

according to Technau, are more highly developed than those of *Charadrius dubius*, as might be expected from the difference in their habitats. But it is possible that *dubius*, after living by the shore for some generations, might develop in the same way as *hiaticula*.

With regard to the spring arrival of Little Ringed Plovers at their breeding places I wrote (Sluiter, 1938) that the first arrivals were during the first week of April, and that the birds seen in March were passage-migrants. Observation in subsequent years, however, has shown that, in Holland, the breeding birds also arrive in March. The earliest arrival of which I have a record was March 15th, 1945, near Amsterdam. In 1939, 1943, 1945 and 1947 I observed that the first Little Ringed Plover to arrive was a solitary male.

When the breeding area is suitable several pairs will often nest so close together that we may speak of "colonial-breeding" in the same way as Laven (1940) found with Ringed Plovers. In his study of the behaviour of Ringed Plovers Laven mentions courtship activities, which he calls the „Vorbaltz“, before the birds have taken up their territories. I observed similar activities of Little Ringed Plovers by a dried-up pool near Amsterdam, in 1943, when twelve birds were feeding together in a flock, and courtship display was seen. It was apparent that the pairs were formed before the flock dispersed and took up breeding territories, some of which were at a great distance from the pool.

In 1946 I observed two pairs in the neighbourhood of Rijen (North-Brabant) on a sandy area enclosed by woods on three sides and planted with young trees. I found one nest with four eggs. There was no water, except perhaps for some rainpools at a very great distance.

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Notes on a collection of Javanese birds

(with 2 text-figures)

by

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This is the report of a collection of birds made by Mr. and Mrs. J. P. Rosier during the years 1922—1934 in the island of Java. The main part of this col-

lection originated from the center part of the island (Poerwokerto), especially from the foothills of the volcano Slamet and from the South Serajoe Mountains. Additional specimens were collected on several other volcanoes (Goentoer, Patoeha, Tangkoebanprahoe, Tjaremei, Lawoe), often at rather high altitudes. A small part was collected in the neighbourhood of Batavia, especially in the marshes formed by the river Bekasi in the lowlands east of Batavia (Rawa (= marsh) and Wadoek (= reservoir) Bekasi), as also in some of the Thousand Islands in the Bay of Batavia (Islands of Purmerend, Kerkhof, Leiden, Edam, Hoorn). Finally, a small number of specimens was obtained through native bird catchers; these are insufficiently labelled, and therefore have little value. The collection comprises 359 specimens representing 187 different species.

The report is dedicated to the memory of the late Mr Rosier, who died in Japanese captivity.

I have to thank Dr E. Mayr (New York) for reading the manuscript and giving some valuable suggestions.

In this collection are represented the following endemic Javanese species: *Megalaelaema* (*Chotorea*) *javensis*, *Myiophoneus glaucinus*, *Stachyris grammiceps*, *Garrulax rufifrons*, *Rhipidura phoenicura*, *Psaltia exilis*, *Aethopyga eximia*, *Apoia javanica*. Neither *Bradypterus montis*, nor *Prinia polychroa*, which are also represented, seem to may be regarded as strictly endemic species.

In the collection furthermore occur a number of characteristic mountain dwelling species: *Brachypteryx montana*, *Cochoa azurea*, *Turdus javanicus*, *Oreocincladauma*, *Garrulax rufifrons*, *Rhipidura phoenicura*, *R. perlata*, *Bradypterus montis*, *Psaltia exilis*, *Apoia javanica*.

Of these, endemic mountain races have been collected on Mt. Slamet (*Garrulax rufifrons slamatensis*) and on Mt. Lawoe (*Turdus javanicus stresemanni*).

The peculiar geographic situation of Poerwokerto (including Mt. Slamet) between the western and eastern provinces of Java, causes remarkable differences as regards the subspecific status of those species that have split into at least a distinguishable western and eastern race (fig. 1):

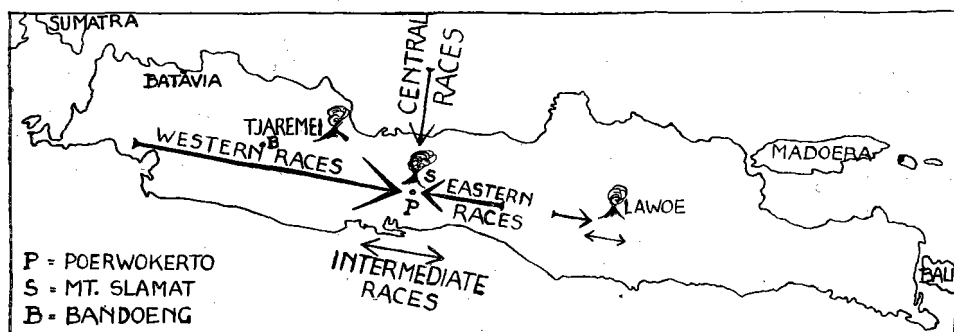


Fig. 1. Distribution of western and eastern races in Mid-Java (Poerwokerto), as represented in the Rosier-collection. The number of the races is indicated by the lengths of the respective arrows. Note the dominance of western races.

(a) the following Central Javanese birds (Poerwokerto) belong to the West Javanese race (most cases!): *Pitta guajana affinis*, *Lalage nigra*, *Pycnonotus bimaculatus barat*, *Criniger flaoeolus xanthizurus* (= *C. tephrogenys bartelsi*), *Malacocinclada sepiaria sepiaria*, *Prinia f. olivacea*, and even *Dicaeum s. sanguinolentum* from Mt. Lawoe!

(b) the following Central Javanese birds (Poerwokerto) belong to the East Javanese race (few cases): *Treron vernans purpurea*, \pm *Stachyris thoracica orientalis*, *Cyornis b. bangumas*.

(c) the following Central Javanese birds are intermediate between the Western and Eastern races (few cases): *Copsychus saularis* (Poerwokerto), *Stachyris thoracica* (Mt. Slamet), *Sitta azurea* (Mt. Lawoe).

(d) the following Central Javanese birds have developed a separable race (few cases): *Copsychus (Kittacincla) malabarica javana*, *Apoia javanica javanica*.

In the following systematic list only those species are mentioned that are of a special interest.

Sphenurus sphenurus korthalsi (Bonaparte 1854: Mt. Gedeh, W. Java).
no 5008 ♂ 19.VI.1930 Western slopes Mt. Lawoe, 2000 m alt. Wing 171;
tail 141 mm.

no 5009 ♀ 26.VI.1930 idem, 1500 m alt. Wing 162; tail 138 mm. Irides purplish red; eyelids bright blue.

The golden rufous gorget in the male is only slightly developed. The species is apparently confined to the tops of the volcanoes.

Treron vernans purpurea (Gmelin 1789: Java).

Two ♂♂ from Poerwokerto have wings of 140 mm. Their orange breast patches seem to be smaller than in two ♂♂ from Buitenzorg, and distinctly so than in a series from Deli, N.E. Sumatra. The grey colour of the crown is lighter than in the Buitenzorg ♂♂. They are not smaller than Deli specimens in our collection (11 ♂♂): wing 136—145, average 140 mm. Two ♂♂ from Buitenzorg are larger: wing 145, 152 mm.

Porzana pusilla (Pallas) *subspec.* (cf. Junge, Zool. med. 29 1948 p. 313)
no 4770 ♀ (ad.) 8.I.1927 Bay of Batavia. Wing 92; culmen 15.5; tarsus 27 mm. The adult specimen differs from a series of 16 adult Japanese ones in the collection of the Amsterdam Museum by having the upper parts more reddish, less yellowish brown, and by having a broader and more reddish brown eye-stripe. One Japanese specimen, however, is still darker reddish-brown and has an equally broad eye-stripe as the Javanese one. I do not risk to decide, whether the Javanese specimen belongs to a very slightly distinct indigenous breeding race (*mira* Riley 1938: Tenggara, Mahakkam River, East Borneo) or to the typical migratory E. Asiatic *pusilla*, though the wing-tarsus and wing-culmen ratios calculated for the Javanese and Japanese specimens appear to be slightly distinct. These differences might be considered to be an additional evidence for the existence of an Indo-Malayan breeding stock:

wing/tarsus: Japan: 16 ad. 5.1—5.6, average 5.24.

Java: 1 ad. 5.9.

wing/culmen: Japan: 16 ad. 2.9—3.2, average 3.05.

Java: 1 ad. 3.4.

Wing of 16 adult *pusilla* from Japan: 86—92, average 89.8 mm. An additional ♂ juv. from N.E. Sumatra (Perbaoengan, Deli: 24.III.1918, De Bussy coll.) has a wing of 92, culmen 15.5, tarsus 28 mm. It does not differ from a series of 7 juvenile Japanese *pusilla*. Chasen (Treubia 18 1941 suppl. p. 21) thinks that a specimen collected by Hoogerwerf during the Netherlands Indian Mt. Leuser Expedition 1937 to N. Sumatra (Blang Kedjeren, 800 m alt.: wing 88, tarsus 29 mm) belongs to *mira*, as also 2 specimens from the Malay States from Febr. and March.

In W. Java the species appears to be rather common, although it has very inconspicuous habits: Dr J. Verwey received more than 30 specimens from

native bird catchers near Batavia within a few months (cf Van Marle, *Limosa* 13 1940 p. 123—124); Kooiman (*Ardea* 29 1940 p. 100) records the species to be very plentiful in the wet season (Dec.—Apr.) in the "paddi"-fields of E. Java (Dampar).

Porzana fusca rubiginosa (Temminck 1825: Java).

no 4894 ♂ 29.VIII.1928 Batavia; shot in the bushes near the fort. Wing 88; culmen 20; tarsus 32 mm. Rather common marsh bird in the vicinity of Batavia (Hoogerwerf & Siccama, *Ardea* 26 1937 p. 26).

I agree with Mayr (*Bull. Am. Mus. Nat. Hist.* 83 1944 p. 146) in suggesting that the Malaysian populations of this species have smaller measurements than those from the Philippines and the Lesser Sunda Islands. Six adult Javanese specimens (including the above mentioned one) in the Amsterdam Museum show a homogeneous series with the upper parts (incl. wing quills) lighter, with a more distinct olive greenish wash, and the under parts a shade deeper vinous red than one specimen from Japan (*erythrothorax*). Wing: 88, 88, 91, 91, 91, 93 mm. A sure breeding ♀ from Perbaengan, Deli, N.E. Sumatra (De Bussy coll.) caught on the nest with eggs, is exactly like the Javanese specimens: wing 93 mm. A juv. ♂ from Medan, Deli, N.E. Sumatra (15 Dec. 1915, De Bussy coll.) has the upper parts as dark and as brown as the Japanese ♀; besides, the latter has a wing length of 94 mm. so that it is possible that it is a migrant (*erythrothorax*) from E. Asia, which would represent the first record of that race from Sumatra.

Amaurornis phoenicurus javanicus (Horsfield 1821: Java).

no 4858 — 15.VI.1923 Magelang, Mid-Java. Wing 132; tarsus \pm 46 mm. The specimen agrees in the dark greyish-green coloration of the upper parts with a series of 19 S. Sumatran specimens in the Amsterdam Museum (wing 118—143, average 131.9 mm tarsus 42—54, average 48.4 mm). 13 N. Sumatran birds show wing lengths of 131, 138, 141, 142, 147, 152, 157, 160, 166, 171, 171, 177, average 154.8 mm; tarsus 49, 52, 52, 53, 53, 54, 54, 56.5, 57, 57, 58.5, 59, 59, average 54.9 mm. The larger birds of the latter series have the upper parts strongly washed with bronzy olive and the rump and upper tail coverts more strongly suffused with glossy brown. These may therefore be referred to the migrant continental race *chinensis* (Boddaert 1783: Hongkong). Robinson & Kloss (*Journ. Fed. Malay St. Mus.* 8 1918 p. 115) measure 11 adults from Sumatra as follows: wing 134—170, average 144.4 mm. Among these surely migrants occur!

Gallinix cinerea (Gmelin 1789: China).

no 4865 [♀] XII.1923 Poerwokerto. Wing 176; tarsus 63 mm.

no 4848 [♂] 6.X.1924 do „ 195; „ 71 mm.

no 4849 ♂ 1.I.1926 do „ 212; „ 71 mm.

Bill from posterior end of frontal shield to tip resp. 36, 47, 48 mm.

The species has been caught and kept in captivity by Mr Rosier in full breeding plumage: the authentic specimen is no 4865, in worn breeding plumage.

The second specimen is in a terribly worn state of its plumage; all feather edges and all tips of wing quills are abraded. Hence the exact wing measurement is not more than 195 mm. General coloration greyish earthy brown.

The third specimen is in a fresh plumage with broad buffish edges to all feathers. General coloration buffish brown.

Although in the neighbourhood of Batavia the species appears to be common in the winter months, most of them disappearing in March—Apr. (Hoogerwerf & Siccama, *Ardea* 26 1937 p. 29—30), and is recorded rather plentifully as a winter resident in E. Java (Kooiman, *Ardea* 29 1940 p. 100), still the above specimens furnish one of the first records of the species from

Mid-Java! Vorderman (Natuurk. Tijdschr. Ned. Ind. 42 1883 p. 110—112) already mentions that the species occurs in Java only during the winter months, although Hoogerwerf & Siccama (l.c.) record it from July and August. Vorderman also noticed that there is a small and a large form, of which he gives a.o. the following measurements: wing 215, resp. 171; tarsus 70, resp. 63 mm. Although Bartels jr. (Ardea 28 1939 p. 7) may be right that the ♂ is considerably larger than the ♀, the latter without frontal shield, or with a small one only, still I think it possible that there is indeed a smaller indigenous Malayan breeding race *plumbea* (Vieillot 1817: Java. cf. Chasen. Handl. 1935 p. 28), and a larger migratory one. The second specimen might be a breeding bird, according to the worn state of its plumage on the date of collecting. Finally, the capture in Mid-Java of an adult specimen in breeding plumage (no 4865) should be remembered.

The following Sumatran specimens are in the Amsterdam Museum:

♀ ad. III.1939 Tandjong Karang, S. Sumatra. Wing 171; tarsus 65 mm.
 ♀ 11.XII.1913 Batang Kwis, N.E. Sumatra. „ 168; „ 63 mm.
 [♂] — Deli, N.E. Sumatra. „ 216; „ 79 mm.

Chlidonias hybrida javanica (Horsfield 1821: Java).

no 4968 ♂ 20.IX.1926 Rawah Bekasi, W. Java. Wing 230; culmen 29; lateral rectrices 85; central rectrices 67 mm. Iris: dark brown. Stomach: small fishes. The specimen is an adult bird, still in its summer plumage, with a dark grey abdomen.

Sterna albifrons Pallas *subspec.* (cf. Junge, Zool. med. 29 1948 p. 315).
 no 4969 ♀ 24.IX.1926 Batavia (sea-coast). Wing 158; culmen 30; lateral rectrices 43 mm. Iris: black. Legs: dark dirty brown. Bill: leaden black. Stomach: white shrimps.

First and second primary blackish brown with partly white inner webs. Shaft of first primary yellowish white; that of second light yellowish brown.

The species is a breeding bird of Java: Hoogerwerf & Siccama (Ardea 26 1937 p. 49 and pl. VI, fig. VII) have published photographs of breeding birds along the sea-coast of the Bay of Batavia. The breeding bird from Tandjong Priok (May-June 1934) (l.c.) has on the photograph no light shafts of the outermost two primaries, which is necessary for the race *sinensis*!

The Amsterdam Museum possesses an almost identical specimen from Sumatra: ♂ ad. 9.VIII.197 Belawan, Deli, N.E. Sumatra (De Bussy coll.) with the following measurements: wing 138 (strongly abraded); culmen 30; lateral rectrices: broken.

Podiceps novaeollandiae javanicus Mayr 1943: Java.

no 4962 ♂ 2.VIII.1926 Wadoek Bekasi, W. Java. Wing 112; culmen 22.5 mm. The under parts are white, agreeing with the original description of the race. Bill 20.1% of wing length (21.1% in *javanicus* ♂; 17.5—19.2% in *novaeollandiae*: Mayr, Emu 43 1943 p. 6).

Falco severus severus Horsfield 1821: Java.

no 4860 ♀ 24.V.1926. Northern slopes of Mt. Goentoer, W. Java. Wing 245 mm. The bird was shot in a virgin forest while devouring its prey in a giant tree which extended highly above the level of the forest.

Falco moluccensis javensis Mayr 1941: Cheribon, Java.

Cf. Mayr, Orn. Mon. Ber. 49 1941 p. 45.

A ♂ and a ♀ from Mid-Java. Wing resp. 223, and 245 mm. The ♀ was shot in a leaf-less tree along a mountain slope, which was covered with cassave-fields (*Manihot*).

These birds are on upper and under parts generally less intensively coloured than compared Halmaheira and Ternate specimens, but they exactly match 2

specimens from Flores. They have somewhat darker brown under parts and tibial feathers than N. Celebes birds; besides, they are slightly heavier streaked. *Alcedo euryzona euryzona* Temminck 1830: Java.

no 4618 (♂) 10.VI.1925 Rampo, S. Serajoe Mts. Wing 87; culmen 48 mm. The bird was shot near a waterfall, where also *Criniger tephrogenys bartelsi* and *Myiophonus f. flavirostris* were observed. It was originally only known from the western part of the island, where it is very rare (Hoogerwerf, in litt., 1947), but Kooiman mentions it from the tributaries of the small river Sanen in the southern mountains of E. Java. The above mentioned specimen is the first specimen recorded from Mid-Java.

Caprimulgus affinis affinis Horsfield 1821: Java.

no 4865 (♀) 15.IV.1923 Magelang, at the foot of Mt. Merbaboe, Mid-Java. The bird was resting in *Lantaria* bushes. Wing 152; tail 87 mm (small!). Mayr (Bull. Am. Mus. Nat. Hist. 83 1944 p. 152) gives the measurements of Javanese birds as follows:

wing ♂ 159.5, 160, 163, 164, 164.5; ♀ 156, 157, 159, 165 mm.

tail ♂ 91, 95, 97, 98, 99; ♀ 97, 97, 97 mm.

Cuculus saturatus horsfieldi Moore 1856: Java (cf. Mayr, Bull. Am. Mus. Nat. Hist. 83 1944 p. 134).

no 4883 (juv.) 8.XI.1925 Kalipoetra, Poerwokerto. Wing 195; culmen 18 mm. The bird was sitting on a stone in a "katjang"-field (*Arachis*), where it was devouring an Arctide-caterpillar.

The specimen is in the characteristic juvenile dress with dark brown chin, throat, and upper breast, which, however, are already mixed with white.

Cuculus poliocephalus lepidus S. Müller 1845: Timor.

no 4888 (ad) — Mid-Java. Wing 157; culmen 17 mm.

no 4889 ♂ juv. 16.X.1934 Telagadlingo, Mt. Lawoe, ca. 1800 m alt.

Wing 138; culmen 15 mm.

Cacomantis variolosus sepulchralis (S. Müller 1843: Java).

A juv. ♀ collected on Mt. Lawoe in a secondary forest at 1500 m alt. was fed by *Rhipidura phoenicurus* Müll.

Picus miniaceus miniaceus Pennant 1769: India (= Java).

no 4880 (♂) 29.X.1925 Poerwokerto. Caught in a *Tectona* forest. As the race is only known to occur in West and Mid-Java, this specimen apparently originates from its most eastern boundaries.

I agree with Delacour (Zoologica 31 1946 p. 2) in considering the dark red coloration and the long occipital crest to be in this case inadequate generic characteristics. Therefore, the genus *Callolophus* has to be united with *Picus*. *Pitta sordida javana* Kloss 1931: Bandjar, on the boundary between West and Mid-Java.

no 4981 — Bought at the market at Djokjakarta, Mid-Java. Wing 107; tail 36; tarsus 41 mm. All primaries have broad black tips. The outer web of the first (outermost) primary is black; the second has a black tip of 37 mm. Tail feathers tipped with black.

The bird differs from 7 Sumatran and 2 Bornean specimens in the Amsterdam Museum in having tear-shaped black apical shaft spots on the mantle and back, as well as black shaft streaks on the cobalt blue rump and a few on the median wing coverts, in addition dark brown shaft streaks on the breast and upper belly. I did not find this characteristic in 13 Sumatran, 12 Bornean, and 3 Javanese specimens, among which 3 juveniles, in the Leiden Museum.

I cannot see any difference between the Bornean race *mulleri* (Bonaparte 1850: S.E. Borneo), and the Sumatran race *sumatrana* (Kloss 1931: Palembang) in 7 Sumatran and 2 Bornean specimens before me. The white wing

spot is very variable in Sumatran birds: it is mostly developed in 2 Sumatran ones, in which it extends to the tips of the 6th and 7th primary; in the remaining specimens all primaries have distinct black tips. The outer web of the first primary is totally black in 4 Sumatran specimens, in the other three the white spot measures resp. 10, 17, 29 mm, and in the 2 Bornean birds resp. 5 and 23 mm. In the Bornean birds the second primary has black tips of resp. 24 and 34 mm; in the Sumatran ones these measure 19, 20, 28, 30, 38.5, 39, 43 mm. The tail feathers are tipped bright blue, except in the two Bornean specimens and in two Sumatran ones. Measurements the same:

Sumatra: wing 104, 105, 105, 109, 110, 110, 111 mm.

Borneo: wing 105, 107 mm.

Pitta guajana affinis (Horsfield 1821: Bantam, W. Java).

no 4598 — 20.VI.1925 Southern foothills Mt. Slamet. Wing 108 mm.

The specimen belongs to the western race, having the blue breast band 6 mm wide, and the ground colour of the under surface yellowish buff.

Hirundo rustica gutturalis Scopoli 1786: Philippine Islands.

Specimens of this common migrant from E. Asia have been collected at Poerwokerto, and on Mt. Lawoe at about 1800 m alt. (Dlogodlingo; ♀ 23.X.1934).

Lalage nigra nigra (Forster 1781: Singapore Island).

Three specimens from Poerwokerto have wing lengths of (♂) 87; (♀) 85, and 89; tail (♂) 70; ♀ 66.5 and 68 mm. They undoubtedly belong to the species *nigra* since they have a black wing bend and lesser primaries, a relatively long first primary and a relatively short second primary (cf. Mayr & Ripley, Am. Mus. Nov. 1116 1941 p. 4), though their bills tend to be slightly slenderer than those of 6 additional *nigra* from West Java and 9 from Sumatra. Our Mid-Javanese birds are noteworthy since Mayr and Ripley (l.c.) have given strong evidence that two distinct species *nigra* and *sueurii* should meet in Mid-Java, with or without hybridizing. Two males from Tegal, North coast of Mid-Java, are also true *nigra*!

Tail/wing ratio in 6 *nigra* from Buitenzorg: 0.75, 0.77, 0.78, 0.78, 0.79, 0.80.

Tail/wing ratio in 2 *nigra* from Tegal: 0.73, 0.81.

Tail/wing ratio in 3 *nigra* from Poerwokerto: 0.76, 0.78, 0.80.

Tail/wing ratio in 2 *sueurii* from Sumba and Timor: 0.83, 0.83.

Pericrocotus miniatus (Temminck 1822: W. Java).

Specimens were collected on Mt. Tangkoebanprahoe, Eastern slopes of Mt. Slamet (Bobotsari; Kaligoea, ± 1800 m alt.), and on Mt. Lawoe (2000 m alt.). Wing of 3 ♂♂ 84, 87, 88 mm; wing of 2 ♀♀ 81, 82 mm.

On Mt. Lawoe the species was found in the virgin forest, occurring near the tops of the trees. A stomach contained the glossy green elytra of a beetle.

The ♀♀ have the back somewhat maroon red, and not brown, as is supposed by Neumann (*dammermani*: W. Java: Bull. B.O.C. 57 1937 p. 152) to be characteristic of Javanese birds. Therefore the race *dammermani* has to be rejected (cf. also De Schauensee. Proc. Ac. Nat. Sc. Philad. 91 1939 p. 346).

Irena puella turcosa Walden 1870: Java.

A ♂ (wing 120 mm) belonging to a pair that has bred in captivity in Solo, Mid-Java. These birds made two nests in October, but in both cases nests and eggs were disturbed by other cage-birds. The nests are described as open structures, made of small twigs and branches. Mr. Rosier tells that newly fledged young of this species were often found at the bird-market of Solo about Christmas (cf. "Irena" 1 1941, p. 8).

A ♂ from the Lampongs (S. Sumatra) in the Amsterdam Museum (wing 120 mm) has the coloration of the Sumatran race (*criniger* Sharpe), being

darker and of a more cobalt blue tinge. It could not be distinguished from a ♂ from N.E. Sumatra (wing 124 mm).

Pycnonotus (Loidorus) bimaculatus barat Robinson & Kloss 1920: Mt. Korinchi, W. Sumatra.

An unsexed specimen from the S. Serajoe Mts (wing 87 mm) and one from Mt. Slamet (\pm 1800 m alt.: wing 87 mm), as well as a ♂ from Mt. Lawoe (\pm 1800 m alt.: wing 91 mm) show the following characteristics of the race: conspicuous golden yellow ear-patch and broad golden outer margins of the wing-quills.

Pycnonotus (Loidorus) simplex prillwitzii Hartert 1902: Karangbolong, S. Java.

A ♂ from the southern foothills of Mt. Slamet (wing 79 mm) is compared with 9 ♂♂ from Langkat, N.E. Sumatra (*simplex*). The Javanese ♂ has the general colour of the upper surface lighter brown with a slightly more greenish tinge; the under parts are also less dull grey and are distinctly more tinged with yellowish buff. Wing 79—85, average 82 mm.

Motacilla flava simillima Hartert 1905: Kamtschatka.

An adult ♂ (April), adult ♀ (April) and a juvenile bird (November) from Mid-Java show the following measurements:

wing ♂ 81, ♀ 78, juv 77; nail of hind toe ♂ 11, ♀ 13, juv 12 mm.

Other migratory specimens collected in Deli (N.E. Sumatra) measure: wing of 7 ♂♂ 80—84, of 5 ♀♀ 76—81; nail of hind toe of 12 ♂♀ 8—12.5, average 11 mm.

I agree with Williamson (Ibis 1947 p. 102—103) that the type-locality of the race *simillima* Hartert (Vög. paläarkt. Fauna 1 1905 p. 289), is Kamtschatka, though it appears from Hartert's remarks in Nov. Zool. 26 1919 p. 167 that at the time Hartert named the subspecies, he apparently meant to name that particular race of *M. flava*, wintering in the East Indian Archipelago suggesting that these birds might breed somewhere in Kamtschatka, an hypothesis for which Johansen (Dansk Orn. For. Tidsskr. 40 1946 p. 133) gives strong evidence.

Saxicola caprata fruticola Horsfield 1821: Java.

Three ♂♂ from Poerwokerto (June, July) have wing measurements of 67, 69, 69 mm. An additional Javanese ♂ measures 71 mm. A ♀ from Poerwokerto (May) has a wing of 67 mm. The ♀ is dark greyish brown; the under tail-coverts are creamy white and the rump is buffy.

According to Mayr (Bull. Am. Mus. Nat. Hist. 83 1944 p. 156) the Javanese race is smaller than the Timor race *pyrrhonota* (Vieillot 1818), and the ♀ is slightly differently coloured. Mayr (l.c.) mentions a small series from Mt. Tosari, E. Java (1500 m alt.), which show larger measurements than low-land specimens: wing ♂ 77; ♀ 70, 74 mm.

Brachypteryx montana montana Horsfield 1821: Java.

no 4612 ♀ (juv) 20.VI.1926 Mt. Patoeha, S.W. of Bandoeng, W. Java. Wing 67; tail 54; culmen 14; tarsus 33.5 mm. Apparently a juvenile bird, having a very soft plumage, which on the upper side is dark mouse grey, mottled with rufous. Some new blue grey feathers are coming through. The underside is also mottled with brown, becoming almost white on the center of the abdomen; under tailcoverts rufous.

no 4620 — 5.V.1925 eastern slopes of Mt. Slamet (\pm 2000 m alt.). Wing 64; tail 49; culmen 13; tarsus 31 mm. A juvenile bird, but more rufous on upper and under parts, as also on the quills, than in the Patoeha specimen. Robinson & Kloss (Journ. Fed. Mal. St. Mus. 8 1918 p. 201) describe

the juvenile plumage of the Sumatran *B. m. saturata* Salvad. as "sooty blackish brown, the feathers streaked and tipped with rusty brown".

Myiophonus glaucinus (Temminck 1823: Java.)

no 4870 ♂ 20.VI.1926 Mt. Patoeha, W. Java, \pm 1500 m alt. Wing 150 mm. Shot in a small tree above a streamlet, at the edge of a forest. Stomach: small fruits and insects.

no 4932 ♂ 27.VI.1931 Mt. Lawoe, \pm 1500 m alt. Wing 148 mm. Shot on the edge of a low secondary forest. Stomach: caterpillars and other insects; berries
no 4926 ♀ 16.VI. 1931 Mt. Lawoe, \pm 1500 m alt. Wing 145 mm. Shot in the lower bush of a secondary forest. Stomach: small fruits; insects.

Compared with the measurements given by Delacour (Auk 59 1942 p. 263: wing 135—147) these measurements are rather large!

Myiophonus caeruleus flavirostris (Horsfield 1821; Java).

no 4882 — 22.VIII.1925 Poerwokerto. Wing 185 mm. Also observed near the waterfall of Rampo, S. Serajoe Mts., where "snail-smitheries", originating from the meals of these birds have been found by Mr Rosier.

Additional Javanese ♂: wing 188 mm.

I follow the nomenclature and spelling of the generic name given by Delacour (Auk 59 1942 p. 257), who gives the following measurements: wing 160—182 mm.

Turdus poliocephalus javanicus Horsfield 1821: W. Java (Mt. Tjaremei = Tjerimai).

no 4609 — IX.1928 Mt. Tjaremei, \pm 2500 m alt. Wing 123; tail 99; tarsus 35 mm. Stomach: berries.

no 4923 ♀ 20.IX.1928 Mt. Tjaremei. Wing 121; tail 93; tarsus 35 mm.

An additional specimen from Mt. Tjaremei, above 1500 m alt., measures: wing 126 mm (Leiden Museum).

Mr Macdonald has kindly measured three specimens from Mt. Tjaremei in the British Museum: wing ♂ 124; ♀ 119; no sex 115 mm.

Our topo-typical specimens have the breast rather more tinged with greyish brown than with grey; the light coloured patch on the abdomen is light ochraceous brown; there is a distinct white abdominal patch, and the under tailcoverts have broad white shaft streaks.

Turdus poliocephalus stresemanni Bartels jr 1938: Mt. Lawoe, \pm 2000 m alt.

Two ♂♂ collected on Mt. Lawoe on 27.V.1931 at 1600 m (no 4924) and 3200 m alt. (no 4925) measure as follows: wing 131, 131; tail 103, 105; tarsus 36, 33 mm. Stomach: (1) green caterpillar, leaf-beetles, butterflies; (2) berries.

The specimens agree with the original description of *Turdus javanicus stresemanni* (Orn. Mon. Ber. 46 1938 p. 113—114). The birds are of a uniform rather dark earthy brown appearance both on upper and under parts, without a rufous or ochraceous abdomen and with only a very small white anal patch on the lower abdomen. The under tailcoverts are like the abdomen; the white shaft streaks found in other Javanese races are indicated only. They are therefore quite distinct from the race *fumidus*, of which I examined the type in the Leiden Museum (Mt. Gedeh \pm 2400 m alt., ♀ ad., wing 125 mm), and from the race *biesenbachi* (Stresemann 1930: Mt. Papandajang, W. Java). Besides, Mr Macdonald compared our specimens with *whiteheadi* in the British Museum. All these races have a rather pronounced chestnut belly! Consequently the Lawoe-birds belong to those members of the strongly segregated *T. poliocephalus-javanicus* group, that are phenotypically closer to the birds from the Philippines (Negros) and those from the Northern New Hebrides,

than to the neighbouring Javanese races! There is little doubt that *T. javanicus*, *celebensis*, and *poliocephalus* represent one historical specific unity, and nomenclature should be adapted to that view (cf. Mayr, Systematics and the origin of species, 1942, fig. 8, p. 58). The worn state of plumage of our specimens of *stresemanni* is responsible for the light greyish brown head and nape, and the contrasting darker hind crown, as well as for the slightly faded coloration of the whole plumage.

Measurements of 3 Lawoe-specimens, according to Bartels jr (l.c.): wing 128, 131, 133 mm.

Oreocincla dauma horsfieldi Bonaparte 1857: Java.

A ♂ from Mt. Patoeha (20 June) is moulting.

I feel rather unhappy in treating *Oreocincla* as a synonym of *Zoothera* as is proposed by Delacour & Mayr (Zoologica 12 1945 p. 112), although I see their similarities quite well. In my opinion in following these authors we should lose the well-marked genus *Zoothera*, from which *Oreocincla* differs at all events in the shape of the bill. *Oreocincla* might well be included into *Turdus*, and *Zoothera* be kept separately.

Copsychus saularis javensis Chasen & Kloss 1930: Wijnkoops Bay, S.W. Java.

Two specimens from Bandoeng, W. Java.

Copsychus saularis amoenus Horsfield 1821: E. Java.

Three specimens from Poerwokerto are intermediate between the western race *javensis* and the eastern race *amoenus*.

The subspecific difference is the coloration of the lower abdomen and the under tailcoverts of the ♂, which in *javensis* is white, sharply contrasting with the black breast. This condition is found in an adult ♂ from Tegal, North coast of Mid-Java, but the ♂ from Bandoeng has very broad black bases to the white feathers, giving the upper belly a slightly mottled appearance. In the birds from Poerwokerto the abdomen and under tailcoverts are slaty grey with white edges to the feathers of the cloacal region. In the ♂♂ from Bandoeng and Poerwokerto the under wingcoverts are black, but in the Tegal ♂ these are distinctly fringed with white. The distribution of white in the tailfeathers is rather variable, even in a series of Sumatran ♂♂ (*musicus*); the differences, however, are most noticeable in the 4th (from inside) rectrix, in which an increase of black is conspicuous in all black-bellied races (*amoenus*, *pluto*). (fig. 2). The Poerwokerto ♀ has the whole underside light slaty grey, but the feathers of the cloacal region and the undertail have broad white tips. Cf. Chasen & Kloss, Bull. Raffl Mus. 4 1930 p. 87.

Enicurus leschenaulti leschenaulti (Vieillot 1818: Java).

no 4797—23.XII. 1925 Southern foothills of Mt. Slamet. Wing 104; lateral tailfeathers 139 mm. Shot in a forest at about 2000—3000 m alt. Call: "cheeree". Native name: "tjing-tjing" (Rosier). An additional Javanese specimen has a wing of 108 mm.

Enicurus velatus velatus Temminck 1823: Java.

On May 31 a ♀ and a juvenile bird were shot in a crevice from a steep river coast near the waterfall Rampoa in the S. Serajoe Mts. The ♂ was collected on June 14. An additional ♂ was collected Aug. 21 near Tawangmango on Mt. Lawoe (\pm 1000 m alt.). This bird was shot along a small streamlet running through a deep ravine. Its stomach contained black remains of insects.

Measurements: wing ♂ 80, 81, ♀ 76, juv 75, lateral tail feathers ♂ 81, 78, ♀ 79, juv 75 mm. In all adults the tail feathers are considerably worn and strongly abraded, especially in the ♀, which apparently is at the end of the

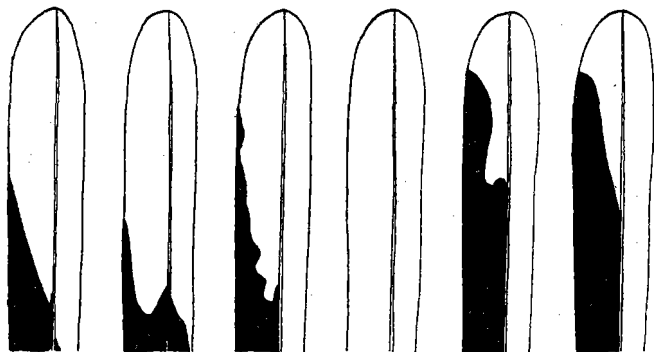


Fig. 2. *Copsychus saularis* (L.). Fourth innermost tail feather of males from the following localities (from left to right): Deli, N.E. Sumatra; idem (*musicus*); Bandoeng, W. Java (*javensis*); Tegal, Mid-Java (*subsp.*); Poerwokerto, Mid-Java (*amoenus* \cong *javensis*); Samarindo, E. Borneo (*pluto*).

nesting period. The young bird differs in missing the white forehead and in having the whole under parts including the throat and upper breast white, with a few faint dark brown small spots. Whole head and ear coverts ashy brown.

After comparison with a ♂ from N.E. Sumatra (Kaban Djahé, De Bussy coll), it appears that contrary to the description of the race *sumatranus* (Robinson & Kloss 1923: Korinchi Valley: Journ. Fed. Mal. St. Mus. 11 p. 56) the Sumatran specimen has the white frontal band slightly narrower instead of broader than in the Javanese ones. Wing of the Sumatran specimen 81 mm.

Malacocincla sepiaria sepiaria (Horsfield 1821: W. Java).

Two specimens from Poerwokerto measure: wing 73, 73; tail 44, 49; tarsus 27.5, 27.5; culmen 16, 16 mm.

An adult specimen from the S. Serajoe Mts. shot in a dense *Lantana*-growth along a roadside, measures: wing 65; tail 35; tarsus 26.5; culmen 15 mm. Compared with the above mentioned specimens and with a ♂ from N.E. Sumatra (Deli, De Bussy coll.: wing 71; tail 40; tarsus 26.5; culmen 15 mm) the upper parts of this bird are lighter rufous, less dark chestnut; the head is greyish brown, distinctly separated from the brown mantle and back; underside lighter, especially on the throat, which is less grey, but slightly tinged with rufous.

Pomatorhinus montanus montanus Horsfield 1821: W. Java.

Specimens were collected on the Southern foothills of Mt. Slamet (wing ♂ 92 mm), and on Mt. Lawoe, ranging between \pm 1500 and 1600 m alt. (wing ♂ 87, ♀ 89 mm). On Mt. Lawoe the birds were found on the western slopes of the volcano in the lower bushes of light secondary forest. Their stomachs contained plant-seeds and insects.

In the adults the superciliary stripe runs from forehead to sides of neck. The juvenile bird is much more rufous on the upper parts, including the crown and the sides of the face; the under parts have also more reddish brown, and there is a faint brown breast band.

Stachyris grammiceps (Temminck 1828: W. Java).

no 4833—4834 — 6.XII. 1925 southern foothills of Mt. Slamet, between 2500 and 5000 m alt., shot in the lower bushes. Wing 54, 55; tail 44, 42.5 mm. This endemic species was up to now only known from the mountains of W. Java!

Stachyris thoracica orientalis Robinson 1918: Idjen Mts., E. Java. Two specimens from Mt. Slamet (February; wing 78 and 79 mm) and a ♀ from

Mt. Lawoe (June; wing 79 mm) clearly show all characteristics of the eastern race (Journ. Fed. Mal. St. Mus. 7 1918 p. 236) having the head dark mouse grey, sharply defined from the chestnut of the mantle and back, and possessing a brownish black posterior border to the semi-lunar white breast-patch. Nevertheless, in both specimens the white collar is somewhat encroached in the middle by the black of the throat, as is found in the western race *thoracica* (Temminck).

Stachyris melanothorax melanothorax (Temminck 1823: Mt. Gedeh, W. Java).

A ♂ and a ♀ from the highlands near Bandoeng, W. Java (May) measure: wing 59, 59 mm. The ♀ was shot from a flock of about 10 birds in a tree-rich region near a native village.

I accept the suggestion of Delacour (Zoologica 31 1946 p. 4) that *Cyanoderma* is a synonym of *Stachyris*.

Garrulax rufifrons slamatensis Siebers 1929: Kaligoea, Mt. Slamet.

Of two almost topo-typical specimens of *slamatensis* collected near Poerwokerto (August 1925: wing 134, 127 mm) one specimen shows all characteristics of the race: bright rufous chin and throat passing gradually into the dull rufous brown abdomen and under tailcoverts, which have the same general colour as the upper side. Ear coverts more bright rufous. The other specimen differs in having the ear coverts almost like upper head and mantle and in having less pronounced rufous margins to the wing feathers.

Muscicapa (Poliomyias) mugimaki (Temminck 1835: Japan).

A specimen in the collection Rosier without label (apparently ♀) measures: wing 70; tail 49 mm. An additional ♂ from N.E. Sumatra (Bandar Baroe: 28.II.1920, Van Heyst coll.) has a wing of 72 and a tail of 47.5 mm.

Muscicapa (Cyanoptila) cyanomelana Temminck *subspec.*

no 4681 ♀ 6.XII.1925 Kalipoetra, Poerwokerto. Wing 90 mm.

The subspecific identification of this unusual N.E. Asiatic migrant to Java cannot be ascertained owing to lack of comparative material.

Muscicapa (Cyornis) banyumas banyumas Horsfield 1821: Banyumas, Mid-Java.

A ♂ from Magelang, (wing 72 mm) and one from the S. Serajoe Mts. (wing 76 mm) are compared with a ♂ from Mt. Gedeh (W. Java; *cantatrix*) and show all characteristics of the race *banyumas*: conspicuously duller, both on upper and under parts.

Gerygone sulphurea sulphurea Wallace 1863: Solor Island.

Two specimens collected in the coastal bushes near Batavia measure: wing 51, 51; tail 37, 35 mm. These are almost topotypes of *Gerygone modigliani jacobsoni* Van Oort (Notes Leyden Mus. 31 1909 p. 207: Islet near Batavia). I have followed Mayr (Bull. Am. Mus. Nat. Hist. 83 1944 p. 160) in recognizing *sulphurea* as a distinct species and not as a race of *fusca*.

Although in Java for the first time discovered in the coastal zone of Batavia, the species is said to be found in the whole mangrove zone of the North-Javanese coast: Hoogerwerf & Siccamma (Ardea 27 1938 p. 79) observed it not only in W. Java, but also in the delta of the river Brantas, south of Soerabaja, E. Java! Bartels Jr., however, mentions to have observed the species a few times in Pasir Datar (W. Java: 1000 m alt.), as well as along the S.coast of Bantam, W. Java (Ardea 28 1939, p. 19).

Rhipidura phoenicurus S. Müller 1843: Java.

no 4989 ♀ 18.VII.1934 Tjemasasewoe, Mt. Lawoe, 1800 m alt. Wing 70; tail 85 mm. Stomach: black insect remains.

Acrocephalus orientalis siebersi Salomonsen 1928: W. Java.

Two specimens from Rawah Bekasi. W. Java (20.IX.1926) measure as follows: wing 79.75 mm; wing formula $8 > 2 > 9$, and $10 > 2 > 9$. This is the breeding race of W. Java. 7 migratory specimens from Deli, N.E. Sumatra collected by De Bussy in Oct., Nov., and April have the following measurements (*orientalis* (Temminck & Schl.)): wing 76, 78, 78, 79, 80, 81, 83 mm; wing formula $4 > 2 > 5$; $4 > 2 = 5$; $4 > 2 > 5$; $3 > 2 > 4$; $5 > 2 > 6$; $4 > 2 > 5$; $4 > 2 > 5$.

Orthotomus sepium sepium Horsfield 1821: Java.

A ♂ from Poerwokerto (wing 47; tail 40; culmen 15 mm) agrees with 4 ♂♂ from Buitenzorg. W. Java (wing 46, 46, 47.5, 48; tail 37.5, 39, 39, x; culmen 13, 14.5, 14.5, x mm) in the light greyish olive colour of the upper side and the yellowish tinge on the under side, which are clearly distinct from the almost mouse grey upper sides and greyish under sides in 3 Deli specimens (N.E. Sumatra (*ruficeps*)): wing ♂ 46, ♀ 43, 45; tail ♂ 41, ♀ 35, 39; culmen ♂ 14, ♀ 14, 14 mm).

Cettia fortipes vulcania (Blyth 1870 (Ibis p. 170): Java).

Synonym: *Sylvia montana* Horsfield 1821: Java, which is antedated by *Sylvia montana* Wilson 1812, an American warbler: cf. Delacour, Auk 64 1947 p. 129.

no 4998 ♂ juv. 20.IX.1928 Mt. Tjaremei, ± 3000 m alt. Wing 54; tail 57 mm. Three unlabelled adults measure: wing 49, 50, 54; tail 52, 53.5, 56 mm.

The juvenile specimen differs from the adults in having the under side from chin to under tailcoverts dull yellowish olive instead of light greyish white with light brown flanks and breast band. The light eyebrow is apparent like in the adults.

Bradypterus montis montis (Hartert 1896: Mt. Ardjuno, E. Java).

no. 4911 ♂ 25.X.1934 Dlogodringo, Mt. Lawoe, 1800 m alt. Wing 53; tail 61; tarsus 21; culmen 12 mm.

This is a mountain species from the eastern part of the island. A slightly different race has been described by Mayr (Bull. Am. Mus. Nat. Hist. 83 1944 p. 158) from Mt. Mutis (1800 m), Timor (*timorensis*)!

Prinia polychroa polychroa (Temminck 1828: Java).

A specimen from Poerwokerto (April) measures: wing 59; tail 76. tarsus 24.5; culmen 13 mm. An additional ♂ from Buitenzorg (June) measures: wing 58; tail 80; tarsus 23.5, culmen 12 mm.

I was greatly surprised to be unable to detect any essential difference between this supposed endemic species and three specimens of *Prinia criniger* (Hodgson 1836) from the N.W. Himalayas (Hill States: Behua, 780 m alt.; Kepu, 1800 m alt.; Simla, 2000 m alt.) and one from Cashmere. The Simla specimen differs from the Javanese ones only by having a very slightly more slender bill, and somewhat rufous tinged margins of the wing feathers; besides, by having the under side less pure light creamy buff, but slightly more suffused with dusky olive, and perhaps by a relatively longer tail. The two rectal bristles on each side of the mouth are equally strongly developed, and the 10 tail feathers have light tips with each a subapical faintly defined black spot. In consequence of this great similarity I fully agree with Deignan (Smiths. Misc. coll. 103 (3) 1942) to treat *polychroa* and *criniger* as races of one species. *Prinia „criniger”* is a widely distributed Asiatic species, inhabiting the grass and bush countries of the Himalayas and the Burmese and S. Chinese regions. It is more satisfactory to consider the Javanese *polychroa* as an isolated race of a species with a general continental distribution, rather than to treat it as an endemic "species" without known close relatives.

Prinia familiaris olivacea (Raffles 1822: Sumatra).

A specimen from Poerwokerto (May) and one from the S. Serajoe Mts. (April) measure: wing 56, 53; tail 61, 57.5 mm.

According to Kloss (Treubia 13 1931 p. 354) Sumatran and W. Javanese birds differ from E. Javanese ones in "having the abdomen a rather brighter yellow". The above mentioned specimens fall in this respect within the variation of a series of 9 specimens from Buitenzorg, W. Java.

Pachycephala cinerea cinerea (Blyth 1847: Arracan, Island of Ramree). Two specimens from the S. Serajoe Mts. measure: wing 81, 82 mm.

A ♂ from Bandoeng, W. Java, measures: wing 87 mm.

A ♂ from Hoorn Island, Bay of Batavia, measures: wing 84 mm.

According to Stresemann (Treubia 11 1929 p. 135) the race *butaloides* Stresemann (1929: Bolang, W. Java) has a wing of 79—84 mm only, as against 84—89 mm in birds of Tenasserim and the Malay Peninsula. The above given measurements, as well as the wing lengths of birds from Peninsular and S. W. Siam (De Schauensee, Proc. Ac. Nat. Sc. Philad. 91 1939 p. 360: ♂ 78, 79.5, 80; ♀ 79.5, 82.5 mm), and those from N.E. Sumatra (De Bussy coll.: wing 76, 80, 81, 83, 84, 85 mm) in the collection of the Amsterdam Museum, indicate that the differences stressed by Stresemann do not hold good, so that the race *butaloides* must be rejected.

The species is a characteristic inhabitant of mangroves and *Casuarina* forests, and all sorts of coastal bushes; it has also been observed in Krakatau and Verlaten Islands in Strait Sunda, as early as about 60 years after the well known eruption. *Lanius schach bentet* Horsfield 1821: Java.

One adult specimen from Poerwokerto (June) has the black of the crown extending much farther backward than in 3 other specimens from Mid-Java. It is thus intermediate between *bentet* and "*tosariensis*" (cf. Mayr, Bull. Am. Mus. Nat. Hist. 83 1944 p. 163).

Aplonis minor minor (Bonaparte 1850: Timor).

no 4842 ad. 31.VIII.1925 Kaligoea, Mt. Slamet, \pm 2000 m alt. Wing 98 mm.

This is one of the first examples of this species from Java.

no 4900 ♂ 6.VIII.1933 Mt. Lawoe, \pm 1200 m alt. Wing 100 mm. Shot in a light secondary forest, where it was found in flocks in "Dadap"-trees only.

Oriolus chinensis maculatus Vieillot 1817: Java.

Two specimens collected in the S. Serajoe Mts. (16.XII.1924) measure: wing 131, 137; culmen 29.5, 30.5 mm.

Four additional Javanese specimens measure: wing 130—137, average 134.5; culmen 30.5—32.5, average 31.1 mm.

Eight Sumatran specimens measure: wing 140—144, average 141.4; culmen 30—32.5, average 31.6 mm.

The above measurements show that the distinctness between a Sumatran and Malacan race (*edgari* Chasen: Singapore Island; Treubia 17 1939 p. 205) and a Javanese race, on account of a longer bill of the former cannot be confirmed. Nevertheless, the wing-measurements would indicate that Javanese birds are smaller than Sumatran ones!

Dicrurus macrocerus javanus Kloss 1921: E. Java.

Two specimens collected July, 24th, 1927 in the Island of Purmerend in the Bay of Batavia had normally chestnut coloured eyes.

Psaltria exilis Temminck 1836: Java.

no 4796 ♂ 20.VI.1926 Mt. Patoeha, W. Java. Wing 44 mm.

no. 4978 ♂ 24.V.1926 Northern slopes of Mt. Goentoer, W. Java. Wing 43.5 mm.

Sitta azurea Lesson *subspec.*

Two specimens shot on Mt. Lawoe at about 1600 m alt. (July) were found in a secondary forest where they occurred in rather large flocks.

According to literature descriptions the specimens are intermediate between the

western (*nigriventer* Robinson & Kloss 1919: Mt. Gedeh, W. Java) and the eastern (*azurea* Lesson 1830: Mt. Ardjuno, E. Java) races, recognized by Chasen (1935) in his Handlist: the white of the underparts in these specimens is distinctly tinged with buff (as in *nigriventer*), but the black of the abdomen has a slight, though distinct dark blue wash (as in *azurea*).

Anthreptes malacensis malacensis (Scopoli 1786: Malacca).

A ♂ and a ♀ have been shot at the moment of coition (May, 10th, 1925). The ♂ is remarkable in still having a green dress, of which only a few metallic feathers are coming through: moustachial region, a few about the right and a few more about the left eye, as well as one feather in the scapular region. According to Delacour (Zoologica 29 1944 p. 37) the species has no eclipse plumage, so that the green dress of the ♂ must be considered to be the juvenile! Two juvenile ♂♂ shot in the Island of Edam in the Bay of Batavia (July) show the immature (female) plumage, whereas another juvenile ♂ from the same locality and date shows many signs of the adult plumage: new metallic feathers are coming through on crown, interscapular region, back, upper tail-coverts, moustachial region, and sides of the neck.

Leptocoma jugularis pectoralis (Horsfield 1821: Java).

Specimens were collected in Poerwokerto and in the Islands of Leiden and Purmerend in the Bay of Batavia.

A ♂ from Poerwokerto (November; no 4813) is moulting the originally yellow throat into metallic blue: only a few strongly abraded yellow feathers are present between the broad metallic median throat-line.

A ♂ from Purmerend Island (July; no 5005) apparently is moulting the bright breeding plumage into the dull eclipse plumage: new olive green feathers are coming through amidst the metallic blue feathers of the forehead. The occurrence of an eclipse plumage in the species is already known (cf. Delacour, Zoologica 29 1944 p. 37). Males in the collection of the Amsterdam Museum moulting from a dull into a bright plumage, which may be either juveniles or adult ♂♂ in eclipse plumage, originate from Febr. 27; Aug. 24; July 7.

The subspecific differences between the Sumatran race *microleuca* (Oberholser 1919: Tata Island, S.E. Sumatra) and the Javanese one is rather slight. I have compared 12 Javanese ♂♂ with 8 Sumatran ones, and found that the colour of the upper parts in the Sumatran series is only very slightly darker, although matched by some Javanese ones. Light yellowish green upper parts are only found in the Javanese series. 6 Javanese ♀♀ and 8 Sumatran ones, however, have the upper parts opposite to those in the ♂♂: in the series the Javanese birds are darker greyish green than the Sumatran birds, but this might be caused by wear. The Sumatran ♀♀ have brighter golden yellow under parts. Measurements are slightly different, especially those of the culmen, but mostly overlapping considerably. In conclusion, the Sumatran race appears to be very ill-defined, and can hardly be maintained.

Java: ♂	wing 50—53,	average (15) 51.3;	culmen 16—17, average (12) 16.5 mm.
Sumatra: ♂	" 50—55,	" (8) 52.3;	" 17—18, " (7) 17.4 mm.
Java: ♀	" 48—49.5,	" (6) 48.9;	" 15—17, " (6) 15.8 mm.
Sumatra: ♀	" 46—52,	" (8) 48.8;	" 16—17.5, " (8) 16.5 mm.

Aethopyga eximia (Horsfield 1821: Java).

Specimens were collected on Mt. Slamet at about 2000 m alt., and on Mt. Lawoe at about 1500 m and 1800 m alt. In the latter locality the species was met with abundantly in secondary and primary virgin forest. Wing: ♂ 53, 55.5, 58, 60; ♀ 48, 52 mm.

Dicaeum sanguinolentum sanguinolentum Temminck 1829: W. Java.

Although Mt. Lawoe is situated in the eastern part of Mid-Java, yet, a ♀

collected on that mountain has the brick red rump and upper tail coverts, which are the characteristics of the western race!

Zosterops lutea maxi Finsch 1907; Thousand Islands in the Bay of Batavia. Underside bright greenish yellow. Wing: ♂ 56, ♀ 57; culmen ♂ 11.5, ♀ 11 mm.

Specimens have been obtained in the Islands of Purmerend and Kerkhof.

The race is only known from the Thousand Islands. Mayr (Bull. Am. Mus. Nat. Hist. 83 1944 p. 168—169) appears to be right in referring all mangrove-inhabiting forms of the Indian Archipelago to one species.

Hoogerwerf & Siccama (Ardea 27 1938 p. 208) observed this species in every island in the Bay of Batavia that has been visited by them.

The freshly moulted ♂ (July) has the whole underparts from throat to under tailcoverts of a distinctly clearer yellow tone than the worn ♀ (May), in the latter the underparts are dull yellow. In the ♀ the upperparts are considerably faded too!

Zosterops lutea flava (Horsfield 1821: Java).

Underside golden yellow. No dark loreal spot! Wing 51; culmen 9 mm.

A ♂ was collected in coastal bushes near Batavia in September.

Z. flava may be treated as a race of *lutea* (Mayr, *in litt.* 1948) of which coastal bushes and mangroves seem to be the exclusive habitat.

Zosterops palpebrosa gallio Sharpe 1884: E. Java.

Underside yellow. Wing 50. 50; culmen 9.5, 10 mm.

Specimens have been obtained in October and December in the S. Serajoe Mts. at about 500 m alt.

Stresemann (Journ. f. Orn. 1939 p. 161) indicates that — at all events in East Java! — only the medium high regions are available to the species *palpebrosa*. The lowland regions should be occupied by *lutea* (= *chloris* according to Stresemann), whereas *montana* lives in the mountains. These considerations are in agreement with the rather low elevations at which the above mentioned birds were found. An additional specimen of *gallio* in the Amsterdam Museum originates from Mt. Tangkoeban Prahoe, Mid Java, collected by Jhr F. C. van Heurn at about 1500 m alt., which is rather high. However, *Z. montana sindorensis* have been collected by Mr Rosier on Mt. Tjaremei as high as at 3000 m alt.!

Zosterops montana sindorensis Siebers 1929: Mt. Tjaremei, West Java.

Underside isabelline. Wing 59; culmen 9 mm.

A ♀ was collected near the crater-mound of Mt. Tjaremei at about 3000 m alt. in September.

This is the mountain dwelling species of *Zosterops* in Mid Java (cf. Stresemann, l.c.).

Apoia javanica javanica (Horsfield 1821: Mid Java).

Specimens have been obtained on Mt. Slamet (± 2000 m alt.) and on Mt. Lawoe (± 1600—2000 m alt.) in June, July, and December. Wing: 63, 63, 63, 64, 65.5 66; culmen 9.5, 11, 11.5, 11.5, 11.5, 12 mm. The specimens have white patches above and below the eye, as well as a white forehead and lores, which are the characteristics, of the race.

I agree with Delacour (Zoologica 31 1946 p. 4) that the genus *Apoia* is distinct from *Zosterops*.