, 117, 118, 119, 120; ♀ imm. 122, 123, 129.

South New Guinea birds average smaller than those from elsewhere in New Guinea, and the adult males are somewhat darker blue gray.

This is a fairly common bird of the savanna, forest edge and second growth. The specimen from the Black River Camp was taken in second growth growing on a disturbed area along the Palmer River. Two stomachs examined contained insects.

***Coracina boyeri subalaris* (Sharpe)**

Tarara: 2 ♂ ad., 1 ♀; January 13, 18.

Gaima: 1 ♂ imm., 2 ♀; November 16, 17.

Sturt Island Camp: 1 ♂ ad., 1 ♀; October 11.

All taken near sea level.

WING.—♂ 134 mm., 134, 134, 137; ♀ 131, 132, 133, 136.

The immature male is in a plumage very similar to that of the adult.

The present series is in part topotypical. Junge (1939, Nova Guinea, [N. S.] III, p. 5) has pointed out that birds from south of the Snow Mountains are slightly smaller.

Of six stomachs examined, five contained fruit only, and one, fruit and insect remains.

***Coracina caeruleogrisea caeruleogrisea* (Gray)**

Sturt Island Camp: 2 ♂ ad., 2 ♀ ad.; October 9–18.

Found near sea level.

**MEASUREMENTS**

	Male	Female
Wing	171 mm., 172	160, 164
Bill from nostril	24.5, 27.5	23.5, 25
Bill width at nostril	14, 15.5	13, 14

This is the first record of this Aru Island race for New Guinea. The present specimens are somewhat intermediate between *adamsoni* and *caeruleogrisea* but are closest to the latter. In general paler coloration they agree best with *caeruleogrisea*; in the color of the under wing coverts they are intermediate, and some of the measurements are close to the lower limit of those of *adamsoni*, but they agree well with *caeruleogrisea*. (For measurements of the races of this species, see 1936, Mitt. Zool. Mus. Berlin, XXI, p. 245.)

***Coracina novaehollandiae* (Gmelin)**

Daru: 2 sex? imm.; May 22, July 17.

Lake Daviumbu: 1 ♂ imm., 1 ♀ ad., 1 ♀ imm.; August 30, 31.

Palmer Junction Camp: 1 ♂ imm.; May 27.

Found up to 80 meters.

WING.—♂ imm. 190 mm., 191; ♀ ad. 195, ♀ imm. 182.

***Coracina papuensis oriomo* Mayr and Rand**

Tarara and Penzara: 8 ♂, 4 ♀; December 7–26.

Daru: 2 ♂, 2 sex?; April 11, 13.

Gaima: 1 ♂, 2 ♀; November 14, 18.

Lake Daviumbu: 3 ♂, 4 ♀; August 19–September 30.

Found near sea level.

WING.—♂ (13) 146–157 mm. (av. 150.4); ♀ 143, 145, 145, 146, 147, 147, 149.

This series compares well with the series from the type locality.

The females differ from the males in color in having the black of the lores heavily washed with gray.

An immature female is still largely in



fluffy nestling plumage. This is white below, tinged brownish especially on the breast and abdomen; the feathers of the upperparts are brownish gray subterminally, with yellowish white tips; the upper wing coverts are brownish gray at the base, changing to whitish at the tips. The remiges differ from those of the adult in having more yellowish white edgings which extend around their tips; the rectrices are more pointed in shape than the adults' and have brownish white tips. The first-year plumage is attained by an incomplete moult. This plumage, in both male and female, is similar to that of the adult female, except for the rectrices, remiges and some of the upper wing coverts which are retained from the nestling plumage.

Besides gleaning insects from the branches, this cuckoo shrike sometimes feeds on the wing, flying out and snapping up passing insects; one bird I saw followed a fluttering insect to the ground. The "wit-chit" call is the one most commonly heard, but sometimes a series of soft calls is given. Once I saw two birds in a party facing each other and giving a series of soft calls as they flicked their wings. A similar display was given in a mating ceremony observed on December 6. A male (sex determined later by behavior) sitting in the top of a tall savanna tree was joined by a female that alighted a foot or so away and began to flit its wings. This was continued for some moments, then the male did the same, and for a short time the two birds faced each other, raising and lowering their wings. A moment later copulation ensued.

Birds in breeding condition were taken in September (1), November (2) and December (1).

***Crateroscelis murina murina* (Selater)**

Palmer Junction Camp: 2 ♂; May 28, June 2.

Black River Camp: 1 ♂, 1 ♀; June 6, 24.

Found at 80 to 100 meters altitude.

WING.—♂ 60 mm., 60, 62; ♀ 57.

This series is somewhat intermediate between *murina* and *pallida*; it is somewhat paler than *murina* in general coloration,

but the blackish crown places it definitely with that form.

***Crateroscelis murina pallida* Rand**

*Crateroscelis murina pallida* RAND, 1938, Amer. Mus. Novitates, No. 991, p. 2.

Sturt Island Camp: 1 ♂; 1 sex?; October 18, 30.

Lake Daviumbu: 4 ♂; August 25–September 23.

Found near sea level.

WING.—♂ 59 mm., 59, 62, 62; sex? 59.

***Drymodes superciliaris brevirostris***

De Vis

Sturt Island Camp: 1 ♀ ad.; October 12.

Lake Daviumbu: 1 ♂ ad., 1 ♀ ad.; September 21.

Found near sea level.

WING.—♂ 93 mm., ♀ 80, 82.

The two Lake Daviumbu birds are slightly paler and brighter colored above than the Sturt Island specimen and two Wuroi birds, but both types of coloration are shown in a series of three specimens from southeast New Guinea.

***Cinclosoma ajax muscalis* Rand**

*Cinclosoma ajax muscalis* RAND, 1940, Amer. Mus. Novitates, No. 1074, p. 2—upper Fly River, 5 miles below Palmer Junction.

Palmer Junction Camp: 2 ♂ ad.; May 27.

Found at 80 meters altitude.

WING.—108 mm., 110.

The following races of this species can be recognized:

- (1) *ajax* (Temminck); Lobo Bay, Arfak Peninsula and Weyland Mountains; wing ♂ ad. 114 mm., 114; ♀ ad. 109, 110 (material: 2 ♂ ad., 2 ♀ ad., Weyland Mountains);
- (2) *muscalis* Rand; upper Fly River; wing ♂ 108 mm., 110; in the male similar to *ajax* on the upperparts but differs in the paler, much less vividly colored flanks (material: 2 ♂ ad., Palmer Junction Camp);
- (3) *alaris* Mayr and Rand; area between Oriomo and Morehead rivers, south New Guinea; wing ♂ 110 mm.; ♀ 97, 98, 101, 103, 105; differs from (1) in the male in the smaller size, the much paler brown upperparts and the paler flanks; in addition in the female it differs in the brownish lores and and-post-ocular stripe (not black); from (2) it differs in the male in the much paler brown upperparts (material: 1 ♀, Wuroi; 1 ♂, 4 ♀, Tarara);

- (4) *goldiei* Ramsay; southeast New Guinea; wing ♂ ad. 103 mm., 104; ♂ imm. 98, 98, 101; ♀ 92; differs from (3) in the smaller size, the slightly paler, more olive brown upperparts, the slightly more vividly colored flanks, approaching those of (1); and in addition in the female in the lesser amount of white spotting in the upper wing coverts (material: China Straits, 1 ♂ ad.; Milne Bay, 2 ♂ ad., 1 ♂ imm., 1 ♀; Orangerie Bay, 1 ♂ imm.; southeast New Guinea, 2 ♂ imm.).

**Cinclosoma ajax alaris** Mayr and Rand

Tarara: 1 ♂ ad., 4 ♀; December 29–January 17.

Found near sea level.

WING.—♂ 110 mm.; ♀ 97, 101, 103, 105.

The females agree with the hitherto unique type (a female) and differ from *goldiei* in the darker rufous brown, less olive brown upperparts, the greater amount of white spotting in the upper wing coverts, and the deeper rufous, less vivid breast band. The amount of black in the upper wing coverts varies considerably. The male, compared with three males from southeast New Guinea, is slightly darker and less olive above, and with less vividly colored flanks.

**Eupetes caeruleus nigricrissus**

Salvadori

Sturt Island Camp: 1 ♂ imm., 2 ♀ ad.; October 8–20.

Lake Daviumbu: 4 ♂ ad., 2 ♀ ad., 1 ♀ nestling, 1 sex? nestling; August 20–September 24.

Palmer Junction Camp: 3 ♂ ad., 1 ♀ ad.; May 23–26.

Black River Camp: 2 ♂ ad.; June 20, July 5.

Found up to 100 meters altitude.

WING.—♂ 86 mm., 87, 88, 88, 88, 89, 91, 94, 96; ♀ 82, 83, 84, 84, 85, 89.

The birds from the upper Fly River are slightly darker blue than those from the middle Fly River. However, this difference is not greater than the individual variation in a series from the southern Snow Mountains and in one from southeast New Guinea. The nestling plumage (female) is dull bluish above, dark brownish gray below, with a white stripe over the eye.

The immature male is moulting from the nestling plumage into first year plumage, which resembles that of the adult. The moult is incomplete, the wings and tail being retained.

This was a common species at the localities listed. It was a bird of the forest floor, usually seen in pairs, and was rather shy. Where the undergrowth was dense, as on the upper Fly River, it was difficult to catch more than a glimpse of the birds as they ran ahead, or made short flights with whirring wings, when hard pressed, and its alarm call, a sharp “chit chit-chit,” was heard more often than the bird was seen. Where the undergrowth was more open, as on the middle Fly River, the birds were easily watched and appeared less shy. At Sturt Island one walked up to within about four feet of me without appearing to notice me. It was a dainty creature, walking with the fore part of the body slightly depressed and the tail slightly raised and spread. It walked rapidly about, looking for its insect food on the leaf-covered ground, head bobbing and tail twitching with each quick step, now and then pecking at some object on the ground.

Besides the common alarm call the bird sings a whistled “dee dee ---,” the series ending with a sharply whistled “chit”; another song frequently heard from the forest undergrowth and which I believe is given by this bird is a whistled song of two syllables, the first low, the second loud and strongly accented.

The only birds collected which were in breeding condition were one female August 29, and one female September 20; a nest with eggs was found on September 12, and a nest with young on September 23.

Both nests were deep, cup-shaped affairs sunk in the ground. One was placed at the base of a tree trunk between two buttressed roots, where the forest floor was heavily shaded, but with no concealing vegetation near the nest. It was a deep cup sunk into the loose debris of leaves on the ground, so that its rim was level with the surface. The nest itself was composed of dead leaves laid flat against the walls of the cavity; it was evidently a rather sub-

stantial structure, but being in a litter of dead and rotting leaves, it was difficult to be sure just how much the birds had added. As a lining there was a pad of fine rootlets in the bottom of the cavity.

The nest measured inside 90 mm. by 80 mm. deep; the pad of rootlets for a lining, 70 mm. by 10 mm. thick. After the young hatched the nest became somewhat flattened.

The second nest was similar in structure but was placed in a forest glade under the base of a leaning sapling, amongst several small leafy shoots so that it was well concealed. A large, dead leaf was incorporated into the edge of the nest and extended over it, giving it the appearance of a domed nest.

There were two eggs in one nest, two young in the other. Only one of the two eggs hatched, and the young one in this nest disappeared before many days old.

The addled egg, which was similar to the other, was blunt ovate; shell smooth; gloss slight; ground color brownish white, heavily marked with spots and short longitudinal streaks over the whole egg, more plentiful and overlapping nearly to conceal the ground color at the larger end of the egg; markings dark to light brown, overlapping to intensify the color in places, and in other places overlaid with the ground color to give secondary grays. It measured about 23.5 by 19.25 mm.

An unfledged young, taken from nest on September 23, has the tips of the feathers about to break their sheaths. There was no down on the underparts, but down was long and plentiful on the upperparts; it was present on the tips of the feathers of the crown, nape, back, rump, humeral tract, femoral tract, upper wing coverts, and very short down on the tips of the rectrices. It was about 20 mm. long on the rump and 13 mm. on the crown. In color it was all dark grayish brown. Color of soft parts: iris dark; bill black, gape whitish; inside of mouth deep yellow; feet slate; skin of body dusky flesh, darker above. For further plumages, see above.

The nestling, about one-third grown, taken from the nest and placed on its side on my work table, attempted to right it-

self solely by striking out with its feet and then drawing its body up to the object grasped. This is evidently the method which the bird uses in the nest to keep its position.

The adult was very shy about the nest, running off and staying out of sight during my visits.

### **Pomatorhinus isidori isidori** Lesson and Garnot

Oroville Camp: 1 sex?; August 10.

Palmer Junction Camp: 2 ♂, 2 ♀; May 16-26.

Black River Camp: 4 ♂, 6 ♀; June 11-July 11.

Found at 80 to 100 meters altitude.

WING.—♂ 116 mm., 117, 119, 120, 121, 121; ♀ 114, 117, 117, 119, 119, 121, 121.

Compared with a series from Arfak these are very slightly duller, less vividly colored on the wings and underparts. There is little individual variation.

A May and a July male had enlarged gonads.

### **Pomatorhinus temporalis strepitans**

Mayr and Rand

Mabadauan: 3 ♂ ad., 2 ♀ ad., 1 sex? ad.; April 16-24.

Tarara: 5 ♂ ad., 3 ♀ ad., 1 ♀ imm.; December 7-23.

Found near sea level.

WING.—113 mm., 114, 116, 117, 118, 118, 119; ♀ 110, 114, 116.

Part of this series is nearly topotypical. The moult evidently covers a long period.

Comparing Oriomo River specimens (January and February) with the present series gives a good idea of fading, wear and moult. The December birds are in a rather worn, dark plumage with the ends of the feathers broken off. The wing moult and body moult have just started. January and February specimens are in the midst of their wing moult, and the body plumage has nearly completed its moult. The birds are in dark, fresh, body plumage. April birds are just completing their wing moult, but the body moult has already been completed, and the tips of the back feathers have already faded to gray, almost silvery gray, on the foreback. Further wear ap-

parently darkens the plumage again by breaking off the pale gray tips.

The immature female is in a plumage similar to that of the adult, but the feathers are looser in texture, the back is more olive brown, the upper wing coverts are edged with pale rufous, and the abdomen is more rufous.

**Malurus alboscapulatus dogwa** Mayr and Rand

Tarara and Penzara: 5 ♂ ad., 1 ♂ imm., 3 ♀ ad., 1 sex?; December 7–January 20. Mabadauan: 2 ♂ ad.; April.

Gaima: 2 ♂ ad., 1 ♀ ad.; November 11–20.

Lake Daviumbu: 6 ♂ ad., 5 ♂ imm., 8 ♀ ad.; August 19–September 30.

Found near sea level.

WING.—♂ ad. 43–47 mm.; ♀ 42–46.

I have already reported on this series (1938, Amer. Mus. Novitates, No. 991, p. 7).

The black and white grass warbler was fairly common in the tall grass areas and into the edges of the swamps where tall grass prevailed. Areas where clumps of shrubbery invade the grass seem especially favored. It was commonly found in parties of four or five, skulking in the grass and continually coming up to perch on exposed grass stems. At my close approach they went flying a short distance low over the grass with slow jerky flight. Birds in breeding condition were taken in August (4), September (4), November (2) and December (5).

**Todopsis cyanocephala bonapartii** Gray

Tarara: 2 ♂ ad., 1 ♂ imm., 2 ♀ ad.; December 8–January 18.

Gaima: 1 ♂ imm., 1 ♀ ad.; November 16, 19.

Sturt Island Camp: 4 ♂ ad., 1 ♂ imm., 2 ♀ ad.; October 6–23.

Lake Daviumbu: 2 ♂ ad., 1 ♂ imm., 1 ♀ ad.; September 7, 21.

Palmer Junction Camp: 2 ♂ ad., 1 ♂ imm.; May 27–31.

Found up to 80 meters altitude.

WING.—♂ (10) 57–61 mm. (av. 59.2); ♀ 53, 53, 54, 55, 55, 57.

The males compare well with five males

from Aru Island (wing 59 mm., 60, 60, 60, 61) and differ from an Arfak series in the average much darker blue back and crown.

The blue wren warbler's habitat was the tangled undergrowth and bamboo along forest edges, streams and swamps and in light, broken forest. It is absent both from the more open country and the heavy forest. Forest like that at Sturt Island, much broken by swamp and bamboo, seemed its ideal habitat. They are attractive little things, hopping about in the low shrubbery, tail cocked over back, and they are inquisitive, coming readily to squeaking. Birds in breeding condition were taken in May (1), October (1) and January (1).

**Todopsis wallacii** Gray

Lake Daviumbu: 3 ♂, 5 ♀; August 18–September 23.

Palmer Junction Camp: 1 ♂, 1 ♀; May 22, June 4.

Taken up to 80 meters altitude.

WING.—♂ 48 mm., 48, 48, 49; ♀ 46, 46, 46, 47, 47, 47.

Only one bird, a male taken September 6, was in breeding condition.

This species occurs in the same habitat as *T. cyanocephala* but also occurs more commonly in the forest and ventures more into the low substage. A September male had enlarged testes.

**Acrocephalus arundinaceus australis** (Gould)

Lake Daviumbu: 10 ♂ ad., 1 ♀ (?) ad.; August 20–September 13.

Found near sea level.

WING.—♂ 67 mm., 67, 67, 68, 68, 68, 69, 69, 70, 70.

I have already discussed the taxonomic status, ecology and habits of this species (1938, Amer. Mus. Novitates, No. 991, pp. 3, 4).

**Megalurus timoriensis muscalis** Rand

*Megalurus timoriensis muscalis* RAND, 1938, Amer. Mus. Novitates, No. 991, p. 4—Lake Daviumbu, middle Fly River.

Lake Daviumbu: 9 ♂, 3 ♀; September 8–26.

Found near sea level.

WING.—♂ 62 mm., 63, 63, 63, 64, 66, 67.

**Megalurus albolimbatus** (D'Alberty and Salvadori)

Lake Daviumbu: 6 ♂ ad., 4 ♀ ad.; August 20–September 20.

Found near sea level.

WING.—♂ 57 mm., 58, 58, 60, 60, 62; ♀ 54, 55, 56, 56.

I have already recorded the series of this endemic south New Guinea species and described its nest and eggs (1938, Amer. Mus. Novitates, No. 991, p. 5).

**Cisticola exilis diminuta** Mathews

Daru: 1 ♀ ad.; March 1.

Gaima: 2 ♀ ad.; November 14, 21.

Lake Daviumbu: 16 ♂ ad., 8 ♀ ad.; August 23–September 28.

Found near sea level.

WING.—♂ ad. (10) 44–48 mm. (av. 46); ♀ ad. (10) 41–43 (av. 41.8).

These are in dark, fresh plumage, in striking contrast to a small series of pale, worn birds from Dogwa collected on the 1933–1934 expedition.

One March female was breeding.

**Sericornis spilodera wuroi** Mayr

Sturt Island Camp: 2 ♂, 1 ♀; October 10–29.

Palmer Junction Camp: 1 ♀, 1 ♀?; May 28, 29.

Found up to 100 meters altitude.

WING.—♂ 56 mm., 58; ♀ 54, 55, 56.

These compare well with the series from the type locality.

**Sericornis beccarii randi** Mayr

Tarara: 11 ♂, 2 ♀, 1 sex?; December 22–January 18.

Lake Daviumbu: 1 ♂; September 1.

Found near sea level.

WING.—♂ (10) 55–58 mm. (av. 56.5); ♀ 55, 56.

This series is somewhat worn and is slightly paler above and less yellowish below than the birds in fresh plumage from the type locality.

One September and two December males had enlarged gonads.

**Gerygone chrysogaster chrysogaster**  
Gray

Tarara: 3 ♂, 1 sex?; December 27–January 5.

Gaima: 2 ♂; November 11, 15.

Sturt Island Camp: ♂, 2 ♀, 3 sex?; October 8–November 1.

Lake Daviumbu: ♂, 1 ♂ nestling, ♀, 2 ♀ nestlings; August 20–September 30.

Oroville Camp: 1 ♀; August 12.

Palmer Junction Camp: 4 ♂, 1 ♀, 1 sex?; May 17–24.

Black River Camp: 3 ♂, 4 ♀; June 16–July 10.

Found up to 100 meters altitude.

WING.—♂ (10) 53–56 mm. (av. 54.4); ♀ (10) 50–54 (av. 52.1).

There appears to be some geographical variation in this species, but there is also considerable individual variation, and wear and fading apparently affect the coloration of the upperparts. "Foxing" appears to affect this species considerably, making comparisons with older specimens difficult.

The birds from the upper Fly River and those from near the coast have rather bright yellowish flanks; those from the middle Fly River have paler yellow flanks. Birds from the middle Fly River and near the coast are slightly paler above than upper Fly River birds, possibly the result of wear. Seven Aru Island birds average as yellow on the flanks as the yellowest New Guinea birds, though one is somewhat darker. On the upperparts the Aru Island birds are paler olive brown, probably the result of foxing.

Birds in breeding condition were taken in May (1), June (1), July (1), August (5), September (7) and October (5). A nest found September 1 at Lake Daviumbu was about ten feet from the ground in light rain forest, attached to the end of a slender, horizontal branch of a substage tree. It was quite unconcealed. The nest itself was an oval, pensile, rather neat structure, with a short, downward, bent sprout leading up to the entrance at the side near the top. The nest was composed externally of a thin layer of many kinds of weathered fibers, black and thread-like, and with much animal silk to hold it together;

inside it was lined heavily with fine, soft fibers. The nest was about 100 mm. below the tip of the branch, to which it was attached by a "rope" of many strands of nest material; there was also a projecting "tail" below the nest for about 250 mm. Outside, the nest proper measured about 70 by 110 mm. long with a spout about 100 mm. long. The nest contained three well-feathered young. Most of the natal down was probably gone, but white tufts of down about 8 mm. long were present on each side of the nape, and there was some shorter white down scattered over the back feathers.

**Gerygone chloronota cinereiceps**  
(Sharpe)

Penzara and Tarara: 3 ♂; December 18-30.

Gaima: 1 ♀; November 13.

Found near sea level.

WING.—♂ 50 mm., 50, 51; ♀ 46.

These compare well with southeast New Guinea birds.

One December male had enlarged gonads.

**Gerygone palpebrosa tarara** Rand

*Gerygone palpebrosa tarara* RAND, 1941, Amer. Mus. Novitates, No. 1102, p. 11—Tarara, Wassi Kussa River, Territory of Papua.

Tarara: 8 ♂ ad., 1 ♂ imm., 7 ♀; December 18-January 16.

Found near sea level.

WING.—♂ ad. (8) 51-58 mm. (av. 53.3); ♀ 49, 50, 51, 51, 51, 52.

The Wurui birds are also this race.

This race is replaced by *inconspicua* on the east bank of the lower Fly River and also on the west bank of the middle Fly River (Lake Daviumbu).

**Gerygone palpebrosa inconspicua**  
Ramsay

Gaima: 2 ♂ ad., 2 ♀; November 12-17.

Sturt Island Camp: 2 ♂ ad., 1 ♀; October 21-27.

Lake Daviumbu: 2 ♂ ad., 1 ♂ imm., 2 ♀; August 19-September 25.

Found near sea level.

WING.—♂ ad. 50 mm., 52, 53, 53, 54, 57; ♀ 50, 50, 50, 50, 51.

This series differs from southeast New Guinea birds only in being slightly more olive colored above. The typical *palpebrosa* is very different in its brighter, olive green upperparts.

Birds in breeding condition were taken in September (2), October (2), December (1) and January (2).

**Gerygone magnirostris mimikae**  
(Ogilvie-Grant)

Tarara and Penzara: 5 ♂, 5 ♀; December 14-January 2.

Daru: 1 ♂; April 2.

Sturt Island Camp: 2 ♂; October 22, November 1.

Lake Daviumbu: 8 ♂, 3 ♀, 2 sex?; August 19-September 11.

Oroville Camp: 1 ♂; August 12.

Palmer Junction Camp: 1 ♂; May 20.

Black River Camp: 2 ♂, 2 ♀, 2 sex?; June 14-July 10.

Found up to 100 meters altitude and about 350 kilometers from the nearest coast line.

WING.—♂ (10) 51-57 mm. (av. 54.1); ♀ (9) 50-53 (av. 51.9).

This series differs from two Aru Island birds (*brunneipectus*) in the less brownish, more olive upperparts, and in the much paler, more whitish underparts. A specimen from the Setekwa River falls within the range of variation of the present series. Meise (1931, Nov. Zool., XXXVI, p. 335) includes the south and southeast New Guinea birds in *brunneipectus*, and Mayr and I did the same in 1937 (Bull. Amer. Mus. Nat. Hist., LXXIII, p. 129). Reëxamination of the southeast New Guinea material shows that they must be separated from *brunneipectus* also, and should be included in *mimikae*.

The big-billed warbler, singly, in pairs or rarely in parties of four or five, gleans for its insect food through twigs and branches. At Daru and on the mainland opposite it was common in the mangroves and mango trees; strangely none was found at Gaima, and it was scarce at Sturt Island. At Lake Daviumbu, where no mangroves occurred, it was very common where low forest fringed the lake, or shrubby trees

grew out in the water. Bamboo thickets were also favorite nesting and feeding places; on the Palmer River a few birds were found along the river's edge. At Tarara it was scarce in the mangrove, while not uncommon at Penzara in the shrubby trees along the lagoon there.

This species has been recorded as a mangrove bird, but it is far from being restricted to this growth. It seems that the proximity to water of a forest edge of low, densely leafed trees is one of its main requirements. The male has a pleasing little whistled song of some length, consisting of two syllables repeated over and over.

Breeding birds were taken in January (1), April (1), May (1), August (3), September (1), October (1), November (1) and December (1).

Nine nests were found in August and September at Lake Daviumbu, and one on October 27 at Sturt Island. The nests are pensile structures; five of the nine nests at Lake Daviumbu were attached near the ends of branches of low trees growing in the water along the forest edge of the lake shore; two nests were hanging from bamboo shoots in a glade on the edge of the savanna, fifty yards from water, and one was in light forest thirty yards from the lake. The nests varied from five to fifteen feet above the ground or water.

One of the bulky nests was dangling from the end of a pendent bamboo stem. It was a typical, long, loosely constructed trail of vegetation with the oval, solidly constructed nest proper at its lower end. The loose material above the nest appeared to have been simply draped about the vertical bamboo shoot which extended to the bottom of the nest and to have no real connection with the nest itself. Much of it could be removed without disturbing the nest proper which is an inverted retort structure with entrance at the side near the top through a short spout. A few long strands of material straggle down from the lower part of the spout and from the bottom of the nest.

The bulk of the material in the nest was of rootlets and old, shredded bark and leaves, but a great many other things were included, as rotten twigs, orchid stems,

palm fibers, grass, moss, lichens and spider silk. The inside of the nest chamber was of fine, rather bright, smooth fiber from frayed-out pandanus leaves and fresh shreds of swamp mahogany (*Tristania*) bark. In the bottom of the chamber was a lining of the down from the seeds of a forest creeper and two small feathers. With the exception of the lining all the material appeared to have come from drifted material along the lake shore.

This nest measured 850 mm. in total length, but more than half of that is the loosely draped upper structure. The nest proper is about 240 mm. long and 110 mm. wide; entrance 30 mm. across; chamber 55 mm. high by 70 mm. wide; bottom of the nest 35 mm. below the entrance.

Most of the other nests are less elaborate, and two had little superstructure.

The contents of six nests were: two nests with two young each; one nest with two eggs and one *Chalcites* egg; one nest with two eggs and two *Chalcites* eggs; one nest with three eggs; one nest with three eggs and one *Chalcites* egg. Strangely I saw not a single *Chalcites* in the field. The eggs were: shape ovate; shell smooth; gloss slight; color pink or pinkish white, with dots, small spots and blotches fairly plentiful over most of the shell and tending to form a wreath about the larger end of more or less confluent markings. Four eggs measure 16.7 by 12.5; 16.8 by 11.8; 16.8 by 12; 16.9 by 12.3 mm.

Two cuckoo eggs removed from nests of this species are: shape elongate ovate; shell smooth; gloss high; color olive brown slightly paler on small end; one egg is considerably darker than the other; size 19.5 by 13.6 and 20.8 by 13 mm.

Two small young, with the feathers not yet emerging, have the skin blackish, contrasting strikingly with the long, white tufts of down over each eye, on the nape, lower back and humeral and femoral tracts; there was no down on the underparts.

On two occasions I watched nests being built. At one nest the female was making frequent trips to the nest with material while the male stayed near the nest. When the female came to the nest the male perched just above the nest and occasion-

ally gave a display by widely spreading its tail, showing the pattern in the ends of the tail feathers. At the other nest the male appeared to accompany the female in her trips for nesting material but took no part in nest building.

When the one bird was incubating, its mate was usually near-by.

Both male and female help feed the young.

### **Gerygone fusca pallida** Finsch

Daru: 1 ♂ ad.; March 9.

Found near sea level.

WING.—60 mm. TAIL.—43. CULMEN FROM BASE.—13. EXPOSED CULMEN.—9.5.

I have already discussed this specimen (1938, Amer. Mus. Novitates, No. 991, pp. 2, 3), which is the third example of the species recorded from New Guinea.

### **Peltops blainvillii** (Lesson and Garnot)

Sturt Island Camp: 3 ♂ ad.; October 10-21.

Fly River, 50 miles above Everill Junction: 2 ♂ imm., 1 sex? ad.; May 8.

Taken near sea level.

WING.—♂ ad. 96 mm., 97, 101.

I found this a rare bird. The Sturt Island specimens were sitting on exposed perches well up in the tea tree swamps.

### **Rhipidura threnothorax** Müller

Sturt Island Camp: 2 ♂ ad., 1 ♂ imm.; October 10-30.

Lake Daviumbu: 1 ♀ imm.; September 23.

Palmer Junction Camp: 1 ♂ ad., 3 ♀ ad., 1 ♀ imm.; May 23-June 1.

Black River Camp: 1 ♂ imm.; June 23. Found up to 100 meters altitude.

WING.—♂ ad. 81 mm, 82, 85; ♂ imm. 79; ♀ ad. 73, 75, 77; ♀ imm. 73, 75.

Two males have a black upper breast with medium-sized white spots, grayish black abdomen with barely a tinge of olive; the other adult male has small, less plentiful spots on the breast and a more olive tinged abdomen. Two of the males have small rufous tips to some of the upper wing coverts; there is little difference in the

upperparts, but a male adult from Wuroi is much more rufous on the back.

The females differ from the males in the considerably paler, more brownish upperparts, the duller black breast, with white spotting about as plentiful as in the least spotted male, though the spots vary in size, and in the much paler, more grayish, olive brown-tinged abdomen. Light tips may or may not be present on the tips of the primary coverts.

This series agrees well with four males and four females from Arfak in the spotting of the breast and in tail length (Arfak, ♂ 97 mm., 99, 99, 102; ♀ 90, 95, 96; Fly River area, ♂ 102, 103; ♀ 87, 88, 96). They differ in being darker on the abdomen and darker on the upperparts. However, some specimens from the Setekwa River and some from southeast New Guinea match the Arfak birds rather closely.

It is advisable to postpone a complete discussion of variation in this species until after my field work in New Guinea is completed.

Two breeding females were taken in May.

### **Rhipidura maculipectus** Gray

Gaima: 4 ♂ ad., 1 ♀ ad.; November 13-18.

Sturt Island Camp: 4 ♂ ad., 1 ♂ imm., 3 ♀ ad., 1 ♀ imm.; October 15-November 1.

Black River Camp: 1 ♂ imm.; June 19.

Found up to 100 meters altitude.

WING.—♂ ad. 80 mm., 80, 81, 81, 81, 82, 82, 84; ♀ ad. 76, 76, 80, 82.

There is considerable variation in this series. In the males the spots on the breast may be small and scattered, or large and forming an irregular white area on the breast; the size of the white throat stripes varies; the white spotting in the upper wing coverts may be almost absent or conspicuous; the width of the white line on the sides of the crown varies considerably. There is little variation in the amount of white in the end of the tail, or in the black of the breast or the grayish black of the abdomen. There is some slight variation in the color of the back and rump, varying



from black with hardly a tinge of brown, to brownish black.

Comparing the above series with four male and two female birds from Aru Island (wing ♂ 78 mm., 80, 81, 82; ♀ 74, 75), collected in 1900, these latter fall within the range of variation of the New Guinea birds, except for the very pronounced brownish black color of back, abdomen, wings and tail. This brownness of the old skins is undoubtedly the result of foxing. As Ogilvie-Grant (1915, *Ibis*, Jub. Supp., No. 2, p. 151) and Junge (1939, *Nova Guinea*, [N.S.] III, p. 33) decided, the south New Guinea and Aru Island birds cannot be separated.

One of the immature birds is in complete first year plumage. This is attained by an incomplete moult, wings and tail being retained. It differs from the adult plumage in the more rounded tip of the first primary; the narrower rectrices; in having no white spotting in the upper wing coverts; and in having the breast grayish black like the abdomen with a few small, obscure, yellowish white spots.

This bird recalls *R. leucothorax* in behavior, but its habitat was the tall cane grass and sedge of the tea tree swamps and, to a lesser extent, the sedge in the swamp forests. I have usually seen it as a shy, secretive thing, darting away into shelter or cautiously coming to the edge of the grass in response to squeaking. However, I saw one in the open branches of a shrub over a little pool in the forest. With raised, spread tail and drooping wings it fluttered about after the manner of *R. rufifrons*. Two October and two November males were in breeding condition.

***Rhipidura rufifrons rufifrons* (Latham)**

Gaima: 2 ♂, 1 ♀, 1 sex?; November 11-15.

Sturt Island Camp: 3 ♂, 4 ♀; October 10-26.

Lake Daviumbu: ♂, ♀; August 20-September 17.

Found near sea level from August 20-November 15.

WING.—♂ (10) 66-75 mm. (av. 72.1); ♀ (10) 68-74 (av. 70.4).

These compare well with birds from New

South Wales and Victoria. White (1938, *Ibis*, [14] II, pp. 761, 762) has recently pointed out that this race breeds in Victoria and New South Wales, passing through Queensland to winter in south New Guinea, but he had only two records for New Guinea: one from the Gulf of Papua collected April 1, 1899, by Barton, and Salvadori's two specimens from the Fly River.

The present expedition, finding it common in the forests of south New Guinea in the austral winter, confirms the view that this is its wintering ground.

***Rhipidura rufidorsa rufidorsa* Meyer**

Oroville Camp: 1 ♂ ad.; August 9.

Palmer Junction Camp: 2 ♂, 1 ♀; May 15, 25.

Black River Camp: 3 ♂, 3 ♀, 1 sex?; June 7, July 8.

Found up to 100 meters altitude.

WING.—♂ 65 mm., 65, 65, 66, 66, 68; ♀ 60, 61, 62, 65.

I have already reported on this species and discussed its races (1938, *Amer. Mus. Novitates*, No. 991, pp. 8-10).

This is one of the fluffy, fantailed members of the genus; with spread, raised tail and dragging wings it is a dainty little sprite of the tops of the undergrowth shrubs and the lower substage. It has a very pleasing whistled song of three notes. Breeding birds were taken in May (1), June (2), July (1) and August (1).

***Rhipidura hypertythra mülleri* Meyer**

Tarara: 2 ♂; January 4, 18.

Oroville Camp: 1 ♂, 1 ♂?; August 12. Found near sea level.

WING.—♂ 74 mm., 77, 80.

Extent of white in outer web of outer tail feathers measured along shaft ♂ 9, 10 mm.

The western race thus occurs in the upper and lower Fly River area.

One January male had enlarged testes.

***Rhipidura rufiventris gularis* Müller**

Tarara: 7 ♂ ad., 2 ♀ ad.; December 7-January 19.

Daru: 1 ♀ ad.; March 9.

Gaima: 3 ♂ ad., 2 ♀ ad.; November 13-19.

Sturt Island Camp: 6 ♂ ad., 6 ♀ ad.; October 8–November 1.

Lake Daviumbu: 5 ♂ ad., 2 ♀ ad., 1 ♀ nestling; August 20–September 1.

Found near sea level.

WING.—♂ (10) 82–92 mm. (av. 86.3); ♀ (10) 77–84 (av. 81.5).

An obscure streaking of the breast occurs sporadically in this race. In the present series it is common in the males, and most of the females exhibit at least a few obscure streaks on the breast.

Birds in breeding condition were taken in August (1), September (1), October (4), November (2) and December (3). Nests were found on August 23, containing two eggs, October 9 with two young, and a nest in construction December 11. The nests were fifteen to twenty-five feet up, very small, neat, saucer-like structures placed on a very slender vine or bamboo stem where a bend or fork offered slightly additional support. One nest had a base of rotten wood, some of the fibers extending 50 mm. below the bottom of the nest, and on this was placed the cup of fine, grayish red strips of bark. There was no further lining. The outside of the nest was firmly covered with a solid layer of animal silk which bound it together with a gray coating and bound it to the branch. A characteristic feature was the break in the bottom of this coating through which the dead wood projected. The eggs were smooth, with no gloss, yellowish white in color, with spots of chocolate brown and secondary grays forming a wreath about the larger end and scantily distributed elsewhere. The young have scanty buffy brown down on the crown, nape, on the lower dorsal, humeral, femoral tracts, on the secondaries, their coverts and the rectrices; there was a little whitish down on the abdominal feather tracts. The small egg tooth was brownish.

Both male and female assist in feeding the young. When brooding or incubating, the adult completely overshadows the nest.

**Rhipidura leucophrys melaleuca** (Quoy and Gaimard)

Palmer Junction Camp: 1 ♀ ad.; May 27.

Lake Daviumbu: 3 ♂ ad., 1 ♂ imm., 3 ♀ ad.; August 20–September 28.

Sturt Island Camp: 2 ♂ ad.; October 21, 30.

Gaima: 3 ♂ ad., 1 ♂ imm., 1 ♀ ad., 2 ♀ imm.; November 19–21.

Daru: 4 ♂ ad., 1 ♂ imm., 1 ♀ ad., 1 ♀ imm.; March 15–April 3.

Tarara: 1 ♂ ad., 1 ♀ imm.; December 8.

Found up to 100 meters altitude.

WING.—♂ ad. (10) 95–102 mm. (av. 98.6); ♀ ad. 93, 96, 97, 97, 98, 102, 102.

These are somewhat smaller than birds from elsewhere in New Guinea. The race *picata* has been recorded from Merauke (Stresemann and Paludan, 1935, Mitt. Zool. Mus. Berlin, XX, p. 456) which has a smaller wing, ♂ 94–98 mm., and is further distinguished by its yellowish tinged underparts.

The willie-wagtail was found along the wooded margins of the Fly River, in the extensive lily and grass marsh of Lake Daviumbu, in the outer edge of a dense mangrove fringe along the sea shore, in the gardens and about the lawns at Daru and in the open, scrubby savanna near Tarara.

Breeding birds were taken in September (1), October (2) and November (2); nests were found September 19 (three eggs) and October 29 (three young). One nest was on the end of a stake, three feet above the water in the lotus lily marsh at Lake Daviumbu; the other was on a bare horizontal branch projecting over the Fly River about fifteen feet above the water.

**Monarcha alecto nitidus** (Gould)

Tarara and Penzara: 3 ♀ ad.; December 18–January 14.

Mabadauan: 1 ♂ ad.; April.

Daru: 4 ♂ ad., 5 ♀ ad.; March 6–April 3.

Gaima: 3 ♂ ad.; November 12–20.

Sturt Island Camp: 1 ♂ ad., 2 ♀ ad.; October 25, 27.

Lake Daviumbu: 7 ♂ ad., 2 ♂ imm., 4 ♀ ad., 2 ♀ imm.; August 18–September 8.

Found near sea level.

WING.—♂ ad. (10) 86–92 mm. (av. 88.8); ♀ ad. (10) 79–87 (av. 84.6).

This is the first record of this Australian race for New Guinea. Mayr and I united Daru Island birds with southeast New Guinea birds in 1937 (Bull. Amer. Mus. Nat. Hist., LXXIII, p. 151), but reexamination of that material in connection with the present material shows this was not correct.

The females from near the coast, Tarara, Penzara, Daru Island, compare well with Cape York birds in the dark color of the upperparts, and in the grayish black foreback, which is lacking in other New Guinea birds. The birds from the middle Fly River are decidedly paler than the coastal birds but are also characterized by the grayish black foreback. This indicates an area of intragradation with the paler New Guinea bird which lacks, or has little, grayish in the foreback.

The favorite habitat of the black *Monarcha* is the shrubby bordering waterways and swamps. Strangely, none was found on the Palmer River, but it was fairly common at the other localities and especially so at Lake Daviumbu. Along the coast it frequented the mangroves, and on Daru it was found in secondary growth, apparently a secondary adaption. It was a shy bird, usually found singly or in pairs low in the shrubbery. The bird usually sits erect, but the male often assumes a characteristic pose with the head thrust forward, the feathers of the top of the head flattened against the skull, those of the nape erected, giving a crested effect. The song, often heard, was a series of softly whistled notes, and a harsh scolding "screek" was frequently uttered.

Birds in breeding condition were taken in August (5), September (3), October (3), November (2), December (1), January (1) and March (1); also five nests were found in August and September at Lake Daviumbu, and one in October at Sturt Island. The nests were all very similar, cup-shaped structures placed three to eight feet up in the forks of slender sapling-like trees. All but one were in open, shaded places in the mixed forest along the water's edge; the exception was on a bamboo shoot under a clump of bamboo near the lake. The nests were unconcealed and

rather conspicuous. The description of one nest is: a deep, firm, neat structure with a cup-shaped hollow on top for the eggs; it was composed largely of bark, some of it coarse fiber and flakes, from several different kinds of trees including the papery bark of the tea tree; outside, a scanty coating of animal silk bound together and held smooth the outside and also held the nest to the fork in which it rested. Some small flakes of bark and lichens were stuck over the outside, as though for ornamentation. Inside there was a good lining of fine, blackish fibers. This nest measured outside 90 by 110 mm. deep; inside, 55 by 45 mm. deep. Three nests contained two eggs each, one nest two young, and one nest one young.

Two eggs, collected August 26 are: shape ovate; shell smooth; gloss slight; color pale greenish blue; markings dark brown and secondary grays in dots and small spots, forming a dense wreath about the larger end and scattered sparingly over the rest of the shell; size 21.8 by 15 and 21 by 14.3 mm. One newly hatched young had the skin black with blackish brown down on the crown, nape and lower dorsal, humeral and femoral feather tracts.

#### *Monarcha melanopsis* (Vieillot)

Daru: 1 ♂ ad., 2 ♀ ad., 1 ♀ imm.; March 30, July 11.

Gaima: 1 ♂ imm.; November 16.

Sturt Island Camp: 1 ♂ ad., 1 ♀ ad.; October 11, 14.

Lake Daviumbu: 1 ♂ ad., 4 ♂ imm., 6 ♀ ad., 2 ♀ imm.; August 19–September 25.

Found near sea level from March 30 to November 16.

WING.—♂ ad. 86 mm., 89, 90; ♀ ad. (9) 85–91 (av. 78.8).

These birds are slightly smaller than New South Wales birds (wing 8 ♂, 89–97 mm.) but correspond with birds from the vicinity of Cairns taken from November to February (wing 7 ♂, 86–91). There appear to be no significant color differences. As the Australian bird is a migrant, in part of its range at least, it seems probable that these south New Guinea birds are winter visitors from

Australia. None of the specimens collected was in breeding condition, and I found no specimens during the austral summer. However, there is a single December record from Merauke (Stresemann and Paludan, 1935, Mitt. Zool. Mus. Berlin, XX, p. 456).

***Monarcha manadensis*** (Quoy and Gaimard)

Palmer Junction Camp: 3 ♂ ad., 1 ♂ imm.; May 25–28.

Black River Camp: 1 ♂ ad., 1 ♂ imm., 3 ♀ ad., 1 ♀ imm.; June 9–July 4.

Found up to 100 meters altitude.

WING.—♂ ad. 85 mm., 85, 86, 87; ♂ imm. 76, 79; ♀ ad. 82, 82, 82; ♀ imm. 73.

The two immature males in first year plumage have the upperparts much duller black than in the adult male, with the forehead more grayish; the throat and breast are gray. This corresponds with Ogilvie-Grant's description of the immature female (1915, Ibis, Jub. Supp., No. 2, p. 137). The immature female differs from the immature male in having the white of the breast strongly tinged rufous, the abdomen buffy. Probably there is individual variation in this, as there is in *M. guttula*.

Birds in breeding condition were taken in May (1) and July (1).

***Monarcha guttula*** (Garnot)

Tarara: 3 ♂ ad., 4 ♀ ad.; January 4–15.

Gaima: 1 ♂ ad., 2 ♀ ad.; November 11, 13.

Sturt Island Camp: 2 ♂ ad., 7 ♂ imm., 4 ♀ ad., 1 sex? imm.; October 9–25.

Lake Daviumbu: 1 ♂ ad., 1 ♀ ad.; September 9, 12.

Palmer Junction Camp: 2 ♂ ad., 2 ♀ ad.; May 18–25.

Black River Camp: 5 ♂ ad., 1 ♀ ad., 3 ♀ imm.; June 11–July 8.

Found up to 100 meters altitude.

WING.—♂ ad. (10) 78–82 mm. (av. 80); ♀ (10) 72–77 (av. 74.9).

This was a fairly common bird of the forest substage. It was a bold, harshly chattering, militant-looking bird, as are

most *Monarcha*, quite different from the fluffy, friendly *Rhipidura*. Breeding birds were taken in January (2), September (1), October (3) and November (2). Nests were found October 14 (two eggs), October 19 (two young) and November 16 (two eggs).

The nests were in similar situations, six to nine feet up in the main forks of slender saplings in rather open substage of forest where there was a heavy canopy overhead. The description of a typical nest is: a little cup-shaped nest saddled into a small fork, a rather neat, firm structure, composed externally chiefly of fine green moss with considerable animal silk, in strands and in solid pieces bound over the outside and around the fork to make it smooth and bind it in place. Inside there is a plentiful lining of blackish rootlets; size 70 by 60 mm. deep outside, 50 by 40 mm. deep inside. Two eggs were: shape ovate; shell smooth; gloss slight; color pinkish white; markings, dots and small spots of dark earthy brown, fairly plentiful over most of the shell but converging to form a wreath about the larger end; size 21.1 by 15 and 21.1 by 15 mm. The young have a blackish skin and fairly plentiful brownish black natal down.

***Monarcha trivirgatus*** subspecies?

Lake Daviumbu: 1 ♂ imm.; September 17.

Tarara: 1 ♂ ? imm., 1 ♀ imm.; December 11.

Found near sea level.

WING.—♂ imm. 74 mm.; ♂? imm. 72; ♀ imm. 70.

I have already discussed (1938, Amer. Mus. Novitates, No. 991, p. 8) the status of these three birds, which constitute the first record of this species for the mainland of New Guinea.

***Monarcha chrysomela aruensis***  
Salvadori

Tarara: 1 ♀; December 31.

Gaima: 5 ♂, 3 ♀; November 13–18.

Sturt Island Camp: 4 ♂, 3 ♀; October 10–30.

Lake Daviumbu: 3 ♂, 1 ♀; August 23–September 3.

Oroville Camp: 1 ♀; August 9.

Palmer Junction Camp: 2 ♂, 1 ♀; May 15-23.

Black River Camp: 6 ♂, 1 ♀; June 16-July 26.

Found up to 100 meters altitude.

WING.—♂ (10) 65-74 mm. (av. 69.3); ♀ (10) 65-70 (av. 67.4).

The birds from the upper Fly River (wing ♂ 69-74 mm.) average slightly larger than birds from near the coast (wing ♂ 65-69), but birds from the middle Fly River are intermediate, and there is no difference in color.

In 1937 (Bull. Amer. Mus. Nat. Hist., LXXIII, p. 154) Mayr and I assigned a female from Wuroi to *praerepta* White. However, the present series shows plainly that south New Guinea birds are *aruensis* as Junge (1939, Nova Guinea, [N.S.] III p. 24) has already shown.

The present series compares well with a single Aru Island female and differs from a series from D'Entrecasteaux in the heavy olive wash on the breast and flanks, the much darker, more olive upperparts and the deeper yellow (not paler yellow, as White found when describing *praerepta*, 1935, Bull. Brit. Ornith. Club, LVI, p. 38) abdomen.

Birds in breeding condition were taken in May (1), October (2) and November (2).

***Arses telescopthalmus harterti* van Oort**

Black River Camp: 1 ♂ ad., 2 ♀; July 7, 17.

Palmer Junction Camp: 3 ♂ ad., 6 ♀; May 16-26.

Oroville Camp: 1 ♂ ad.; August 11.

Lake Daviumbu: 5 ♂ ad., 6 ♀; August 24-September 23.

Sturt Island Camp: 6 ♂ ad., 8 ♀; October 8-30.

Gaima: 1 ♂ imm., 3 ♀; November 18-22.

Tarara and Penzara: 7 ♂ ad., 5 ♂ imm., 9 ♀; December 8-January 19.

Found up to 100 meters altitude.

WING.—♂ ad. (10) 76-82 mm. (av. 79.5); ♀ (10) 74-83 (av. 77).

The birds from the upper Fly River are slightly darker and more rufous tinged than those from nearer the coast, but this is

apparently partly a matter of wear and fading.

Setekwa River females are slightly paler and more rufous tinged in the upperparts; males have slightly more black in the throat; and both have slightly greater development of the eye wattle, but the difference is slight.

This race is clearly distinguished from *henkei*, *telescopthalmus* and *aruensis* by the smaller eye wattle and, in the female, by the much darker, less rufous back. The male has the amount of black in the throat more than in *henkei*, less than in *telescopthalmus* and *aruensis*. A nestling male removed from the nest December 8 is clothed in fluffy nestling plumage. The top of head is blackish, with rufous bases of the feathers showing through; nape, sides of neck and throat rufous as in first year plumage; feathers of back and scapulars rufous brown with blackish tips; rump feathers and upper tail coverts brighter rufous with blackish tips; abdomen and under tail coverts white; upper wing coverts brown, tipped with rufous; secondaries brownish black, tipped with rufous; primaries and rectrices brownish black.

*Arses* was a forest bird, common at all our collecting camps. It was a bird of the middle story in the forest, ranging up into the crown of lower trees. It was an active, militant-looking bird, with erect carriage and a frequently uttered, harsh cry; continually moving about, flying out to snap up an insect from the air or from a twig or leaf; frequently it clings to the side of a tree trunk, which action is rather characteristic of this species. The tail was occasionally jerked downward. This species was not shy and went about its feeding paying little attention to humans but responded well to squeaking.

Its songs, which are commonly heard in the breeding season, I have recorded as a "zuit" repeated a number of times—"a hoarse little 'chi-chi-chi-chi - - -' sometimes quickened to a trill. . . a little trill increasing in volume and harshness, but slightly slower toward the finish."

Once I saw a female-plumaged bird giving a trilled song. Sometimes when

singing the bird makes short, whirring flights from twig to twig. The bird frequently gives harsh, scolding, call notes, including a rasping "screeek"—a call which would be called a harsh scream in a larger bird.

Breeding birds were collected in August and September (Lake Daviumbu), October (Sturt Island, where four nests were also found October 21–November 2), November (Gaima), December and January (Tarara, where nestlings were also brought in by natives); no breeding birds were taken in May (five miles below Palmer Junction), or in June and July (two miles below Black River Camp). The nests were all similar structures: small, shallow cups placed between two small, parallel, pendent vines, with the attachment at each side to the lianas carrying the rim of the nest up to a peak. They varied in height from ten to forty feet above the ground, hanging in open places in the forest. The nests were slightly untidy and loosely constructed of short, slender, semi-woody stems, some of them being pubescent which helped to hold them together; animal silk was used to help hold the nest together and to attach it to the supports. A few bits of dead leaves and lichens were stuck over the outside. Inside was a lining of fine, blackish rootlets. One nest measured outside 70 by 60 mm. deep; inside, 50 by 25 mm. deep. Two nests examined each contained two eggs. One egg was: shape ovate; shell smooth; gloss slight; color pinkish white; markings small to medium sized spots, dots and irregular marks of earthy brown and secondary grays, most plentiful in a zone about the larger end, but fairly plentiful over the rest of the shell; size 19 by 13.8 mm.

The nest found on the morning of November 2 was being built by both birds. During the short time I watched it the male and female were making alternate trips to the nest, at two or three-minute intervals. While I watched, the female made three trips, carrying material and spending a few moments working at the nest; the male made two trips alternating with those of the female; whether or not he brought nesting material I could not see.

Both times the male sat in the nest, working at its edge with his bill, screaming occasionally on his second visit, and both times stayed on the nest until the female returned, when he flew off into the forest.

A nest seen on October 21 and 22 had a male incubating or brooding on both visits. When I went to examine this nest the next day it was empty and there was no bird about.

The nest found on October 24 contained two eggs, and the female was brooding; in a few moments the male came and changed places with her. They paid no attention to me sitting twenty-five feet from the nest and in plain sight. I then sent a boy up to collect the nest. It was hanging free in a glade, and the boy had to cut a pole with a fork on it to pull the vine, on which the nest was hanging, within reach. He had pulled the nest to within two feet of him before the male left.

Again on the 30th of October I watched another nest for some time, from the ground. I started to watch at 2:45, with the female brooding (the nest contained two eggs). In thirty-three minutes the female left the nest, flying directly away, and for thirty-eight minutes there was no bird about the nest, though the male was occasionally singing in the forest. Then the female returned directly to the nest and brooded for forty minutes. When the female left the nest the male was singing in the vicinity, and four minutes later the male came directly to the nest and brooded for fifty-one minutes, when it flew directly away; four minutes later the female was brooding.

While brooding, both male and female sat very quietly, only occasionally turning the head.

Apparently both male and female take turns incubating and brooding for long intervals.

#### ***Myiagra rubecula rubecula* (Latham)**

Daru: 1 ♂ imm., 1 ♀, 1 sex?; March 21–April 8.

Gaima: 1 ♂ imm.; November 21.

Sturt Island Camp: 1 ♂ imm., 1 ♀, sex?; October 11–31.

Lake Daviumbu: 3 ♂ ad., 5 ♀; August 19–September 29.

Found near sea level between March 21 and October 31.

WING.—♂ ad. 75 mm., 79, 80; ♂ imm. 74, 76, 79; ♀ 74, 74, 74, 75, 77, 80.

I have already reported this series, which is the first record for this Australian form in New Guinea (1941, Amer. Mus. Novitates, No. 1102, p. 12).

**Myiagra rubecula papuana** Rothschild and Hartert

Tarara and Penzara: 3 ♂ ad., 1 ♂ imm., 2 ♀; December 7–24.

Gaima: 2 ♀; November 17, 21.

Found near sea level.

WING.—♂ ad. 72 mm., 73, 76; ♂ imm. 71; ♀ 69, 70, 71, 72.

This is the small resident bird of south New Guinea. No specimens were secured in the savannas of the middle Fly River where it probably also occurs. These specimens compare well with those from south-east New Guinea and the type from the Kumusi River.

The males differ from those of the very similar Cape York bird (*yorki* Mathews) in the slightly duller, more bluish and less iridescent throat and the paler, more grayish lores. In the New Guinea specimens none has the lores black as do some of the Cape York birds. Wear and fading are pronounced in this species.

This flycatcher was a common, characteristic bird of the savanna. It is usually found singly, sits up rather straight and feeds in typical flycatcher manner, darting out after passing insects, and keeps moving about through the trees. A characteristic feature is a twitching of the tail as the bird sits at rest. Two breeding birds were taken in December.

**Myiagra cyanoleuca** (Vieillot)

Lake Daviumbu: 1 ♀; September 2.

Found near sea level.

WING.—86 mm.

This bird is in fresh plumage with gonads not enlarged. It agrees well with birds from Victoria, the slight differences being due to wear.

This species had already been recorded

for the Fly River area by De Vis (1898, Ann. Rep. Brit. New Guinea, 1896–1897, p. 83) under the name *M. nitida* Gould.

**Machaerirhynchus flaviventer xanthogenys** Gray

Tarara and Penzara: 3 ♂, 6 ♀; December 12–January 15.

Gaima: 1 ♂; November 15.

Sturt Island Camp: 2 ♂, 4 ♀; October 10–31.

Lake Daviumbu: 1 ♂; August 31.

Palmer Junction Camp: 2 ♀; May 24, June 1.

Found up to 80 meters altitude.

WING.—♂ 59 mm., 59, 60, 61, 62, 62, 63; ♀ 54, 56, 58, 58, 59, 59, 60, 60, 61, 61, 61, 62.

CULMEN.—♂ 16–17 mm.; ♀ 16.5–17.5.

I have no material from the Aru Islands for comparison.

There is considerable variation in this series. In one breeding male there is only a little black in the upper back; in other males the upper back is nearly completely black, and there is some black in the rump; most of the males lie between these extremes. There is also considerable variation in the intensity of the yellow underparts; in one male it is as intense as south-east New Guinea males. In the females there is considerable variation in the green of the upperparts; some females have the upper wing coverts edged with greenish yellow, some with white, and some with white and yellow (age character?); the amount and intensity of the greenish on the underparts also vary considerably.

A series from southeast New Guinea differs from the present series in the considerably larger bill (culmen ♂ 17.5–18.5 mm.; ♀ 18–18.5) and in the male in averaging more black on the back, though there is always some green in the rump; and in the average much deeper yellow underparts; females also average slightly more vivid yellow below. Probably Aru Island birds are the same as south New Guinea birds, and the southeast New Guinea birds should be separated, but until I see topotypical material I hesitate to do this.

One male from the upper Setekwa River is deeper yellow than south New Guinea birds and is much blacker above than any of them, having only a trace of greenish in the rump. The single female from the Setekwa River is much more rust colored on the forehead and superciliary line than south New Guinea birds.

***Microeca flavigaster tarara* Rand**

*Microeca flavigaster tarara* RAND, 1940, Amer. Mus. Novitates, No. 1074, p. 3—Tarara.

Penzara: 2 ♂; December 14, 17.

Tarara: 6 ♂, 3 ♀; December 24—January 22.

Found near sea level.

WING.—♂ 74 mm., 74, 75, 75, 75, 75, 76, 78; ♀ 71, 73, 73.

***Microeca griseiceps griseiceps* De Vis**

Tarara: 2 ♂ ad., 1 ♂ imm.; December 11, January 18.

Found near sea level.

WING.—♂ ad. 68 mm., 72; ♂ imm. 66.

The immature bird still retains much of the spotted nestling plumage. The other two birds fall within the range of variation of a series from Mafulu and Deva Deva, southeast New Guinea, except for being slightly paler below. They differ from *kempi* Mathews (2 ♂, 1 ♀ Cape York and Claudie River, including the type, wing ♂ 69 mm., 69; ♀ 69, collected in 1913) in having the crown slightly less greenish and in lacking a brownish tinge on the breast.

This was a scarce bird of low forest sub-stage. At Tarara on January 18 I found one of these birds persistently singing a low trill, often changing in volume.

***Microeca flavovirescens flavovirescens* Gray**

Tarara: 2 ♂ ad., 1 ♂ imm., 1 ♀ ad.; December 27—January 4.

Sturt Island Camp: 1 ♂ ad., 1 ♂?; October 12, 15.

Lake Daviumbu: 1 ♀ ad.; September 13.

Fly River, 30 miles above D'Albortis Junction: 1 ♂ ad.; August 10.

Palmer Junction Camp: 1 ♀ ad.; June 3.

Found up to 80 meters.

WING.—♂ ad. 77 mm., 77, 78, 80; ♀ ad. 71, 73, 73.

Since reading the criticism (White, 1938, Ibis, [14] II, p. 763) of my treatment of this species (1938, Amer. Mus. Novitates, No. 991, pp. 7, 8) I have reexamined the material in the American Museum. This supported my earlier conclusion that the birds from south New Guinea differ from those from the rest of New Guinea. White (*loc. cit.*) states that ten Aru Island birds, typical *flavovirescens*, are indistinguishable from a series of birds from various parts of New Guinea (he had no south New Guinea material). Hence the south New Guinea birds would seem to need a name. However, as the only two Aru Island birds I have are very similar to the south New Guinea birds, I hesitate to name the latter and am continuing to group them under *flavovirescens*.

This was a rather uncommon forest bird. A June female was nearly ready to lay.

***Monachella mülleriana mülleriana* (Schlegel)**

Black River Camp: 2 ♂ ad., 1 ♂ imm., 1 ♀ ad., 1 ♀ imm.; June 10–21.

Found at about 100 meters altitude; also seen near the Palmer Junction Camp.

WING.—♂ ad. 94 mm., 95; ♂ imm. 93; ♀ ad. 92; ♀ imm. 91.

These are slightly smaller than Arfak birds but otherwise are very similar.

The immature birds, in first year plumage, differ from the adults only in their slightly smaller size, the more rounded tip to the outer primary and the fluffy under tail coverts.

A not uncommon bird on the Palmer River where it perched on rocks, logs and branches a little above the water and flew out to snap up insects.

***Poecilodryas hypoleuca hypoleuca* (Gray)**

Sturt Island Camp: 1 ♂, 1 ♀; October 25.

Palmer Junction Camp: 3 ♂, 1 ♀; May 21–28.

Black River Camp: 5 ♂; June 10–July 8.



Found up to 100 meters altitude.

WING.—♂ 75 mm., 76, 76, 77, 77, 78, 78, 78; ♀ 72.

These specimens agree well with two Arfak males (collected 1928) in the brownish black upperparts, in the small extent of the white mark in the wing and in size (Arfak ♂, wing 78 mm., 79).

A May male had enlarged testes.

**Poecilodryas pulverulenta pulverulenta**  
(Bonaparte)

Lake Daviumbu: 1 ♀ imm.; August 31.

Found near sea level.

WING.—75 mm.

Iris dark; bill black; feet dark horn.

This specimen agrees in color with two females from Hall Sound, differing only in having some of the upper wing coverts more brownish and tipped with whitish, evidently a character of the first year plumage.

The Hall Sound specimens have been shown to be *pulverulenta* (1937, Bull. Amer. Mus. Nat. Hist., LXXIII, p. 141).

**Pachycephala pectoralis spinicauda**  
(Pucheran)

Daru: 1 [= ♂] ad., 1 ♀ ad.; March 17, April 2.

Found at sea level.

LOCALITY		WING	BILL
Daru	♂	89 mm.	20.5
	♀	88	20
Hall Sound	♂	92	20.5
	♀	91	19.5
Cape York	♂	91, 86	21, 19
	♀	83	20

The Daru male compares well with one from Hall Sound and two from Cape York; the female differs from the Hall Sound female in the tail's being entirely olive, instead of having the terminal half black, and in the very much paler yellow underparts; compared with a female from Cape York the Daru female has the underparts somewhat deeper yellow. Until more material is available it is advisable to group all these as *spinicauda*.

These specimens were taken in the mangroves at Daru.

**Pachycephala hyperythra hyperythra**  
Salvadori

Mt. Mabiom: 1 sex?; July 16, 1936.

Taken at 780 meters.

WING.—90 mm.

This is a poor specimen, badly discolored with smoke about the head. On the basis of the coloration of the underparts, which compares well with that of Arfak birds, it is referred to *hyperythra*. The race *hyperythra* has been recorded only from the Arfak and Weyland Mountains; no examples of this species have been taken on the south slopes of the Snow Mountains, where this race probably also occurs. The race *salvadorii* from southeast New Guinea is much paler.

**Pachycephala griseiceps perneglecta**  
Hartert

Tarara: 5 ♂ ad., 3 ♀ ad., 2 ♀ imm.; December 12–January 4.

Gaima: 2 ♂ ad., 3 ♀ ad., 1 sex? imm.; November 11–18.

Sturt Island Camp: 3 ♂ ad., 2 ♂ imm., 4 ♀ ad., 1 ♀ imm.; October 10–28.

Lake Daviumbu: 2 ♂ ad., 3 ♀ ad., 1 ♀ imm.; August 24–September 25.

Oroville Camp: 1 ♂ ad.; August 10.

Palmer Junction Camp: 3 ♂ ad., 1 ♀ imm.; May 14–20.

Black River Camp: 1 ♀ ad.; July 8.

Mt. Mabiom: 1 ♀ ad.; July 6.

Found from sea level to 750 meters.

WING.—♂ (10) 78–85 mm. (av. 82.9); ♀ (10) 77–84 (av. 79.9).

For comparison I have a series of five birds from the south slopes of the Snow Mountains, including the type of *perneglecta*, and seven birds from the Aru Islands (*griseiceps*). The south New Guinea birds exhibit considerable variation in the amount of streaking below, and in the brownish breast band. Occasional specimens stand very close to the Aru Island birds in these characters but most specimens are more like the Snow Mountains series in the heavier streaking of the throat, the more distinct breast band and the paler abdomen.

On geographical grounds one might have expected the south New Guinea birds from

near the coast to be *griseiceps* and those from inland to be *perneglecta*, but such is not the case.

Birds in breeding condition were taken in May, August, September, October and November.

***Myiolestes megarhynchus wuroi* Mayr and Rand**

Tarara and Penzara: 3 ♂ ad., 1 ♂ imm., 5 ♀ ad.; December 16–January 18.

Mabadauan: 2 ♂ ad.; April 23, 24.

WING.—♂ ad. 92 mm., 93, 95, 95, 98; ♀ ad. 87, 88, 88, 92.

The known range of this form is from the Oriomo to the Morehead River.

***Myiolestes megarhynchus palmeri* Rand**

*Myiolestes megarhynchus palmeri* RAND, 1938, Amer. Mus. Novitates, No. 991, p. 10.

Black River Camp: 5 ♂ ad., 2 ♀ ad., 1 ♀ imm., 1 sex?; June 15–July 10.

Palmer Junction Camp: 2 ♂ ad., 1 ♂ imm., 3 ♀ ad.; May 15–30.

Oroville Camp: 4 ♂ ad.; August 10–12.

Lake Daviumbu: 5 ♂ ad., 4 ♀ ad.; August 21–September 24.

Sturt Island Camp: 6 ♂ ad., 1 ♂ imm., 4 ♀ ad., 1 sex? imm.; October 7–November 1.

Gaima: 1 ♂ ad., 2 ♂ imm.; November 12–18.

Found from sea level to about 700 meters altitude.

WING.—♂ ad. (10) 93–101 mm. (av. 96.5); ♀ ad. (10) 89–93 (av. 91.4).

This race reaches to near the coast on the east bank of the Fly River, while west of the Fly River, at Oriomo, the rare *wuroi* occurs. Sturt Island birds come from the east bank of the Fly, and Lake Daviumbu birds from the west bank. The birds from Lake Daviumbu, Sturt Island Camp and Gaima are paler than those from the upper Fly River.

This species was a common bird of all the Fly River Camps. It was usually found singly or in pairs in the undergrowth and lower second story of the forest, where with quick movements it searches on the twigs and branches for its insect prey. It is shy and retiring but also responds readily

to squeaking. Besides its loud, whistled song of several notes it has a single, loud, alarm note, and when near the nest I have heard a soft, whining note.

Breeding birds were taken in June (1), July (1), August (4), September (5) and October (7). Two nests were found at Lake Daviumbu in September.

One nest was resting on a mass of bamboo shoots, in a tangle of bamboo and shrubbery about two and a half feet above the ground in low, broken, rain forest; one was in the top of a pandanus a few feet above the ground in rain forest. The nests were firm, deep, cup-shaped structures; one was composed largely of dead leaves of forest trees, with a few woody stems scattered through it; there was a thin lining of fine dark fibers; it measured outside 100 by 100 mm.; inside 75 by 50 mm. deep.

The other nest was composed of many dead leaves from trees and bamboo, slender woody stems and tendrils of some vine. The inside of the nest was completely lined with dead leaves, laid flat, with a scant lining of fine rootlets in the bottom of the cavity; it measured 140 by 85 mm. deep outside and 70 by 50 mm. deep inside.

One nest contained two eggs; one contained two young. The eggs were: shape ovate; shell smooth; gloss high; color pink, markings earthy brown and secondary gray spots and large blotches, plentiful over the whole shell but especially so on the larger end; size 24.3 by 17.8 and 24.3 by 17.7 mm. The two young, with quills just sprouting, were scantily covered with dusky brown down, in two lines on the crown, on the nape, on the dorsal, humeral and femoral tracts, and on the secondary coverts. There was a small egg tooth present.

***Colluricincla harmonica tachycrypta*  
Rothschild and Hartert**

Mabadauan: 1 ♂; April 22.

Tarara: 2 ♀; December 7–23.

Lake Daviumbu: 2 ♂, 3 ♀; August 21–29.

Found near sea level.

WING.—♂ 123 mm., 123, 130; ♀ 110, 120, 121, 124.

This is a common species of the savannas of south New Guinea. A breeding male was taken in April, and a nest found on September 28. The nest was well concealed in a fork of a pandanus about seven feet above the ground on a savanna ridge. The nest was an irregular, firm structure to fit the space it occupied; it was composed externally of fine, semi-woody stems, grass blades and dead leaves, and was well lined with fine woody stems. It contained two eggs that were: shape ovate; shell smooth; gloss medium; color white with marking of dots, spots and blotches of light or dark chocolate and secondary grays, most plentifully distributed over the larger end of the shell; size 28.6 by 20 and 27.1 by 20.6 mm.

**Pitohui kirhocephalus brunneiceps**

(D'Alberty and Salvadori)

Sturt Island Camp: 1 ♂ ad.; October 7.

Palmer Junction Camp: 7 ♂ ad., 4 ♀ ad.; May 17–June 2.

Black River Camp: 4 ♂ ad., 2 ♀ ad.; June 8–July 26.

WING.—♂ ad. (13) 116–128 mm. (av. 121.4), ♀ ad. 117–122.

I have already reported on this species (1938, Amer. Mus. Novitates, No. 991, pp. 11, 12).

**Pitohui dichrous dichrous** (Bonaparte)

Sturt Island Camp: 3 ♂, 2 ♀; October 8–16.

Found near sea level.

WING.—♂ 106 mm., 106, 110; ♀ 104, 104.

These birds are much darker than southeast New Guinea *monticola* and are even darker than Arfak birds (typical *dichrous*). As birds from the south slopes of the Snow Mountains are *monticola* (1915, Ibis, Jub. Supp., No. 2, p. 100), this seems to give *dichrous* a discontinuous distribution.

**Pitohui incertus** van Oort

Oroville Camp: 1 ♂ ad., August 12.

Palmer Junction Camp: 2 ♂ ad., 1 ♀ ad.; May 26–June 6.

I have already reported on this rare

species hitherto known only from the Noord River (1938, Amer. Mus. Novitates, No. 991, p. 11).

**Pitohui ferrugineus ferrugineus**

(Bonaparte)

Black River Camp: 2 ♂ ad., 1 ♂ imm., 2 ♀ ad.; June 25–July 6.

Palmer Junction Camp: 7 ♂ ad., 1 ♂ imm.; May 23–29.

Oroville Camp: 1 ♂; August 9.

Taken from about 50 meters to 100 meters altitude.

WING.—♂ ad. (10) 132–148 mm. (av. 141.7); ♀ 140, 143.

This series is rather uniform. It is somewhat darker than the birds from the middle and lower Fly River, and paler than *heurni* from the south slopes of the western Snow Mountains, Weyland Mountains area and the Idenburg River. Compared with *ferrugineus* from Arfak the present series is indistinguishable.

The race *heurni* is an easily separable form. Junge (1939, Nova Guinea, [N. S.] III, p. 43) has shown that the type of *ferrugineus* is like Arfak birds, and that name must be used for them.

**Pitohui ferrugineus clarus** (A. B. Meyer)

Tarara: 1 ♂ ad., 3 ♂ imm., 5 ♀ ad., 1 ♀ imm.; December 11–January 20.

Sturt Island: 2 ♂ ad.; October 8–November 1.

Lake Daviumbu: 2 ♂ ad., 2 ♀ ad.; August 26–September 9.

All stations are little above sea level.

WING.—♂ ad. 138 mm., 138, 139, 139, 141; ♀ ad. 134, 135, 136, 141, 141, 143, 143.

This series compares well with southeast New Guinea birds. This seems to be the most westerly in south New Guinea from which this race has been reported.

Breeding birds were taken in August (3), October (1) and November (1); a nest with eggs was found October 22 at Sturt Island. The nest was eight feet up in a multiple fork of a slender substage tree; it was a deep, cup-shaped structure composed externally of slender sticks, many pieces of slender, woody vines, some root-

lets and weathered plant fiber; within that was a layer of dead leaves from forest trees, laid flat, and there was a lining of fine, woody stems and tendrils of some climbing plant. It measured outside 170 by 130 mm. deep (disregarding untidy ends), and inside, 100 by 70 mm. deep.

It contained one egg that was: shape elongate ovate; gloss medium; shell smooth; color pale purplish pink marked with dark chocolate brown and secondary gray spots and dots, arranged chiefly in a narrow zone about the larger end; size 36 by 23.4 mm. The adult was seen incubating.

**Artamus leucorhynchus leucopygialis**  
Gould

Daru: 7 ♂ ad., 2 ♀ ad.; March 8–April 12.

Mabadauan: 2 ♂ ad.; April 22, 23.

Sturt Island Camp: 1 ♂ ad.; October 21.

Lake Daviumbu: 4 ♂ ad., 3 ♀ ad.; August 26–September 30.

Oroville Camp: 1 ♂? ad.; August 9.

Found up to about 100 meters altitude.

WING.—♂ (12) 124–131 mm. (av. 127.3); ♀ 122, 123, 126, 126.

Oroville Camp was as far inland as this species was observed.

At Daru this was a common bird about the gardens, township and savanna. It was usually seen in parties up to twenty-five in number. These flocks may spend long periods on some conspicuous perch, such as the top of a dead tree where the birds line up close together along the branches. Occasionally a bird launches out and after flying and soaring about for a few moments may return to the perch. Their call, a "chee chee," is often given. When feeding, the birds fly and soar about over the tree tops, keeping in a loose, open flock, calling frequently and securing their insect prey on the wing. They do not soar so much, nor do they fly so high, as does their mountain relative, *Artamus maximus*.

From my experience with this bird in southeast New Guinea, where it was very common on the savanna at Rona, I had come to consider it a typically savanna bird. Yet I found a pair at Sturt Island perched on a dead tree leaning out over the

water, and some distance above the Fairfax group I saw several birds, including one carrying nesting materials, and on this part of the river the banks were completely wooded.

At Lake Daviumbu this bird was uncommon in the low *Banksia* savanna until the savanna grass was burned, when it became common.

Breeding birds were taken in September and October, and a nest was found September 29 at Lake Daviumbu. It was set in a deep fork close to the trunk where many small lateral branches helped support it, about ten feet up in one of the gnarled *Banksia* trees in the low, open *Banksia* savanna. The nest was completely hidden from the ground; it was a cup-shaped, rather firm structure composed outside of coarse grass blades and one large leaf; inside fine grass stems and some fine semi-woody stems furnished the lining. It measured 160 by 75 mm. deep outside; 80 by 50 mm. deep inside. It was collected with one egg and the female ready to lay, so the clutch was probably two eggs. The egg had a smooth shell with medium gloss; color white with markings of dots, spots and irregular marks of light earthy brown and secondary gray plentifully scattered over the shell.

**Aplonis cantoroides** (Gray)

Daru: 3 ♂ ad., 1 ♀ ad., 1 ♀ imm.; April 26–July 4.

Found near sea level.

WING.—♂ ad. 106 mm., 106; ♀ ad. 102; ♀ imm. 102.

**Aplonis mystacea** (Ogilvie-Grant)

Palmer Junction Camp: 1 ♀ ad., 1 ♂ imm.; May 23.

Black River Camp: 1 ♂ ad.; July 26.

Oroville Camp: 1 ♂ ad., 1 ♂ imm.; August 8, 11.

WING.—♂ ad. 103 mm.; ♂ imm. 97, 98.

I have already recorded this series (1938, Amer. Mus. Novitates, No. 991, p. 12).

This is the third time this rare species has been collected.

**Aplonis metallica metallica** (Temminck)

Mabadauan: 1 ♂ imm., 1 ♀ imm.; April 16.

Daru: 1 ♂ imm.; April 2.

Gaima: 3 ♀ imm.; November 13.

Sturt Island Camp: 5 ♂ ad., 1 ♂ imm., 2 ♀ ad., 2 ♀ imm.; October 23–November 2.

Palmer Junction Camp: 1 ♀ ad., 1 ♂ imm.; June 1.

Found up to 100 meters altitude.

WING.—♂ ad. 108 mm., 109, 110, 112, 117; ♀ ad. 101, 105, 109.

The usual food of this glossy starling is the fruit of forest trees, but at Daru they came into our yard to eat small, ripe red peppers, and at Gaima I saw them feeding on large flying ants that were swarming. The starlings perched on the tops of trees and flew out after the insects flycatcher fashion.

Two October birds and one November bird were in breeding condition.

**Melanopyrrhus anais robertsoni**  
(D'Alberty)

Palmer Junction Camp: 2 ♂, 3 ♀; May 16–June 2.

Black River Camp: 1 ♂, 3 ♀; July 2–7.

Found at 80 and 100 meters altitude.

WING.—♂ 136 mm., 142, 143; ♀ 142, 142, 143, 145.

This series is nearly topotypical. Only two specimens have no black feathers in the back of the head; in three specimens there is only a single black feather each; two have two black feathers apiece, and the other two each have a small black area in the yellow of the back of the head. Five specimens have a few yellow markings on the auricular area; the four others have none.

This starling was a fairly common bird about the camps on the Palmer River, where it was usually found in small parties, perching on exposed tree tops or feeding on the fruit of tall forest trees. It was a noisy bird, and in addition to hoarse calls and whining, whistled cries it had a short, sweetly whistled song. In July I watched two birds about the natural holes in a big

forest tree, and the behavior of the birds suggested that they nested in these holes. Breeding females were taken in May (1) and July (2).

**Mino dumontii dumontii** Lesson

Tarara: 4 ♂, 3 ♀; December 9–January 21.

Mabadauan: 1 ♀; April 16.

Daru: 1 ♂, 2 ♀; March 30, April 7.

Gaima: 1 ♂; November 11.

Sturt Island Camp: 8 ♂, 5 ♀; October 8–November 1.

Lake Daviumbu: 3 ♂, 2 ♀; August 28–September 6.

Oroville Camp: 1 ♀; August 11.

Palmer Junction Camp: 1 ♀; May 20.

Black River Camp: 5 ♂, 4 ♀; June 22–July 10.

Found up to 150 meters altitude.

WING.—♂ (20) 136–153 mm. (av. 145.7); ♀ (14) 136–148 (av. 143.7).

For a discussion of races, see White, 1938, Ibis, (14) II, pp. 150–152, and Junge, 1939, Nova Guinea, (N. S.) III, pp. 70–72.

This species was fairly common and occurred in the denser savanna as well as in the forest. It often gathered with *Melanopyrrhus* to feed noisily in the top of some fruit tree but was more often seen in pairs or small parties. One August and one September female were laying.

**Oriolus szalay** (Madarász)

Lake Daviumbu: 3 ♂, 4 ♀; August 28–September 19.

Found near sea level.

WING.—♂ 135 mm., 142, 146; ♀ 141, 142, 143, 145.

This oriole was not uncommon at Lake Daviumbu where it was usually found singly, well up in the forest on the lake shores, and in the denser savanna and savanna forest. It fed on the fruits of forest trees. It had a pleasing song of several rich, full notes. All the specimens collected were in breeding condition. Two nests were found at Lake Daviumbu, on September 2 and 19. One nest was twenty-five feet up in a lateral fork of a slender tree in a dense stand of flooded tea

tree and swamp mahogany, some fifty yards from rain forest; the other was thirty feet up near the end of a lateral branch of a tree in the open forest between lake shore and rain forest. Both nests were unconcealed and visible for some distance. The two nests were similarly pensile, rough, firm cups, suspended in forks by the edges of the cups being carried over the arms of the forks. The bulk of one nest was composed of fresh strips of the reddish bark of the swamp mahogany (*Tristania*) with some weathered fibers, especially on the outside. In the bottom of the nest was a lining of fine grass and semi-woody stems. It measured outside 180 by 100 mm. deep; inside, 75 by 60 mm. deep. The other nest was similar but without the weathered fibers, and with flakes of tea tree bark pressed into the nest. The lining contained some strips of *Tristania* bark. Each nest contained two eggs. They were: shape ovate; shell smooth, gloss medium; color very pale brownish white with markings of spots and dots of various shades of chocolate brown and secondary grays most plentiful on the larger end; size 32.2 by 22.8 and 32.3 by 22.7 mm.

***Oriolus flavocinctus mülleri* (Bonaparte)**

Bugi, 3 miles east of the mouth of Mai Kussa River: 1 ♀; January, 1937.

Taken at sea level.

WING.—141 mm.

I have already recorded this specimen (1938, Amer. Mus. Novitates, No. 991, p. 12).

***Oriolus sagittatus magnirostris* van Oort**

Tarara: 1 ♂ ad., 2 ♀ ad.; December 9, 30.

Penzara: 1 ♂ ad.; December 16.

Found near sea level.

WING.—♂ 139 mm., 146; ♀ 140, 141.

***Cracticus cassicus cassicus* (Boddaert)**

Tarara: 1 ♂ ad., 1 ♀ ad.; December 31, January 23.

Sturt Island Camp: 1 ♂ ad., 1 ♀ ad.; October 11, November 1.

Lake Daviumbu: 3 ♀ ad.; August 25, September 2.

Palmer Junction Camp: 4 ♂ ad., 1 ♂ imm., 1 ♀ ad., 1 sex?; May 17–20.

Black River Camp: 2 ♀ ad.; June 15, 30.

Found up to 150 meters altitude.

WING.—♂ ad. 156 mm., 159, 159, 160, 163, 167; ♀ ad. 155, 155, 157, 158, 159, 160, 164, 165.

***Cracticus mentalis mentalis* Salvadori and D'Albertis**

Bugi: 1 ♀ ad.; 1936.

Tarara: 1 ♂ ad., 1 ♂ imm., 2 ♀ ad., 2 ♀ imm.; December 28–January 24.

Penzara: 1 ♀ ad.; December 18.

Lake Daviumbu: ♂, ♀; August 30–September 28.

Found near sea level.

WING.—♂ ad. 147 mm., 155; ♀ ad. 142, 143, 146, 147.

The white throated butcher-bird was fairly common at Lake Daviumbu in the taller and denser savanna, and occasionally in the edge of the forest. It was common in the savanna near the coast.

It usually hunted for its insect prey by moving slowly about through the branches of the trees, but at Tarara it was often found near the ground, apparently seeking prey there. The loud song of several notes is sometimes accompanied by a raising and lowering of the wing tips.

Breeding birds were taken in August, September and November. A nest with three eggs was found September 29 at Lake Daviumbu. It was seventy-five feet up near the top of a tree along the lake shore, where it was bordered by savanna. The nest was a shallow, basin-shaped structure, thin enough to see light through, but firmly put together, placed in an upright, multiple fork. The base was composed of sticks, and in this was a layer of fine woody and semi-woody stems of some creeper, and some rootlets. The lining was of finer rootlets. It measured outside 150 by 70 mm. deep; inside, 100 by 40 mm. deep. The eggs were ovate; shell fairly smooth; gloss medium; color pale grayish brown with markings of a wide, dense wreath of dark, earthy brown spots and blotches about the larger end and sparingly scattered over the

rest of the shell; in one egg the spots do not fuse to form a wreath; size of two of the eggs 29.4 by 22.2 and 28.7 by 21.6 mm.

The eggs were nearly ready to hatch, and the embryos had buffy brown down present as a line above the eye, two lines on the crown, a pair of tufts on the nape, on the feather tracts of the lower back and rump, on the humeral and femoral tracts and on the wings. A small white egg tooth was present.

Both male and female visited the nest while I watched it. The incubating bird left the nest when the boy who climbed to the nest was fifteen feet from it. Neither bird came into the tree while the boy collected the nest.

***Cracticus quoyi quoyi* (Lesson)**

Daru: 4 ♂, 2 ♀; March 9–June 1.

Found near sea level.

WING.—♂ 185 mm., 189, 197, 197; ♀ 174.

***Gymnorhina tibicen papuana* Bangs and Peters**

Tarara: 1 ♂ imm., 1 ♀ imm.; December 23, 31.

Found near sea level.

WING.—♀ imm. 225 mm.

Both birds are undergoing a complete moult into adult plumage.

The magpies were fairly common in the more open savanna, where they fed on the ground in parties of three or four and flew far across the savanna to light on the tops of tall savanna trees when disturbed. Their sonorous, whistled calls carry far through the savanna. Though fairly common, they were very wary and difficult to secure. The stomach of one bird contained insects. Neither bird was breeding.

***Dicrurus bracteatus* Gould**

Bugi: 1 ♀ ad.; January 3.

Daru: 1 ♂ ad., 2 ♀ imm., 1 sex? ad., 1 sex? imm.; March 6–April 7.

Gaima: 5 ♂ imm., 3 ♀ imm.; November 10–20.

Found near sea level.

I have already discussed this series and the reasons for separating it from *carbon-*

*arius* (1938, Amer. Mus. Novitates, No. 992, pp. 2, 3).

***Dicrurus carbonarius carbonarius*  
Bonaparte**

Tarara: 4 ♂ ad., 5 ♀ ad., 2 ♀ imm.; December 26–January 23.

Gaima: 1 ♀ ad.; November 17.

Sturt Island Camp: 2 ♂ ad., 2 ♀ ad., 1 sex? imm.; October 9–25.

Oroville Camp: 1 ♂ ad., 1 ♀ ad.; August 9, 11.

Palmer Junction Camp: 3 ♂ ad., 1 ♀ ad.; May 8–29.

Black River Camp: 6 ♂ ad., 4 ♀ ad.; June 15–July 19.

Found up to 150 meters altitude.

WING.—♂ ad. (10) 147–155 mm. (av. 150.8); ♀ ad. (10) 137–148 (av. 143.4).

For a summary of measurements of this form from various parts of New Guinea, see Junge, 1939, Nova Guinea, (N. S.) III, pp. 67–69.

Two birds in breeding condition were taken in October.

***Corvus macrorhynchus salvadorii* Finsch**

Penzara: 1 ♂; December 17.

Tarara: 2 ♂; December 20, 29.

Daru: 1 ♂; March 4.

Gaima: 1 ♂; November 14.

Lake Daviumbu: 1 ♂, 1 ♀; September 19.

Found near sea level.

WING.—♂ 315 mm., 319, 319, 323, 326, 335; ♀ 306.

None of these birds is fully adult, each having at least a few immature feathers. These differ from three Arfak and three Hollandia birds in the slightly bluer, less purplish upperparts, and in the more greenish blue outer edges of the outer remiges and especially the primary coverts. In this they agree with a southeast New Guinea bird. Stresemann and Paludan (1935, Mitt. Zool. Mus. Berlin, XX, p. 458) have recorded a single specimen from Sepadium (south New Guinea) as the Australian race *ceciliae* Mathews. Further material from the Merauke area is needed to substantiate this.

The crows are not forest birds and so are

conspicuous, but the number seen on the expedition was small, and they were always wary. At Daru two or three birds were often seen along the beach where they fed, and occasionally they were seen in the savanna. At the other camps recorded they were scarce, shy savanna birds. The call was a hoarse, weak "ka." Two stomachs examined contained fruit.

**Gymnocorvus tristis** (Lesson and Garnot)

Sturt Island Camp: 2 ♂ ad., 2 ♀ imm.; October 8–November 1.

Oroville Camp: 1 ♂ ad.; August 10.

Palmer Junction Camp: 1 ♀ ad.; May 14.

Black River Camp: 2 ♂ ad., 2 ♀ ad.; June 19–July 10.

Found up to 150 meters altitude.

WING.—♂ ad. 298 mm., 308, 327, 328, 337; ♀ ad. 313, 321, 326; ♀ imm. 302, 308.

Of the adults one male and one female are in the dark phase; the other six adults are in the pale phase. Both immature birds are in the pale phase.

The birds in the pale phase are somewhat darker than are birds in similar plumage from north and northwest New Guinea, but the individual variation is great in this species, and wear and fading change the plumage greatly, so that I prefer to await the completion of collecting in New Guinea before attempting to decide on geographic variation.

The gray crow was a fairly common forest bird, usually found in parties of five or six. It fed on various fruits in the tops of forest trees, and the fruit of a climbing arum was one of its favorites. Fruit of a pandanus was also found in one stomach. Occasionally a party was found walking along a beach at the river margin, perhaps in search of fruits that might have been washed up there. They were wary birds, difficult to approach. In the forest the whole party frequently breaks into a chorus of hoarse calls, a "ka" repeated a number of times. This call has an excited sound, as though the birds were scolding some predator, and many times I hurried to investigate, but I never found they had any cause for their excitement. A male in

breeding condition was taken in June and another in August.

**Manucodia ater ater** (Lesson)

Tarara: 1 ♂ ad., 1 ♀ imm.; December 24, 27.

Bugi: 2 ♀ ad.; January 4.

Sturt Island Camp: 1 ♂ imm., 1 ♀ ad.; October 9, November 2.

Fly River, 50 miles above Everill Junction: 1 ♂ ad.; May 9.

Black River Camp: 1 ♀ ad.; July 5.

Mt. Mabiom: 1 sex? imm.; July 18.

Found up to 750 meters altitude.

WING.—♂ ad. 172 mm., 183; ♀ ad. 173, 179, 180.

I agree with Junge (1939, Nova Guinea, [N. S.] III, p. 91) that these birds are the same as the Arfak birds.

For an account of the breeding habits of these birds, see 1938, Amer. Mus. Novitates, No. 993, pp. 1–7.

**Manucodia chalybata** (Pennant)

Sturt Island Camp: 1 ♂ ad.; October 30.

Palmer Junction Camp: 1 ♂ ad., 3 ♀ ad.; May 16–31.

Black River Camp: 1 ♂ ad., June 27.

Found up to 100 meters altitude.

WING.—♂ ad. 166 mm., 170, 177; ♀ ad. 161, 162, 163.

For comparative measurements, see Junge, 1939, Nova Guinea, (N. S.) III, pp. 91–93. Two May females and a June male were in breeding condition.

**Phonygamus keraudrenii jamesii**

Sharpe

Sturt Island Camp: 1 ♂ imm.; October 18.

Lake Daviumbu: 1 ♂ nestling; August 19.

Palmer Junction Camp: 4 ♂ ad., 1 ♀ ad., 1 ♀ imm.; May 25–31.

Black River Camp: 1 ♂ ad., 1 ♀ ad.; June 30, July 2.

Found up to 100 meters altitude.

WING.—♂ ad. 158 mm., 161, 163, 163, 169; ♀ ad. 163, 164.

Five Arfak birds have the following wing measurements: ♂ ad. 153 mm., 159; ♀ 150, 150, 159. One male adult from Baroka



(southeast New Guinea) has a wing of 170 mm. The present series differs from the Arfak series in the much longer tufts on the head and the large size. In this they agree with the Baroka bird. The present series have an even more bluish gloss on the back than the Baroka bird; however, three of the Arfak birds have a bluish gloss on the upperparts, two a purplish gloss. The race *purpurioviolacea* is quite distinct in its very rich purple coloration.

For an account of the breeding behavior, see 1938, Amer. Mus. Novitates, No. 993, p. 7.

**Ptiloris magnifica magnifica** (Vieillot)

Palmer Junction Camp: 1 ♀; May 27.

Black River Camp: 1 ♂ imm.; June 25.

Found at 80 and 150 meters altitude.

WING.—♂ imm. 186 mm.; ♀ 157.

The loud, deep calls of this bird were commonly heard in the forest, but it was very difficult to find the bird, which continually moved from tree top to tree top far ahead of one.

**Seleucidus ignotus ignotus** (Forster)

Palmer Junction Camp: 1 ♀?; May 24.

Black River Camp: 1 ♂ ad., 1 ♂ imm., 2 ♀ ad.; June 13–July 2.

Found up to 100 meters altitude.

WING.—♂ ad. 179 mm.; ♂ imm. 177; ♀ ad. 161, 163.

**Diphyllodes magnificus hunsteini** Meyer

Palmer Junction Camp: ♂ ad., ♀; May 27, 30.

Mount Mabiom: ♂ ad., ♀; July 16, 19.

Found at 100 and 750 meters altitude.

WING.—♂ ad. 115 mm., 116; ♀ 107, 110.

Compared with a series of two males and three females from the type locality of *intermedius* (including the type), the present males have deeper, richer orange secondaries and a more deeply colored crown; the females are more rufous olive above. In this they compare well with birds from southeast New Guinea.

**Ciccinnurus regius rex** Scopoli

Palmer Junction Camp: 1 ♂ ad., 1 ♂ imm., 1 ♀; May 15–22.

Black River Camp: 1 ♂ imm.; August 2.

Found at 80 and 100 meters altitude.

WING.—♂ ad. 96 mm., ♂ imm. 96, 102.

These compare well with Mimika River birds.

For notes on the breeding behavior of this bird, see 1938, Amer. Mus. Novitates, No. 993, pp. 7, 8.

**Paradisaea apoda novaeguineae**

D'Alberty and Salvadori

Lake Daviumbu: 2 ♀; August 20, 31.

Found near sea level.

WING.—♀ 170 mm., 171.

These are very like four females from the Setekwa River. The only difference is a slight yellowish tinge to the nape of one of the Lake Daviumbu birds, which might be attributed to hybridization with *salvadori*.

While *P. a. salvadori* was a common bird on the upper and lower Fly River, this race was a rare bird about Lake Daviumbu. One of the females had an enlarged ovary.

**Paradisaea apoda salvadorii** Mayr and Rand

Tarara: 1 ♀; December 23.

Palmer Junction Camp: ♂ ad., ♀; May 17, 25.

Black River Camp: 1 ♂ ad.; July 17.

Found up to 100 meters altitude.

WING.—♂ ad. 189 mm., 191; ♀ 156, 168.

These birds are typically *salvadori*, without a trace of hybridization with *novae-guineae*.

This was a common bird on the upper and lower Fly River.

**Xanthomelus aureus ardens** D'Alberty and Salvadori

Black River Camp: 2 ♂ ad.; July 9, 20.

Tarara: 1 ♂ imm.; December 11.

Found up to 100 meters altitude.

WING.—♂ ad. 135 mm., 139; ♂ imm. 137.

The immature male is in a strange plumage. The breast and belly are only slightly paler than in the adult male; the chin and upper throat are pale yellow; there is an indication of lengthened feathers

to form a cape, especially on the sides of the neck, but they are pale, faded olive, as are the upperparts. Wings and tail are similar to those of the female. The plumage of the head and back is very faded and worn, grayish olive on the back and brownish gray on the head. A few new feathers are coming in. On the back they are dark olive like the female; on the nape and over the eyes they are orange. If this is not an abnormal plumage, as the texture of the dorsal feathers suggests, it may indicate that several years are necessary for this bird to assume adult plumage.

On second-hand, local evidence I have previously recorded that the species did not occur near the coast (1937, Bull. Amer. Mus. Nat. Hist., LXXIII, p. 203). On the 1936-1937 expedition, after I secured a specimen near the coast (Tarara) and saw others, the resident natives still told me it did not occur there. This is a fitting comment on the reliability of information from some New Guinea natives, whom Mr. F. E. Williams characterizes truly as "indifferent hunters" (1936, *Papuans of the Trans-Fly*, Oxford Univ. Press).

### *Chlamydera cerviniventris* Gould

Penzara: 1 ♂ nestling; December 15.

Tarara: 1 ♀ ad.; December 8.

Gaima: 1 ♂ ad.; November 15.

Lake Daviumbu: 2 ♂ ad., 1 ♀ ad.; September 12, 17.

Found near sea level.

WING.—♂ 147 mm., 150, 151; ♀ 138, 150.

This bower bird is fairly common and characteristic of the savanna and ventures into the edge of lighter forest. Though frequenting open savanna, its bowers, which were found commonly, were always in a place protected by vegetation—under a shrubby tree in the savanna, in the denser forest fringing the lake at Daviumbu, or even in the edge of the rain forest. The bowers varied greatly in size, but the construction was rather uniform; they were composed almost entirely of slender, unbranched sticks and formed a very firm structure. They consisted of the runway, a thick, solid floor with a wall of vertical sticks embedded in it to form the

walls, and spreading platforms of sticks at each end of the passageway. One platform was usually larger than the other, and it was this platform which had most of the decorations, though they were also on the upper edge of the passageway, along its bottom, and a few on the smaller platform. These decorations were usually green fruits; occasionally a few green fleshy leaves were also used. Withered fruits were replaced with fresh ones. The following are the measurements of a large, well-formed bower: total length 1,200 mm., passageway 550 mm. long and 300 mm. high inside, 500 mm. high outside; one platform measured 600 mm. across by 150 mm. thick, the other, 500 by 100 mm. thick.

Though I spent many hours watching bowers of these birds, often with one bird in attendance, the resulting observations were of little importance. I saw only one bird at the bower, presumably the male, cleaning it, and replacing decorations. He spent much of his time near the bower, when not at it, and frequently called. Some of these calls I have recorded as: "a hissing chee-chee-chee," "a series of ke's, some harsh, then changing to metallic," "a sharp kuk or ku," "a metallic ke-ke," "a whistled ke-ke, ke-ke," "ku-e-e-e the last part drawn out and hissing or whistled," "a hissing tschee," and throaty, rolling calls followed by a short, harsh scream. Though the repertoire was varied, there was always a similar quality to the voice that made it distinctive. Occasionally the male made long trips from the bower to secure decorations.

Unable to see more than one bird at the bower, I placed a mounted female at one end of the passageway. Upon the male's return he at once attempted copulation with the mount, and again in about ten minutes. However, after that the male spent some hours merely watching the mount from some little distance.

Birds in breeding condition were taken in September (3) and December (1), and a nest was found in December.

The nest, shown me by the natives who had shot the female, contained a single, half-grown young. The nest was fifteen feet up in the fork of a tree in open savanna.

It was a loose structure of small sticks, and the nearest bower was about 150 yards away.

Another comment on the natives' knowledge of natural history is that the name given me for the bird that built this nest was different from the name given me for the bird that builds the bower of this species (the sexes are alike).

***Ailuroedus melanotis melanotis* (Gray)**

Tarara: 2 ♂ ad., 1 ♀ ad., 1 ♀ imm.; December 8, 11.

Lake Daviumbu: 2 ♂ ad., 1 ♀ ad., 1 ♀ imm.; September 4-30.

Found near sea level.

WING.—♂ 145 mm., 159, 162, 165; ♀ 148, 159.

These birds appear identical with Aru Island birds; *facialis* is quite different.

It is interesting that I found this species only on the middle Fly River and near the coast, while I found *A. buccoides* only on the upper Fly River where this species did not occur.

At Tarara this was a common bird of the rain forest but was shy and more often heard than seen. It was frequently well up in the lower tree tops, and once I saw three fly out and perch on a tall, dead tree in the open near the forest edge. The large head and heavy bill gave them a very distinctive appearance. The call was a loud, drawn-out "eyou-au-au." At Lake Daviumbu the species was either very shy or very scarce in the forest; few were seen.

A nest was found at Tarara December 12, 1936. It was ten feet up in a fork near the top of a slender substage tree in the light rain forest with a very open undergrowth and substage. The nest was a bulky cup of sticks and dead leaves, similar to the Lake Daviumbu nest described below.

At Lake Daviumbu a nest was found on September 25. It was in the rain forest where there were few tall trees, but the low substage provided a dense low canopy; low palms, pandanus and slender vines were common; shade was heavy, and fallen sticks and logs were moss grown, the ground littered with dead leaves. It was difficult to see far.

The nest was in the main fork of a

slender, substage tree, about eight feet from the ground. It was a large, loose, bulky structure of slender, dead sticks with a rather neat, firm cup placed in its center. The outside of this cup was entirely of large dead leaves, mostly of forest trees, laid flat, and inside this was a scanty lining of slender, woody stems which was more substantial about the rim of the nest. A quantity of fresh fruit pulp and seeds was in the bottom of the nest. The outside of the triangular nest measured about 475 mm. on each side and 160 mm. deep. The cup measured: outside 185 by 100 mm. deep; inside 135 by 85 mm. deep. The position of the nest in the fork of a slender forest tree appears typical for this species in Australia according to Campbell (1901, Nest and Eggs of Australian Birds, I, p. 195).

One nest contained two eggs, the other one young.

The unmarked, light olive brown eggs of this species from Australia have been described and figured by Hartert (1910, Nov. Zool., XVII, p. 485, Pl. x) and Schönwetter (1929, Nov. Zool., XXXV, p. 206); the two eggs found by me measured 27 by 40 and 23 by 39 mm.

The nestling bird of Lake Daviumbu, on September 25 when the feathers were just projecting through the skin, had the skin of the upperparts blackish, below dusky flesh. On September 29, when I collected it the longest primary was 22 mm. long but none of the feathers had started to break from its sheath. It had soft parts as follows: bill yellowish white, a small white egg tooth present, gape whitish, inside of mouth orange yellow, tongue flesh, feet fleshy white, scutes beginning to turn gray.

The young was rather well clothed with down, the down reaching about 19 mm. in length on the lower back. It was present on the top and sides of the head, on the chin and throat where no feathers had started to push through the skin, on the ends of the feathers of the dorsal tract except for its anterior quarter, on the single row of upper and under tail coverts present, on the humeral and femoral tracts, on the distal end of the tibia, on the lesser, median and greater wing coverts, and very

much reduced on the greater primary coverts. The natal down was quite evident on the inner secondaries but became reduced toward the outside until there was but a mere trace on the primaries. On the end of each of the rectrices there is a very small bit of down. On the underparts the short down was present on all the ventral feather tract.

The color of the down on the live specimen was recorded as: above, dark gray tinged rufous; below, gray.

At the Tarara nest, containing eggs, I concealed myself about sixty yards from the nest and watched for some time. Both adults came about the nest together, and one visited it several times, but they were too disturbed by my presence to brood.

On three different days I spent some time watching the Lake Daviumbu nest. On September 25 I did not distinguish at first between the two birds by plumage as I was able to do later. On this date only one bird came to the nest at a time, but I could see only a few yards into the forest beyond, and the very short time (two or three minutes) between the moment a bird left and one came to the nest made me suspect that both male and female were present. And, finally, I realized that the sexes differed in plumage, the male (as I found it to be when collected later) was darker and more richly colored, especially on the forehead and breast.

The next day, able to distinguish between the sexes, I made the following observations:

11:25 Female came, fed and occupied itself with materials in nest, apparently picking up things from the bottom of the nest, then began to brood.

11:32 Female left, and immediately male arrived, fed, looked at young a moment and then left.

11:50 Male came to nest, fed, looked at young a moment, then left.

11:52 Female arrived with food in bill (the first time I have been able to see anything in a bird's bill), appeared to feed twice, and then eat what was left in bill, spent a few moments occupied with something in bottom of nest, then started to brood.

11:54 Female left nest.

12:12 Male flew to rim of nest but left without feeding.

12:15 Female came, appeared to feed young, then spent some time in standing on rim of

nest, peering down into it, and apparently picking up something from bottom of nest and eating it. Then a large lump of reddish material (fruit pulp?) appeared in bill, was moved about a few times and then deposited in nest. This occupied five minutes, then female began to brood.

12:21 Male appeared in background, female at once left nest and male came directly to nest, carrying something in its bill, quickly fed the young which was giving little hunger calls; male with head on one side watched young for a moment, then left.

12:46 Male came, fed two or three times, watched young for a moment, then left.

1:04 Female lit on edge of nest, peered into nest, appeared to pick up a few scraps from nest but did not feed, then started to brood.

1:10 Female left.

Observations discontinued.

In two hours and ten minutes the female visited the nest four times and the male five times.

The female brooded each time she visited the nest, for periods varying from one to six minutes. The male stayed but a few moments each visit and while it fed it did not brood nor did it occupy itself with the material in the bottom of the nest. For three periods of eighteen minutes and one of twenty-five minutes no adult was at the nest.

Both birds were silent about the nest, though I could sometimes hear the hunger call, a harsh "car-r-r-r-," of the young. Some of the activities suggest that the food in the bottom of the nest is a reserve store, and at times the adults eat some of this, perhaps replacing it with fresh.

On September 29 I collected the male at the nest, proving that my earlier suppositions about sexes were correct. I left a boy to collect the female and bring in the nest, which he did.

The male had in its stomach the seeds of a common forest tree and the seeds of a fan palm. The female had purple fruit pulp and seeds of a pandanus.

The young is evidently fed on fruit, as on each occasion that I looked at it, the down of its head was wet with fruit juice, and a seed or two was sticking to the side of its neck. With this evident wide range of food, most of which is abundant in the forest, it is interesting to note that the fan palms grow only on the forest edge, so that

these birds must go several hundred yards for them, when there is other fruit closer.

**Ailuroedus buccoides buccoides**

(Temminck)

Palmer Junction Camp: 1 ♂ ad., 1 ♂ imm., 1 ♀ ad.; May 24, June 17.

Black River Camp: 1 ♀ ad.; June 20.

Found from 80 to 150 meters altitude.

WING.—♂ 137 mm.; ♀ 133, 133.

These compare well with a series from the south slope of the Snow Mountains; *stonii* has a much darker crown.

A laying female was taken in May.

**Cinnyris sericea sericea** Lesson

Tarara: 6 ♂ ad., 1 ♂ imm.; December 8–January 5.

Gaima: 3 ♂ ad., 2 ♂ imm.; November 11–22.

Sturt Island Camp: 1 ♂ ad., 2 ♂ imm., 2 ♀; October 10–November 2.

Lake Daviumbu: 7 ♂ ad., 2 ♂ imm., 3 ♀; August 22–September 25.

Palmer Junction Camp: 4 ♂ ad., 2 ♀; May 23–June 3.

Black River Camp: 3 ♂ ad., 2 ♂ imm., 3 ♀; June 5–July 18.

Found from sea level to 100 meters.

WING MEASUREMENTS

Locality	Male ad.	Male imm.	Female
Tarara	57 mm., 58, 58, 59, 61	55	
Gaima	60, 61, 61	57, 58	
Sturt Is- land and Daviumbu	58, 59, 59, 60, 61, 61, 63	57, 58, 60, 60	53, 53, 53, 54, 54
Palmer Junction and Black River	60, 62, 62, 62, 62, 64	55, 58	53, 54, 55, 55, 55

Thus the upper Fly River birds average slightly larger.

Most of the immature males had somewhat enlarged gonads, indicating that they perhaps breed in immature plumage.

The black sunbird differs from the yellow sunbird in being a true forest bird, though it also feeds out into the edge of the forest, savanna and second growth. It was found commonly at all our camps except at Daru. It is a bird of quick, active movements, gleaning in the upper part of the

forest and descending into the low shrubbery along the forest edge. It feeds about the flower trees of the forest with various small honeyeaters.

Breeding birds were taken in January (1), May (2), June (3), July (1), August (1), September (5), November (3) and December (3); a nest was found at Lake Daviumbu September 30. It was a typical pensile sunbird nest, attached to a lawyer cane thirty feet up in the forest. It was a fairly neat, oval structure, with a projection over the entrance on the side at the top. Outwardly, it was composed of fine black fibers and many flakes of reddish bark; inside it differed in having different, gray-colored fibers; there was no lining. It contained one egg that had a smooth shell, slight gloss and in color was pinkish brown, heavily marked all over with deeper purplish brown.

**Cinnyris jugularis frenata** (S. Müller)

Tarara and Penzara: 2 ♂; December 14, 20.

Daru: 6 ♂, 2 ♀; March 20–April 11.

Gaima: 3 ♂, 1 ♀; November 12–20.

Lake Daviumbu: 4 ♂, 5 ♀; August 19–September 24.

All stations little above sea level.

WING.—♂ (10) 53–58 mm. (av. 55.9); ♀ (8) 49–53 (av. 51.1).

The Daru Island birds are slightly larger and paler than mainland birds, but this difference is trifling.

The yellow sunbird was found only about the edge of the forest, in second growth and about gardens, villages and settlements. It was not found far into the forest or savanna.

It was fairly common at Tarara; common at Daru, about the shade trees of the settlement and gardens, nesting on the verandas; fairly common at Gaima and Lake Daviumbu.

Breeding specimens were taken in March, April, August, September, November and December. A nest in construction was found at Daru February 28, and another August 26 at Lake Daviumbu.

The nests are oval, pensile structures with a short "rope" for attachment, a projecting "tail" and a slight projection over

the entrance on the side near the top. One nest was composed externally of weathered fibers, bits of leaves and animal silk. The attachment and the downward projection below the nest were of the same material. It was well lined with feathers and cotton wool. The other nest was composed of weathered grass blades, pieces of pandanus leaves and fine strips of bark, with a small amount of animal silk that helped bind it together. It was well lined with feathers, apparently from herons.

The Daru nest was attached to the end of a rope hanging down from the roof of Beach's veranda; the Lake Daviumbu nest was three feet up, attached to the end of a branch on a low tree on the edge of a second-growth-covered little island in the lake. The nest faced out over the water and was completely unconcealed.

The Daru nest contained two eggs on March 20; the Lake Daviumbu nest one egg on September 9. The two eggs (not collected) were very similar; ovate in shape, ground color bluish white, heavily mottled with dark brownish, more or less overlaid with gray, the mottling nearly completely covering the larger end of the egg. They measured 16.5 by 11.5 and 16.5 by 12 mm.

At Daru pairs of birds, male and female, were frequently seen, but the female alone built the nest, unaccompanied by the male. On February 28 I first saw the Daru nest, when it was simply a strand or rope of material without any nest chamber in it. The next day, March 1, there was a cavity in this rope of material, and this had apparently been forced in it by the bird. I watched the nest for some time. The female was making quickly repeated trips to it, securing nesting material near at hand. She disappeared into the cavity and was apparently enlarging it to form the nest chamber by fluttering and pushing against the walls. Judging by the movements of the outside of the nest while she was within it, she was adding material on the inside of the chamber as the walls became thin or holes appeared. Apparently this is further stretched until the chamber assumes the proper size, when the lining is added.

During the twenty-nine minutes I

watched the nest the female made twenty-seven trips to it. The longest period between trips was three and a half minutes; the usual time was, of course, less than a minute. No male was seen during this time.

The nest at Lake Daviumbu on August 26 was also being built by the female alone which was gathering material from an old nest near-by.

Two males with enlarged testes had them equal in size; one other had the left testis slightly larger than the right.

### *Glycichaera fallax fallax* Salvadori

Penzara: 1 ♂; December 19.

Tarara: 5 ♂, 2 ♀; December 11–January 2.

Gaima: 1 ♂, 1 ♀; November 14, 15.

Sturt Island Camp: 3 ♂, 1 ♀; October 15–30.

Lake Daviumbu: 3 ♂, 5 ♀; August 24–September 25.

Oroville Camp: 1 ♀; August 12.

Black River Camp: 1 ♀; June 20.

Palmer Junction Camp: 1 ♀; May 29.

Found up to 100 meters altitude.

WING.—♂ (10) 57–62 mm. (av. 60.1); ♀ (10) 55–57 (av. 56.1).

These birds are slightly duller, more grayish above than birds from Baroka, Kubuna and the Aroa River, but the difference is insignificant.

This honeyeater was found usually in the upperparts of the forest. Birds in breeding condition were taken in October (2) and December (2).

### *Oedistoma pygmaeum pygmaeum* Salvadori

Tarara: 3 ♂, 1 ♀; December 11–January 7.

Gaima: 1 ♂, 1 sex?; November 12, 18.

Sturt Island Camp: 1 ♂, 1 ♀; October 16, 24.

Lake Daviumbu: 2 ♂, 2 ♀, 1 sex?; August 21–September 30.

Palmer Junction Camp: 1 ♀; June 2.

Found up to 80 meters altitude.

WING.—♂ 43 mm., 46, 47, 48, 48, 48, 49; ♀ 44, 44, 45, 46, 46.

**Melithreptus lunatus albogularis** Gould

Penzara: 1 ♂ ad., 1 ♀ ad., 1 ♀ imm.;  
December 14.

Tarara: 4 ♂ ad., 2 ♀ ad., 1 ♀ imm.;  
December 7–January 12.

Mabadauan: 1 ♂; April 24.

Found near sea level.

WING.—♂ ad. 68 mm., 70, 70, 70, 72,  
72; ♀ ad. 63, 63, 65.

**Entomyzon cyanotis harterti** Robinson  
and Laverock

Tarara: 3 ♂ ad., 1 ♂ imm., 4 ♀ ad.;  
December 7–January 19.

Penzara: 1 ♂ imm.; December 19.

Found near sea level.

WING.—♂ 144 mm., 151, 155; ♀ 143,  
148, 149, 152.

This is the most easterly record of this species in New Guinea. I have already recorded this (1938, Amer. Mus. Novitates, No. 991, p. 13).

The blue faced honeyeater was fairly common in the more open savanna. It was usually found in flocks of four to six in number, was noisy and very wary. None of the specimens showed any indication of breeding.

**Gliciphila modesta modesta** Gray

Penzara: 1 ♀; December 14.

Tarara: 5 ♂, 4 ♀, 1 sex?; December 7–  
January 3.

Bugi: 2 ♂, 3 ♀; January 2.

Daru: 5 ♂, 3 ♀; March 21–July 4.

Gaima: 1 ♂, 1 ♀; November 14.

Lake Daviumbu: 2 ♂, 7 ♀; August 21–  
September 29.

Found near sea level.

WING.—♂ (10) 63–69 mm. (av. 66);  
♀ (10) 60–67 (av. 63.5).

Compared with three Aru Island birds (1 ♂ ad., wing 70 mm., 2 ♂ imm., wing 66, 68), the latter appear to be slightly more rufous tinged on the upperparts, but the present Aru Island material is not sufficient to permit evaluation of this difference.

In 1934 I came to consider the modest honeyeater a characteristic bird of the savanna at Daru and on the Oriomo River,

where it was common and found only in that habitat. It also proved fairly common in the savanna at Tarara and Gaima. But in the middle Fly area, about Lake Daviumbu, it was very rare in the savanna but common about the tea tree fringe which occurs in places along the lake shore and on some of the little tea tree islets, frequently some distance from any savanna. It was nesting commonly in such situations.

The nests are composed almost entirely of tea tree bark, and possibly this gives a clue to the difference in habitat preference. Near the coast tea trees grow through most of the savanna, but on the middle Fly the savannas are almost entirely *Banksia*. Most of the tea trees grow along the water's edge, irrespective of forest or savanna on the dry land behind, and it may be the proximity of the trees bearing the favorite nesting material rather than food or cover which determines the habitat distribution of this species about Lake Daviumbu. However, this bird was not found in the extensive tea tree swamps at Sturt Island. The modest honeyeater gleanes for its insect food amongst the twigs and leaves, especially of the lower trees in the savanna, but I have shot specimens from the very tops of tall, dead trees. The flowering tea trees always attract this species to feed about its blooms with *Trichoglossus*, *Myzomela obscura* and *Meliphaga lunata*. At Daru in April it was frequently seen in parties of three or four, possibly family parties. During the period September 14–19, at Lake Daviumbu, certain yellow-flowered trees (*Xanthostemma*) of the forest edge suddenly came into bloom, attracting many birds to feed about the flowers; a dozen or more of this species were sometimes found in a single tree, filling the air with their little calls and songs.

Where the bird is common it is often heard; it gives a call of low chirping notes or a soft chattering "shee-shee-shee - - -" The song commonly heard is a sharp "chit" rapidly repeated a number of times.

Breeding birds were taken in March, April, August, September, November and December; nests were found April 3

(ready for eggs) and August 30–September 24, when fourteen were found. Of nine nests found September 6 the progress of breeding varied from nest construction to young ready to leave the nest.

The nests were all very similar, pensile, somewhat loose and untidy, oval structures with the entrance at the side near the top and a slight projection over the entrance. The tops of the nests were woven about the twigs from which they depended. The nests were composed of coarse strips and flakes of bark throughout, with no other lining; most of the bark was that of the tea tree, with some swamp mahogany bark; a little animal silk was used throughout. One of the smaller, neater nests measured outside 80 by 130 mm. deep; a bulkier nest, 100 by 190 mm. deep; inside 50 by 100 mm. deep, with an entrance about 65 mm. across.

At Daru I found one nest in the savanna twenty feet up, attached near the end of a lateral branch of a low tea tree. This was the sort of location in which nests were found on the Oriomo River area in 1934, though usually nearer the ground. At Lake Daviumbu only one nest was found out in the *Banksia* savanna, six feet up, on the end of a lateral branch of a *Banksia* tree in a location one hundred yards from the lake shore, the nearest place the tea tree bark used in the nest could have been secured. The other nests found were all close to the lake and in or on the edge of denser forest. One was on a shrub seven feet above the water on the edge of a little flooded tea tree island out in the lake. Three nests were found five to eight feet above the water in shrubs standing in the lake's edge, where forest came down to the lake shore and there was no savanna, but in each case there were tea trees nearby.

On September 6 at Lake Daviumbu, Healy and I visited a point of land supporting an open stand of tea tree and swamp mahogany projecting out into a swampy lagoon. The point was one hundred and fifty yards long and eighty yards wide at its base. Behind it was forest; there was no savanna near. The forest was subjected to periodic flooding and when

I visited it later, on September 19, it was under several feet of water.

On our first visit to this area it was dry. Near the end of the point we found a colony of these birds nesting. Our time was limited (it was five miles from camp), but the nests were conspicuous so it was only a question of examining the nests to see which were in use. We found eight with eggs or young in various stages of growth and one nest in construction, as well as numerous old nests. These nests were from six to twelve feet up, attached near the end of slender branches of small trees, over land or shallow water; all were within eighty yards of each other and some nests no more than thirty feet apart. The songs and calls of these birds were conspicuous.

Elsewhere along the lagoon we had passed what appeared to be similar areas of this habitat that had held none of this species.

On a later visit (September 19) the depth of water prevented me from exploring the point, but the birds were still there, judging by the songs and calls coming from the point.

In ten of the nests examined, each contained two eggs or two young; two nests contained only one egg apiece, but at one of these the female when collected had another egg in the oviduct, so two is evidently the normal clutch.

The eggs were ovate in shape; shell smooth; gloss slight; color white, sparingly marked with blackish dots scattered about the greatest diameter of the shell or on the larger end, with few elsewhere; size of eggs 18.5 by 12.8, 18.1 by 12.4, 17.5 by 12.1 mm.

The newly hatched birds have no trace of down. The soft parts of one young a few days old were as follows: skin translucent, showing the pink of the flesh beneath, but slightly yellow on head; eyes (not open) showing through dark as do the developing feather tracts; bill, gape and inside of mouth yellow; feet flesh, toes yellowish.

On April 3 at Daru I watched a pair of these birds about a nest nearly ready for eggs. The female made several trips to the nest and fluttered about it, always closely



accompanied by the male which sang frequently. On September 6 at Lake Daviumbu I watched for a short time a female building actively; she made trips with building material to the nest at short intervals, closely followed by the male, who sat near her singing while she worked at the nest. Evidently the male does not assist at nest building.

On two occasions I collected the incubating bird at the nest and it was a female, while the male was in the trees near-by. Whether or not he takes part in incubating, he assists in feeding the young, as one adult shot feeding the young was a male.

***Conopophila albogularis mimikae***

Mathews

Bugi: 1 ♂, 1 ♀; January 2.

Daru: 1 ♂; April 7.

Gaima: 2 ♂, 1 ♀; November 11-17.

Lake Daviumbu: 7 ♂, 10 ♀; August 19-September 29.

Found near sea level.

WING.—♂ (10) 67-69 mm. (av. 68.3); ♀ (10) 62-66 (av. 64.6).

Compared with specimens from Melville Island and northwest Australia, this series is not smaller but is paler above and with a less rufous breast band, as stated in 1937 (Bull. Amer. Mus. Nat. Hist., LXXIII, p. 214).

On the 1933-1934 and 1936-1937 Expeditions to New Guinea I found this species at only five stations, yet at two of them it was common. At Daru in 1934 and 1936-1937 it was common about the shade and fruit trees in the township, gleaning for insects amongst the twigs and leaves, feeding at the flowers of the coconut palms and nesting in the orange trees in Mr. Beach's yard.

About Lake Daviumbu it was very common and in quite a different habitat, in the trees fringing the lakes and the lagoons, nesting in the leafy, spreading *Barringtonia* trees standing in the water, and, surprisingly enough, very common in the herbaceous growth of the deep marsh, far from any trees, nesting in the clumps of reeds and gleaning for insects amongst the reeds and from the stems and leaves of the lotus lilies. Claude Grant (1915, Ibis, Jub.

Supp., No. 2, p. 54) records this species only from the mangroves, but even at Daru, where mangroves are common, I found that it showed no preference for this habitat.

The rufous-necked honeyeater sings a rather pretty little song starting with a nasal "zwee," then trailing out through "whit-chi-ti." One call note commonly heard was a nasal "zwee."

On March 17 at Daru just before sundown I watched a rufous-necked honeyeater in a Sour Sop tree. The leaves were wet from a recent shower and the bird was taking a bath, fluttering against wet leaves and through bunches of them, frequently ducking the forepart of its body and raising and fluttering the tips of its wings as a bird would do while in bathing in a pool. After a few moments the bird flew to a conspicuous perch in a near-by mango tree and sat shaking itself and preening its feathers.

This species was breeding in Daru in March and April and at Lake Daviumbu in August and September; nests were found as follows: February 1 (in construction), March 20 (in construction), April 9 (in construction), September 7 (with eggs) and September 11 (two nests with two eggs each).

At Daru the tree nests were in orange trees, six to twelve feet above the ground. The pale gray nests were very conspicuous against the shining green leaves.

A Daru nest was a neat, firm, thin, pensile cup, hung from its edges in a small fork. Outside it was composed of weathered fiber with much animal silk bound over it to give a smooth, firm surface; the lining at the bottom of the cup was of fine rootlets and stems; it measured outside 70 by 90 mm. deep; inside, 55 by 30 mm. deep. A Lake Daviumbu nest was similar but was composed largely of rootlets of marsh grasses and had the lining of fine grass.

Each of the six nests contained two eggs or two young each. The description of one set of eggs is: shape ovate, shell smooth; gloss slight; color white with red brown spots and dots fairly plentiful over most of the egg and tending to form a wreath about the larger end, or to cover it.

At Daviumbu I found one nest five feet above the water in a *Barringtonia* tree on a little islet out in the lake. Two other nests were in small clumps of reeds between the floating grass mats and lotus lilies of the marsh on one side and the open water of the lake on the other, perhaps one-half mile from the nearest dry land, with clumps of bamboo. Three nests were attached to bent-over reeds which crossed to form forks; one was three feet above the water, the other four feet.

The first nest at Daru was called to my attention by Beach on February 27 when it was just started. Five days later it contained one egg; thirteen days after the first egg was laid there were two young a day or two old in the nest. The incubation period is then less than thirteen days.

Two young a few days old, with eyes unopened, collected September 20 at Daviumbu had no natal down; soft parts were as follows: skin of body, dark flesh above, lighter flesh colored below; bill, flesh; gape, whitish; inside of mouth, bright yellow; feet, light flesh.

At camp I removed these two young from the nest and placed them on my work table. They had been without food for four hours and "begged" eagerly, from a quadruped position. I turned them on their backs and, struggling to right themselves, they still "begged" for food. In its struggles one bird worked to the edge of the table and slid off (a three foot drop). Hanging by a single toe nail just before it fell, it was still "begging" for food.

Apparently the urge to be fed is the most powerful of the instinctive urgings at this time, more powerful even than orientation.

On February 29 at Daru I watched a pair of birds make several trips to a nest under construction. The male accompanied the female on her trips with material, which were made at about five-minute intervals, but took no part in nest building, sitting near the nest and sing while the female worked at it.

On April 18 at Daru for an hour and ten minutes I watched the young in the nest being fed. Both male and female took an equal share in feeding the young, coming at

irregular intervals; the longest period between feedings was seventeen minutes, and twice the male and female arrived with food at the nest at the same time. During the hour and ten minutes the young birds were fed ten times, five by the male, five by the female. Small insects, including green caterpillars, were seen in the bills of the feeding birds. Both male and female at different times settled on the nest to brood, the male once for eleven minutes, the female twice for periods of six to thirteen minutes. The male of this pair had a wider chestnut throat band than had the female.

### ***Myzomela obscura fumata* (Bonaparte)**

Tarara: ♂, ♀; December 7-January 14.

Bugi: 4 ♂; January 2, 3.

Daru: 2 ♂, 1 ♀, 1 sex?; March 6-May 1.

Mabadauan: 1 ♀; April 22.

Gaima: ♂, ♀; November 13-22.

Sturt Island Camp: 2 ♂; October 17, 19.

Lake Daviumbu: 1 ♂; August 28.

Found only near sea level.

WING.—♂ (10) 66-71 mm. (av. 67.7); ♀ (10) 57-62 (av. 59.6).

The dull honeyeater was a common bird of the savanna, forest edge and the forest. As with others of the genus it comes to flowering trees to feed. Breeding birds were taken in January (2), March (1), April (1), October (1), November (4) and December (2).

### ***Myzomela eques nymanni* Rothschild and Hartert**

Sturt Island Camp: 2 ♂ ad.; October 19-28.

Palmer Junction Camp: 3 ♂ ad., 1 ♀ ad., 1 sex? imm.; May 23-June 3.

Found up to 100 meters altitude.

WING.—♂ ad. 69 mm., 69, 69, 71, 73; ♀ 61.

### ***Myzomela erythrocephala infuscata* Forbes**

Daru: 2 ♂ ad., 1 ♀; March 9, 17.

Found only in the mangroves.

WING.—♂ 62 mm., 62; ♀ 60.

**Myzomela nigrita nigrita** Gray

Tarara: 3 ♂ ad., 1 ♂ subadult; December 27–January 18.

Found near sea level.

WING.—♂ 57 mm., 57, 57, 58.

The subadult is completing its moult into the black adult plumage.

The black honeyeater was a forest bird. Two males with enlarged gonads were taken in December.

**Toxorhamphus novae-guineae flaviventris** (Rothschild and Hartert)

Oroville Camp: 1 ♂, 2 ♀; August 10, 12.

Palmer Junction Camp: 8 ♂, 2 ♀; May 17–30.

Black River Camp: 5 ♂, 1 ♀; June 10–July 2.

Found up to 100 meters altitude.

WING.—♂ (10) 64–69 mm. (av. 66.3); ♀ 56, 56, 57, 58, 60.

This series is slightly grayer on the head and outer edges of the secondaries than Aru Island birds, but the difference is slight.

This was a fairly common species, usually found singly or in pairs low in the forest where it appeared to glean its insect food from the leaves and twigs of substage trees. Two May and two July males had enlarged gonads.

**Toxorhamphus iliolophus flavus** Mayr and Rand

Sturt Island Camp: 3 ♂, 3 ♀; October 12–30.

Lake Daviumbu: 1 ♂, 1 ♀; August 21, September 23.

Palmer Junction Camp: 3 ♂, 3 ♀, 1 sex?; May 28–June 3.

Found up to about 100 meters altitude.

WING.—♂ 63 mm., 65, 65, 65, 66, 67; ♀ 58, 59, 60, 61, 61, 62.

These compare well with a series from the type locality.

This species was usually found low in the forest substage where it appeared to glean insect food from the twigs and leaves, but it also visited flowering trees to feed at the blossoms. It usually was found singly or in pairs but occasionally

formed part of one of the mixed bird parties. One May male had enlarged gonads.

**Melilestes megarhynchus megarhynchus** (Gray)

Gaima: 2 ♂ ad., 1 ♀ ad.; November 11–17.

Palmer Junction Camp: 1 ♂ ad., 2 ♂ imm.; May 15–28.

Black River Camp: 6 ♂ ad., 3 ♂ imm., 1 ♀ ad.; June 12–August 1.

Found up to 100 meters altitude.

WING.—♂ ad. (10) 101–104 mm. (av. 102.5); ♀ ad. 103.

The individual variation in this species is not great.

I have seven Aru Island adults for comparison. The Aru Island birds are somewhat smaller (wing ♂ ad. 97 mm., 98; ♀ ad. 93, 95; sex? 86, 95, 97) with a somewhat smaller bill; in color they are slightly browner above, and with more brownish flanks, abdomen and under tail coverts. The color differences may be the result of foxing, as they were collected in 1896–1900. For additional notes on geographical variation, see Junge (1939, Nova Guinea, [N.S.] III, p. 55).

At the Black River and Palmer Junction Camps this was a common bird, sometimes high in the forest trees, sometimes low in the heavily shaded undergrowth.

It frequently moved slowly about through the smaller branches and foliage but apparently also frequently fed on flowers, as many specimens had the feathers of the forehead caked with pollen.

Breeding specimens were taken in June and July at the Black River Camp.

**Oreornis obscurus** (De Vis)

Oroville Camp: 1 ♂; August 9.

Palmer Junction Camp: 6 ♂, 5 ♀; May 24–June 1.

Black River Camp: 3 ♂, 7 ♀; June 13–August 4.

Found up to 100 meters altitude.

WING.—♂ (10) 90–96 mm. (av. 94.0); ♀ (10) 82–86 (av. 83.7).

These birds are the same as specimens from the Weyland Mountains, Hydrographer Range, and Aroa River.

**Xanthotis chrysotis saturation**  
(Rothschild and Hartert)

Tarara: 8 ♂, 6 ♀; December 7-January 5.

Mabadauan: 2 ♂; April.

Daru: 1 ♂; April 2.

Gaima: 4 ♂, 7 ♀; November 10-22.

Sturt Island Camp: 14 ♂, 5 ♀; October 7-November 1.

Lake Daviumbu: 10 ♂, 4 ♀; August 21-September 27.

Found near sea level.

WING.—♂ ad. (10) 100-106 mm. (av. 102.7).

I have already reported on this series (1938, Amer. Mus. Novitates, No. 991, p. 14).

This is a bird of the tree tops and substage in both the savanna and forest and is a very common bird. Stomach contents included both fruit and insects. Birds with enlarged gonads were taken in April (1), August (2), September (3), October (6) and November (4).

**Xanthotis chrysotis giulianettii** Mayr

Oroville Camp: 1 ♂, 1 ♀; August 11, 12.

Palmer Junction Camp: 4 ♂, 3 ♀; May 18-26.

Black River Camp: 5 ♂, 4 ♀; June 12-July 16.

Found up to 100 meters altitude.

WING.—♂ ad. (9) 101-108 mm. (av. 103.7).

I have already reported on this series (1938, Amer. Mus. Novitates, No. 991, p. 14).

**Xanthotis polygramma candidior** Mayr  
and Rand

Tarara: 7 ♂, 3 ♀; December 8-January 16.

Sturt Island Camp: 2 ♂, 1 ♀; October 17-26.

Lake Daviumbu: 3 ♂, 1 ♀; September 22-25.

Found near sea level.

WING.—♂ (10) 74-79 mm. (av. 76.5); ♀ 66, 67, 68, 70, 71.

These compare well with the type.

This was a forest bird that was usually

found in the substage. It occasionally came to feed in flowering trees with other species. Birds in breeding condition were taken in January (3) and September (1).

**Lichmera indistincta ocularis** (Gould)

Lake Daviumbu: 20 ♂, 1 ♀; August 22-September 30.

Found near sea level.

WING.—♂ ad. 66-72 mm.; ♀ 61.

I have already reported on this record taking of this species in New Guinea (1938, Amer. Mus. Novitates, No. 991, p. 13).

This was a common species in the low, open *Banksia* savanna, where the birds were continually singing. In flowering trees in the forest edge small numbers of these birds congregated to feed. Most of the specimens were in breeding condition.

**Meliphaga virescens** (Vieillot)

This was a common, noisy species of the mangroves, shade trees and coconut palms about Daru, and one was seen in the mangroves at Gaima.

**Meliphaga aruensis aruensis** (Sharpe)

Tarara: 2 ♂, 3 ♀, 1 sex?; December 22-January 7.

Gaima: 3 ♀, 1 sex?; November 10-20.

Sturt Island Camp: 5 ♂, 5 ♀; October 8-28.

Lake Daviumbu: 2 ♂; August 30, September 22.

Palmer Junction Camp: 2 ♂, 3 ♀; May 14-28.

Black River Camp: 6 ♂, 1 ♀; June 17-July 11.

Found up to 100 meters altitude.

WING.—♂ (10) 89-95 mm. (av. 92.6); ♀ (10) 83-86 (av. 84.7).

This series was compared with two Aru Island specimens collected in 1900. The latter are slightly darker below and have the upperparts slightly more brownish olive. This difference, especially in the upperparts, may be due in part to foxing of the older material.

The habitat and general habits of this common species are similar to those of *M. analoga*. Its song is a slow trill. Five stomachs examined contained fruit. Breeding birds were taken in January (1),

May (1), July (1), August (1) and October (2). A nest was found October 17, and the female and nest collected. The nest was a neat, pensile cup hung by its edges from the slender branches of a flat fork of a shrub, three feet above the ground in fairly dense forest with little undergrowth. The nest was composed externally of flakes of bark held together by a scanty binding of fine, weathered, plant fibers, which latter were also used to fasten the nest to the fork. There was very little animal silk used. The use of the flakes of bark made the shape of the nest somewhat angular. Inside there was a substantial lining of very fine, grass-like stems. It measured outside 80 by 80 mm.; inside 45 by 40 mm. deep.

The nest contained a single young, with the wing quills just emerging through the skin. It had no down on the under surface, but down was present on the upperparts on crown, nape, and on dorsal, humeral and femoral feather tracts, and on the secondaries and their coverts and the rectrices.

#### **Meliphaga montana auga** Rand

Sturt Island Camp: 1 ♀ ad.; October 22.

Palmer Junction Camp: 1 ♂ ad.; May 25.

Found near sea level and at 80 meters altitude.

WING.—♂ 86 mm.; ♀ 80.

BILL.—♂ 15.5 mm.; ♀ 15.

In color these two birds agree with a series of *augas* from Mafulu; they differ only in the slightly longer and more pointed bill.

The specimens were the only records. A female was flushed from her nest and shot October 22 at Sturt Island. The nest was a pensile cup, hung by its edges from a horizontal fork of a small shrub in a shady forest glade, about four feet above the ground. The nest differs greatly from that of *M. aruensis*. It was composed externally of weathered, fine fibers and a large amount of animal silk, which last was used to bind the nest to the fork. Inside this was a thin lining of thread-like woody fibers, and on the bottom of the nest cavity was a thick pad (50 by 20 mm.

thick) of plant down from the silk cotton tree. There was no comparable downy lining in the nest of *M. aruensis*, though the material was equally available. The nest measured outside 80 by 80 mm.; inside 50 by 35 mm. deep.

The nest contained one young, with feathers just emerging. There was no down on the underparts; on the upperparts short grayish brown down was present on the crown, nape, back, rump and the humeral and femoral feather tracts and on the tips of the secondaries and their coverts, and the rectrices.

#### **Meliphaga mimikae mimikae** (Ogilvie-Grant)

Palmer Junction Camp: 1 ♂, 1 ♀; May 21, 23.

Black River Camp: 2 ♂, 2 ♀; June 20–July 17.

Found at 80 and 100 meters altitude.

WING.—♂ 86 mm., 89, 90; ♀ 76, 79, 82.

On the upperparts this series is intermediate between *granti* and *mimikae*, but in the color of the underparts and in size it agrees with *mimikae*.

One July male had enlarged testes.

#### **Meliphaga orientalis** subspecies?

Mt. Mabiom: 1 sex?; July 12.

Taken at 780 meters altitude.

WING.—76 mm. TAIL.—61. BILL.—17.

This poorly made skin does not correspond with any of the three races of *orientalis*; on the underparts it is similar to *orientalis*; on the upperparts the reduction of gray in the forehead and absence of black on the side of the head are more like *facialis*, but the general color of the upperparts is much more brownish olive than with *facialis*, and it has a longer, more slender bill. This suggests that the specimen represents an undescribed subspecies, but I hesitate to describe it on the basis of a single imperfect skin.

#### **Meliphaga gracilis gracilis** (Gould)

Tarara and Penzara: ♂, 12 ♀; December 7–January 17.

Mabadauan: 1 sex?; April.

Gaima: 2 ♂, 3 ♀; November 12–21.

Sturt Island Camp: 5 ♂, 5 ♀; October 9-20.

Lake Daviumbu: 6 ♂, 5 ♀; August 19-September 27.

Found near sea level.

WING.—♂ (10) 72-77 mm. (av. 73.4); ♀ (10) 66-71 (av. 68.0).

This was a common species of the middle and lower Fly River and the Wassi Kussa area, where it frequented both the forest and the savanna. In general behavior it appeared similar to *M. analoga* but was more often found high in the forest.

Birds with enlarged gonads were taken in August (3), September (1), October (5), November (1) and December (5). A nest was found August 24 at Lake Daviumbu. It was seventy feet up near the top of a big forest tree. Male and female were shot at the nest, and as it was impractical to climb to the nest, the tree was felled, after which it was impossible to find the nest. As examined *in situ* through binoculars the nest appeared to be a deep, pensive cup hung from its edges in a horizontal fork near the end of a slender branch in the leafy crown of the tree.

***Meliphaga analoga analoga***  
(Reichenbach)

Tarara: 5 ♂, 7 ♀; December 9-January 4.

Gaima: ♂, ♀; November 11-22.

Sturt Island Camp: 3 ♂, 4 ♀; October 12-29.

Lake Daviumbu: ♂, 4 ♀; August 18-September 23.

Oroville Camp: 3 ♂; August 9, 10.

Palmer Junction Camp: 7 ♂, 2 ♀; May 14-June 2.

Black River Camp: ♂, 8 ♀; June 8-August 4.

Found up to 100 meters altitude.

WING.—♂ (10) 77-90 mm. (av. 83.1); ♀ (10) 72-81 (av. 75.0).

BILL.—♂ 15-17 mm.; ♀ 14-15.5.

The birds from the upper Fly River are slightly larger, have the upperparts slightly darker and have the dark areas in the sides of the head slightly more blackish than do birds from near the coast.

This honeyeater was a common bird of the substage, where it was usually solitary

and apparently searched for its insect prey from twigs and leaves. However, it also visited flowering trees with other honeyeaters. As with some other forest birds, this species bathes in forest pools by flying down into the water and then returning to a perch above it to preen its feathers. Of four stomachs examined, two contained fruit and two insects. Breeding birds were taken in August (3), September (1), October (4), November (4) and December (1).

***Meliphaga flavirictus flavirictus***  
(Salvadori)

Gaima: 3 ♀; November 17-20.

Sturt Island Camp: 1 ♂; October 12.

Oroville Camp: 1 ♀; August 9.

Found up to 60 meters altitude.

WING.—♂ 80 mm.; ♀ 71, 73, 75, 77.

BILL.—♂ 14 mm.; ♀ 13, 13, 13, 13.5.

Some specimens are more brownish olive, others more clear greenish olive on the upperparts; there is little variation in the pattern of the side of the head and in the underparts. There is considerable variation in the amount of horn color present in the bill, but in no specimen is it absent. Specimens from southeast New Guinea (Kubuna and Baroka) agree fairly well with this series.

One of these birds was taken from the top of a big, flowering *Eugenia* tree in the forest where a number of other species were gathered to feed; one was shot from the top of a forest tree, and one was shot from the top of a savanna tree near the forest edge.

***Pycnopygius stictocephalus*** (Salvadori)

Lake Daviumbu: 1 ♂ ad., 1 ♂ imm.; August 21, September 15.

Found near sea level.

WING.—♂ ad. 110 mm.; ♂ imm. 103.

***Pycnopygius ixoides ixoides*** (Salvadori)

Palmer Junction Camp: 3 ♂, 2 ♀; May 24-28.

Black River Camp: 2 ♂, 2 ♀; July 8-17.

Found at 80 and 100 meters altitude.

WING.—♂ 84 mm., 86, 88, 90, 90; ♀ 82, 82, 82, 83.

I have no Arfak material for comparison. A Mimika River bird (♂ ad., wing 90 mm.) agrees well with this series. A Weyland Mountains bird (♂ ad., wing 92 mm.) differs slightly in the grayer throat, more olive brown upperparts, less conspicuous gray edges to the crown feathers, less bright rufous under the wing and less barring on the breast.

**Philemon meyeri** (Salvadori)

Sturt Island Camp: 3 ♂ ad., 3 ♀ ad., 2 ♀ imm.; October 19–31.

Palmer Junction Camp: 3 ♂ ad.; May 17–29.

Black River Camp: 3 ♂ ad.; June 20–27.

Found up to 100 meters altitude.

WING.—♂ ad. (9) 108–113 mm. (av. 110.4); ♂ ad. 102, 103, 108.

This was a fairly common, usually solitary bird of the middle spaces of the forest where it frequently came to flowering trees to feed. It is more retiring and much less noisy than *P. novaeguineae*. A June male had enlarged testes.

**Philemon citreogularis papuensis** Mayr and Rand

Tarara: 4 ♀; December 7–10.

Found near sea level.

WING.—114 mm., 115, 116, 116.

This is the third time this species has been taken in New Guinea.

The yellow-throated leatherhead was a fairly common savanna bird.

**Philemon corniculatus ellioti** Mathews

Tarara: 9 ♂ ad., 4 ♂ imm., 5 ♀ ad., 4 ♀ imm.; December 7–30.

Found near sea level.

WING.—♂ ad. 138 mm., 139, 140; ♀ ad. 126, 128, 131, 132, 132.

Three of the immature birds are in nestling plumage, with tail only partly grown; the others are completing their moult to first year plumage.

This is the second time this species has been taken in New Guinea.

This leatherhead was a fairly common savanna bird, similar in general habits to

*P. novaeguineae*. Three birds in breeding condition were taken in December. A fledgling young had traces of short, gray brown natal down present on the tips of the back feathers.

**Philemon novaeguineae brevipennis**

Rothschild and Hartert

Tarara: 3 ♂ ad., 2 ♂ imm.; December 2–January 15.

Bugi: 1 ♂ imm.; January.

Daru: 6 ♂ ad., 3 ♀ ad.; March 6–April 11.

Sturt Island Camp: 2 ♂ ad.; October 15, 16.

Lake Daviumbu: 4 ♂ ad., 1 ♂ imm., 2 ♀ ad.; August 21–September 29.

Palmer Junction Camp: 1 ♂ ad., 3 ♀ ad.; May 15–21.

Black River Camp: 2 ♂ ad.; June 30, July 5.

Found up to 100 meters.

WING.—♂ (10) 146–157 mm. (av. 150.8); ♀ 141, 141, 141, 142, 142, 144, 146, 147.

On the basis of wing length these average considerably smaller than birds from Arfak and the western Papuan islands (see Junge, 1939, Nova Guinea, [N.S.] III, p. 66). Color differences are very difficult to evaluate in this species because the fresh grayish feathers very soon turn brownish and with wear and fading become pale brownish.

In the present series the birds from Daru and Tarara are paler than those from the upper Fly River. This may be due in part to the more pronounced wear in a more arid environment.

The leatherhead was everywhere, in savanna, forest tree tops and second growth, a common, noisy and conspicuous bird. Breeding birds were taken in March (4), May (2), August (2), September (3) and October (1). A nest found September 29 at Lake Daviumbu was a deep, pensile cup attached to a lateral fork of a tea tree, twenty-five feet up, in the edge of tall savanna. It contained three nestlings with quills just emerging. They were quite naked, with no natal down.

***Dicaeum geelvinkianum rubrigulare***

D'Albertis and Salvadori

Gaima: 4 ♂ ad., 2 ♀ ad.; November 13-23.

Lake Daviumbu: 1 ♂ ad.; September 16.

Palmer Junction Camp: 2 ♂ ad., 1 ♀ ad.; May 21-30.

Found up to 100 meters altitude.

WING.—♂ ad. 50 mm., 50, 52, 52, 52, 53, 53; ♀ ad. 47, 48, 49.

I have already reported on this series (1938, Amer. Mus. Novitates, No. 991, p. 14).

This flowerpecker was found in both forest and denser savanna.

Birds in breeding condition were taken in May (1) and November (1).

***Dicaeum geelvinkianum albo-punctatum***

D'Albertis and Salvadori

Daru: 2 ♂ ad., 1 ♀ ad.; March 20-April 11.

Tarara: 1 ♂ ad.; December 20.

Penzara: 1 ♂ ad., 2 ♀ ad.; December 18, 19.

Found near sea level.

WING.—♂ ad. 53 mm., 54, 54, 55; ♀ ad. 49, 50, 51.

I have already reported on this series (1938, Amer. Mus. Novitates, No. 991, p. 15).

Three birds in breeding condition were taken in December.

***Melanocharis nigra chloroptera* Salvadori**

Sturt Island Camp: 4 ♂ ad., 1 ♂ imm., 1 ♀; October 8-22.

Lake Daviumbu: 1 ♂ imm.; August 18.

Palmer Junction Camp: 5 ♂ ad., 4 ♀; May 20-25.

Black River Camp: 4 ♂ ad., 1 ♂ imm., 13 ♀; June 11-July 20.

Found up to 100 meters altitude.

WING.—♂ (10) 62-66 mm. (av. 63.7); ♀ (10) 59-64 (av. 61.3).

Compared with Aru Island and Setekwa River birds, there are no significant differences. Junge (1939, Nova Guinea, [N.S.] III, p. 50) states that the Aru Island

birds have a longer tail, but this is very slight in my material (south New Guinea ♂ adult tail 42-45 mm.; Aru Island ♂ adult 44, 44, 45).

Birds with enlarged gonads were taken in May (1), June (1), July (2) and October (1).

***Zosterops novaeguineae wuroi* Mayr and Rand**

Penzara and Tarara: 3 ♂, 1 sex?; December 18, January 6.

Gaima: 1 ♂, 1 sex?; November 17, 20.

Found near sea level.

WING.—♂ ad. 54 mm., 54, 56.

These birds compare well with three birds from Wuroi.

One November male had enlarged testes.

***Neochmia evangelinae evangelinae***

D'Albertis and Salvadori

Gaima: 1 ♂ ad., 1 ♂ imm.; November 11, 16.

Lake Daviumbu: 13 ♂ ad., 3 ♀ ad., 2 ♀ imm.; August 19-September 29.

Found near sea level.

WING.—♂ ad. (10) 49-51 mm. (av. 50.0); ♀ ad. 45, 49, 50.

The type of *evangelinae* came from about 160 miles up the Fly River.

There is considerable variation in the amount of red in the back, in the darkness of the crown, in the amount of white in the belly and the shade of red of the underparts in the Lake Daviumbu series. Apparently wear makes the red much brighter and reduces the amount of olive tinge in the gray of the hind neck.

Compared with worn Dogwa birds (wing ♂ 45-47 mm., ♀ 44-47), in the present series the males are characterized by larger size, darker red coloration, less extent of white in the abdomen, more plentiful and larger spotting in the flank and more olive tinge in the hind neck. The immature birds from Lake Daviumbu are more grayish, less brownish than one Gaima and a series of Dogwa immatures.

The North Queensland birds I have (3 ♂, 1 ♀, from Watson River, Claudie River and Archer Creek, wing ♂ 49 mm., 50, 50; ♀ 47) compared with the New



Guinea birds agree in size with the Daviumbu birds, but agree better in the general coloration with Dogwa birds, differing only slightly in lacking the olive tinge of the hind neck entirely and in having the white of the belly more extensive. One immature bird compares well with Dogwa immatures. As the differences are slight, and some of them are probably dependent on wear and fading, I am including all these populations under one name.

The strawberry finch was first found by D'Albortis in 1875 on the Fly River. It was next found by our 1933-1934 Expedition at Dogwa, Oriomo River (see 1937, Bull. Amer. Mus. Nat. Hist., LXXIII, p. 247, where notes on its habits are given). Our 1936 Expedition found it again at Gaima, where a few specimens were seen in the grass along the edges of the swamps, and at Lake Daviumbu where it was common. There it frequented chiefly the taller grass along the edges of marshes and lake; was found out into the deep marsh, though not as commonly in the floating mats of rice grass; and on to the savanna, chiefly where the grass was tall. It was usually in flocks of four or five up to twenty, sometimes feeding on the grass seeds in company with *Lonchura stygia* and *L. nevermanni*. When alarmed it frequently flew to shrubs or clumps of bamboo for shelter if any were near-by but was not wary and could be easily approached.

A nest with four young was brought in by a shooting boy, September 29 at Lake Daviumbu. It appeared to have been an oval structure of coarse grass blades and a lining of feathers, with the opening on the side at the top, and was said to have been placed in a shrub standing in the savanna. Another nest in construction was placed in the sedges and supported by them in the edge of the lake where it was fringed with extensive marsh. The female alone built, carrying the dead grass and sedges for the

nest, while the male sat near-by. The four young were very "pinfeathery" and had fragments of white down on the nape, lower back and the humeral and femoral tracts. The buccal cavity had a pattern of black spots: one on each side of the tongue, one above and one below the gape on each side, three in a line across the middle of the upper mandible, and two just below them.

***Lonchura leucosticta* (D'Albortis and Salvadori)**

Tarara: 1 ♂ ad., 2 ♀ ad.; December 10, 20.

Lake Daviumbu: 3 ♂ ad., 1 ♂? ad., 2 ♀ ad.; September 2-24.

Found near sea level.

WING.—♂ ad. 49 mm., 49, 50, 50; ♀ ad. 49, 50, 51.

I have already discussed this species and its habitat (1938, Amer. Mus. Novitates, No. 991, p. 16).

***Lonchura nevermanni* Stresemann**

Lake Daviumbu: 11 ♂ ad., 10 ♀ ad., 3 sex? ad.; August 19-September 29.

Found near sea level.

WING.—♂ ad. (10) 49-54 mm. (av. 52.5); ♀ ad. (10) 49-56 (av. 51.9).

I have already discussed this species (1938, Amer. Mus. Novitates, No. 991, p. 19).

***Lonchura stygia* Stresemann**

Lake Daviumbu: 24 ♂ ad., 1 ♂ imm., 7 ♀ ad., 4 ♀ imm.; August 20-September 26.

Found near sea level.

WING.—♂ ad. (10) 50-55 mm. (av. 52.3); ♀ ad. (7) 50-54 (av. 51.8).

I have already discussed this series and the habits of the species (1938, Amer. Mus. Novitates, No. 991, p. 17).









