

NOTES ON INDONESIAN BIRDS WITH SPECIAL REFERENCE  
TO THE AVIFAUNA OF JAVA AND THE SURROUNDING SMALL  
ISLANDS (I) <sup>1)</sup>

by

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1. Some remarks on *Anthus novaeseelandiae* (Gmel.), with the description of a new subspecies from East-Java.

When comparing a series of 30 birds belonging to the subspecies *malayensis* with 8 skins of *albidus* and a single one of *medius*, the difference is striking, for birds belonging to *malayensis* average in being less clear white below than is the case in both other subspecies. In this last race not only the lower under parts are washed with ochreous brown, but especially the foreneck and the chest show this tint very clearly, whereas also the markings on those parts have a different, browner tint than in *albidus* or *medius* in which subspecies the spots average less heavy too. Between all our skins of *malayensis* there is only one bird, originating from central Java, which does not differ on the under surface from *albidus*, but this specimen was preserved in alcohol which might have caused that lighter colour, though — of course — this cannot be the case with the less heavy markings on the foreneck and the chest. STRESEMANN remarked already so far back as in 1912 (1) that 2 birds seen by him, originating from East-Java, were lighter on the under parts than specimens from other parts of the range of *malayensis*. Five skins from the Bogor Museum, now before me, secured in 1924 and 1939 in that part of Java, partly confirm STRESEMANN's opinion, but moreover they show the markings on foreneck and chest heavier than in the average *malayensis* and — finally — they average larger in size, for the wing-length in these birds reaches a maximum of 84 (♀) and 91 (♂) mm and a tail-length of resp. 62 and 69 mm, figures unknown in any of the 23 birds of *malayensis*, measured by me.

When compared with a large series of this last subspecies, originating from West-Java, present in the Leyden Museum, our East-Java material is not lighter on the lower under parts but the whitish tint on chin, throat and foreneck covers a larger area and the chest shows the markings heavier.

<sup>1)</sup> Papers on the same subject appeared in Bulletin of the British Ornithologists' Club, Vol. 82, no. 8, November 1962, pp. 142-154 and will be published in the next issue of ARDEA.

When comparing the upper parts those birds from East-Java fit well in specimens belonging to *malayensis* but on the pileum the markings show more contrast. An East-Java skin in the Leyden Museum, collected in the hills at the foot of the Yang Highland (Klatakan) fits well in the series of our birds coming from that part of Java but 2 skins of birds collected in the lowlands of East-Java (Meleman) are similar with specimens collected in West-Java, which makes it justified to suppose that the characters indicated above are restricted to birds originating from East-Java's mountains.

The 5 male birds, recently obtained by me from Komodo and Padar Islands (near Flores) do not fit exactly into the material of old date belonging to *albidus*, originating from Sumba and Lombok, because of the fact the birds from Komodo and Padar still average somewhat lighter below than those old *albidus* skins. On account of the fact that they were preserved in formalin it seems not advisable to pay too much attention to the difference in this respect, which — moreover — is not very convincing. Therefore I consider these islands as belonging to the range of *albidus*.

I fail to find any difference on the under parts between our old *albidus* material and the single skin of *medius* before me, coming from Timor. It has also the small nail of the hallux as has *albidus*, differing from *malayensis*.

STRESEMANN (1) mentions in the diagnosis of *albidus* the very dark upper surface, but when comparing our old material of this race it is impossible to discover any difference with *malayensis* on this point. The last subspecies — however — averages browner than *albidus*, not so strikingly observable in old material but very distinct in our 5 fresh skins from Komodo and Padar, which make quite a grey impression without any trace of brown whatever.

It is with a view on the large differences in plumage of the upper parts between old and fresh material that it seems wise to be very carefully when using them as subspecific characters. Therefore I do not think it justified to look upon the rather striking differences in the plumage between our fresh material from Komodo and Padar and the old Sumba/Lombok skins as to be of subspecific value. Moreover STRESEMANN'S diagnosis of *albidus* agrees nearly perfectly with our fresh skins. The slight size-difference in wing-length which we found is partly caused by the fact that the large primaries in 4 out of the 5 specimens were moulting.

When looking upon the upper parts there is no difference whatever between the 1939 skin of *medius* and our old material (1925, 1927) of *albidus*. Of the recently obtained male birds of this last race 3 had small or very small gonads, in the 2 other ones the testicles were well developed (about 5 mm) but they do not show any difference in plumage.

The individual size-variations in the different subspecies, studied by me, are not very important but the females seem to measure somewhat smaller than the males and the subspecies *albidus* averages a trifle larger than *malayensis* in the wings as well as in the tail.

With a view on the differences indicated above, I propose to separate birds of this species originating from the mountains of East-Java from the population living in other parts of Java, for which I suggest the name.

*Anthus novaeseelandiae idjenensis* subsp. nov.

Types: ♂ No. 2602, Bogor Museum, 9.6.1924, leg. K.W. Dammerman; Blawan, Idjen Highland, about 950 mtr. alt.

♀ No. 12390, Bogor Museum, 10.7.1939, leg. A.C.V. van Bemmel; Ranau Kumbolo, Mt. Tengger, about 2383 mtr. alt.

Wing, tail and bill in both sexes longer than in *malayensis*, wing and bill longer than in *albidus*. In plumage much resembling *malayensis*, but more white on the chin, throat and foreneck; markings on the chest heavier than in *malayensis*, streaks on pileum show more contrast.

Darker on the under parts than *albidus* or *medius* and much heavier markings on the chest; browner above. Hallux nail averages still heavier than in *malayensis*.

The 5 birds from East-Java could be compared with 27 specimens of *malayensis* of which many were secured in about the same period as the skins of the new subspecies. Besides they could be studied with 8 skins of *albidus*, obtained in 1925 and 1927 and 5 secured in 1954. Finally all this material could be compared with large series of *malayensis* present in the Leyden Museum.

Measurements:

♂ ♂ Wing, *malayensis* (Bogor Museum): 74, 78, 78, 80, 81, 82, 82, 82, 82, 82, 82, 82, 83, 83, 83, 84, 84, 84, 85; *malayensis*, (Leyden Museum): 78, 81, 84, 84, 85; *albidus* (Komodo, Padar): 81, 82, 82, 83, 84; *albidus* (Lombok): 83, 88; *idjenensis*: 86, 87, 91 mm.

Tail, *malayensis* (Bogor Museum): 53, 54, 55, 56, 58, 58, 59, 59, 59, 59, 60, 61, 61, 61, 61, 62, 62, 63, 66; *malayensis* (Leyden Museum): 55, 58, 58, 59, 60; *albidus* (Komodo, Padar): 60, 62, 62, 64, 64; *albidus* (Lombok): 65, 68; *idjenensis*: 65, 68, 69 mm.

Culmen, *malayensis* (Bogor Museum): not measured; *malayensis* (Leyden Museum): 13, 13, 14, 14, 14; *albidus* (Komodo and Padar): 12.5, 13.2, 13.5, 13.8, 13.9; *albidus* (Lombok): 13.1, 14; *idjenensis*: 13.8, 14.9 mm.

Max., min. and average measurements:

|               | <i>malayensis</i><br>(Bogor Museum) | <i>malayensis</i><br>(Leyden Mus.) | <i>albidus</i><br>(Komodo-Padar) | <i>albidus</i><br>(Lombok) | <i>idjenensis</i>          |
|---------------|-------------------------------------|------------------------------------|----------------------------------|----------------------------|----------------------------|
| Wing:         | $\frac{74 - 85}{81.63}$             | $\frac{78 - 85}{82.40}$            | $\frac{81 - 84}{82.40}$          | $\frac{83, 88}{85.50}$     | $\frac{86 - 91}{88}$       |
| Tail:         | $\frac{53 - 66}{59.32}$             | $\frac{55 - 60}{58}$               | $\frac{60 - 64}{62.40}$          | $\frac{65, 68}{66.50}$     | $\frac{65 - 69}{67.33}$    |
| Culmen: _____ |                                     | $\frac{13 - 14}{13.60}$            | $\frac{12.5 - 13.9}{13.38}$      | $\frac{13.1; 14}{13.55}$   | $\frac{13.8; 14.9}{14.35}$ |

ex literature (2): 11 ♂, *malayensis* (Sumatra), Wing:  $\frac{80 - 83}{82}$

♀ ♀ Wing, *malayensis* (Bogor Museum): 76, 77, 79, 79, 79; *malayensis* (Leyden Museum): 79, 79, 79, 81, 82; *albidus* (Komodo, Padar): no females available; *albidus* (Lombok, Sumba): 75, 75, 79, 79, 83; *idjenensis*: 82, 84 mm.

Tail, *malayensis* (Bogor Museum): 56, 56, 56, 58, 60; *malayensis* (Leyden Museum): 55, 55, 57, 60, 60; *albidus* (Komodo, Padar): no females available; *albidus* (Lombok, Sumba): 59, 60, 60, 61, 68; *idjenensis*: 59, 62 mm.

Culmen, *malayensis* (Bogor Museum): not measured; *malayensis* (Leyden Museum): 13, 13, 13, 13, 13; *albidus* (Komodo, Padar): no females available; *albidus* (Lombok, Sumba): 12.8, 13, 13.4, 13.7, 13.8; *idjenensis*: 14 mm.

Max., min. and average measurements:

|               | <i>malayensis</i><br>(Bogor Museum) | <i>malayensis</i><br>(Leyden Mus.) | <i>albidus</i><br>(Komodo-Padar) | <i>albidus</i><br>(Lombok, Sumba) | <i>idjenensis</i>      |
|---------------|-------------------------------------|------------------------------------|----------------------------------|-----------------------------------|------------------------|
| Wing:         | $\frac{76 - 79}{78}$                | $\frac{79 - 82}{80}$               | _____                            | $\frac{75 - 83}{78.20}$           | $\frac{82, 84}{83}$    |
| Tail:         | $\frac{56 - 60}{57.20}$             | $\frac{55 - 60}{57.40}$            | _____                            | $\frac{59 - 68}{61.60}$           | $\frac{59, 62}{60.50}$ |
| Culmen: _____ |                                     | $\frac{13 - 13}{13}$               | _____                            | $\frac{12.8 - 13.8}{13.34}$       | 14                     |

ex literature (2): 3 ♀, *malayensis* (Sumatra), Wing:  $\frac{77 - 79}{78}$

#### Literature:

1. STRESEMANN, ERWIN, Die Indo-Malayische Formen von *Anthus richardi* Vieill.; Nov. Zoöl., 19, 1912, p. 316.
2. ROBINSON & KLOSS, Birds of West-Sumatra; Fed. Malay States Museums, 11, 1923/24, p. 331.

2. On account of a supposed case of hybridization between *Lonchura leucogastra* subsp. and *Lonchura striata subsquamicolis* from Sebesi Island (Sunda Strait between Java and Sumatra).

When studying a large series of *Lonchura leucogastra* there is hardly any individual variation in the colour of the plumage of the adult birds, but 2 skins secured on the island of Sebesi, which we visited during our 1951-expedition to the Strait Sunda area, do not agree with birds from Java and Sumatra on the following important points: a) the lower back shows much white, b) the upper tail-coverts and-quills are very dark and c) there are white spots on the undertail-coverts. With a view on that light lower back, these birds show some resemblance with *Lonchura striata* subsp. living in certain parts of Sumatra. Moreover the feathers on the mantle show light spots which makes those Sebesi skins more alike *Lonchura leucogastra* from South Sumatra again, though birds belonging to this last species have light streaks on the upper surface, not spots as is the case

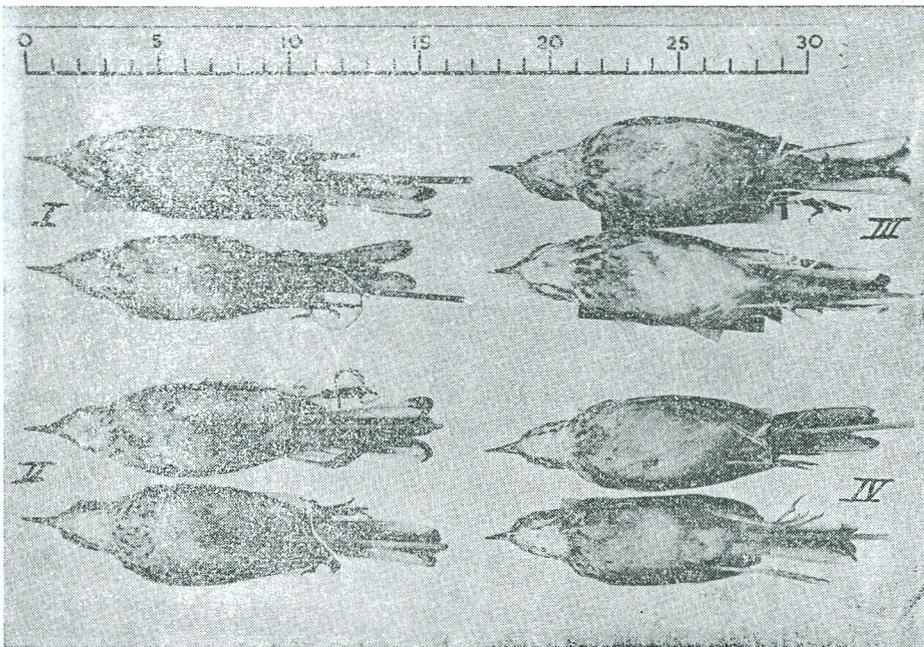


Fig. I. *Anthus novaeseelandiae* subsp.

- I. ♀♀ subsp. *albidus* from Lombok and Sumba (Smaller Sunda Islands)  
 II. ♂♂ „ *albidus* from Rintja and Padar (Smaller Sunda Islands, near Flores)  
 III. ♂♀ „ nov. *idjenensis* from Mts. Idjen and Tengger (East Java)  
 IV. ♂♀ „ *malayensis* from Java's lowlands (near Djakarta)

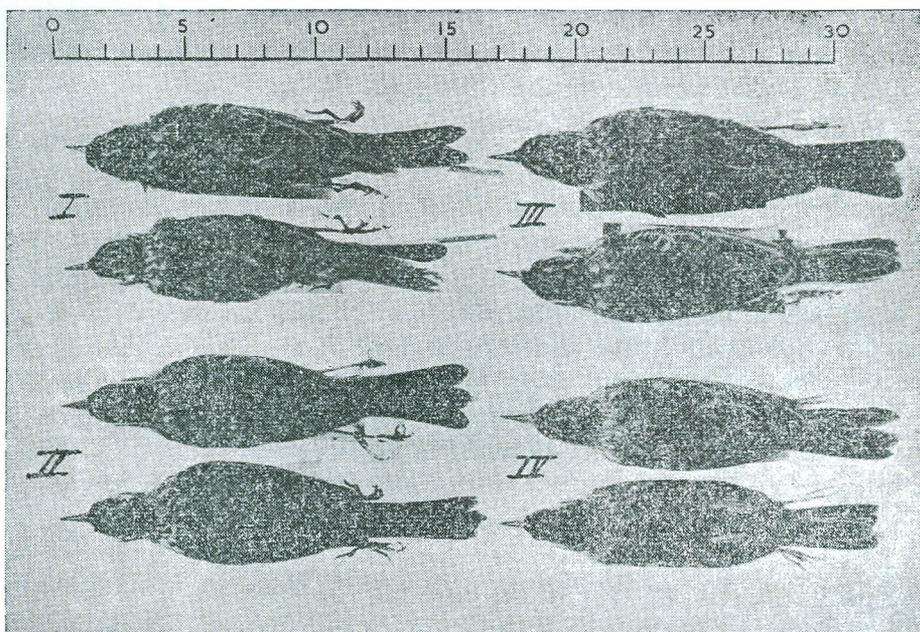


Fig. II. *Anthus novaeseelandiae* subsp.

- I. ♀♀ subsp. *albidus* from Lombok and Sumba (Smaller Sunda Islands)  
 II. ♂♂ " *albidus* from Rintja and Padar (Smaller Sunda Islands, near Flores)  
 III. ♂♀ " nov. *idjenensis* from Mts. Idjen and Tengger (East Java)  
 IV. ♂♀ " *malayensis* from Java's lowlands (near Djakarta)

in both these Sebesi birds, which moreover have no golden yellow on the upper tail.

Though only these 2 skins do not justify a final conclusion regarding the real status of the population of *Lonchura* on Sebesi Island, I think it probable that our birds are products of a mixed population of *Lonchura leucogastra* and *L. striata subsquamicollis* known from South Sumatra, also because of the fact both Sebesi birds show rather important individual variations: the female bird has the white spots on the lower back less distinctly defined, whereas the male bird has a greyish white lower back with brown spots and bars. On the undertail-coverts the picture is just the other way round, for on those parts the female shows white bars and spots and the male has the light markings smaller and less striking.

But there is still a more important objection to consider Sebesi's *Lonchura* as a new subspecies, because this island is situated quite close to Krakatau (Rakata) and the terrific catastrophe which destroyed in 1883

all animal-and plantlife on this volcano, made also a desert of Sebesi Island, which made the survival of any bird very doubtful. Our birds are most probably the offspring of 2 different *Lonchura* species, arriving at the island to fill up the available niche when circumstances improved again.

In measurements these birds do not differ from specimens of the species mentioned above (wing ♂: 50, ♀ 49 mm; tail ♂: 41, ♀ 38 mm and culmen ♂: 10, ♀: 10 mm). The gonads of the male were large, 2—3 mm, the female had a very small ovarium.

3. On *Spilornis cheela*, with special reference to the subspecies *baweanus*, known from the Island of Bawean between Java and Borneo.

As a result of our 1954-expedition to the island of Bawean we brought home some specimens of this bird of prey of which only very few skins are present in collections beyond Indonesia. This material formed the reason for these notes.

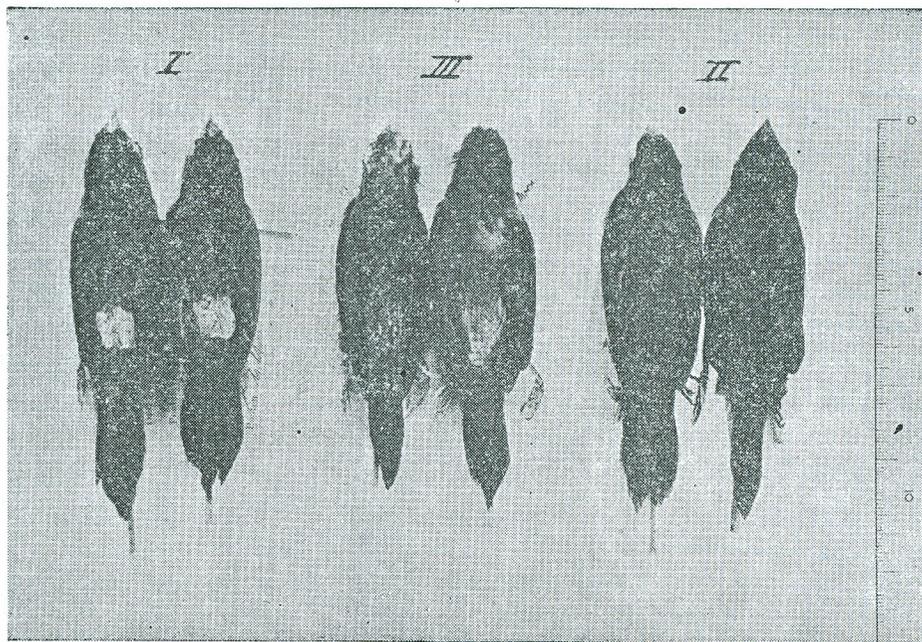


Fig. III.

- I. ♂♀ *Lonchura striata subsquamicollis* (South Sumatra)
- II. ♂♀ *Lonchura leucogastra leucogastroides* (West Java)
- III. ♂♀ Possible hybrid between both these species (Sunda Strait)

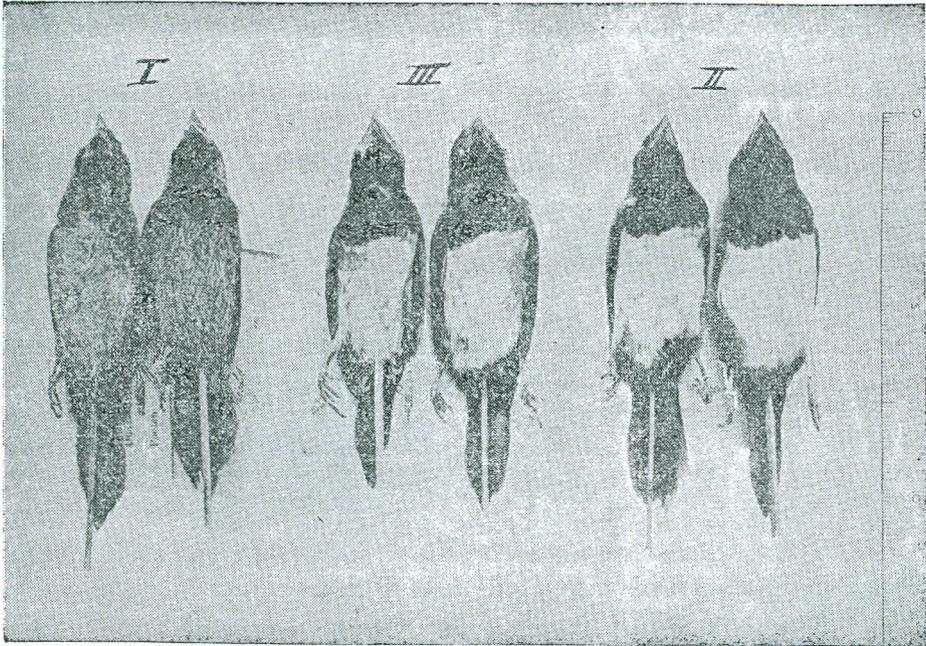


Fig. III A.

- I. ♂♀ *Lonchura striata subsquamicollis* (South Sumatra)  
 II. ♂♀ *Lonchura leucogastra leucogastroides* (West Java)  
 III. ♂♀ Possible hybrid between both these species (Sunda Strait)

OBERHOLSER separated Bawean's population of this *Spilornis* because of its smaller bill when compared with birds from Sumatra and on account of its larger dimensions and darker feathering when compared with birds belonging to Borneo's *pallidus*.

HARTERT added the following particulars to OBERHOLSER's diagnosis: white tail band narrower (30 mm), wide basal one brown; primaries with 3 regular bands of black below, the subterminal white band 30 mm wide and terminal black band 60 mm; throat and chest uniform brown; below darker brown with rounded spots of white; under wing-coverts dark brown with white spots. He mentions 342 mm as the wing-length of a female bird.

Though there is some individual variation between the 7 specimens of Java's subspecies *bido*, now in my hands, 5 out of the 7 skins have the under parts darker than is the case in the 6 specimens of Sumatra's *mala-*

*yensis*<sup>1)</sup>, most distinct on the chin, throat, foreneck and chest. Looking upon the dark under surface in 4 of the 5 skins from Bawean, the subspecies *baweanus* resembles more *bido* than *malayensis*.

The particulars indicated by HARTERT concerning the bands on wings and tail cannot be used as subspecific characters because there is too much individual variation on that point, excepted perhaps the light tail band which indeed seems somewhat narrower in *baweanus* than in representatives of both other races discussed above.

Though also on the upper parts the individual variation cannot be called small, it is true that *bido* on those parts too averages darker than *malayensis* whereas also the light tail-band on the upper tail averages distinctly dirtier, less whitish than is the case in Sumatra birds.

Comparing the upper parts *baweanus* resembles *malayensis* more than *bido* but all specimens of *baweanus* before me differ from both other races because of the much white in the black of the pileum, which in this case cannot be seen as a consequence of young age as seems always to be so in birds of both other subspecies.

The most important difference between *baweanus* and the other forms is not one of plumage but of size, for birds from Bawean are much smaller in both sexes than those belonging to *bido* and *malayensis*, especially in the bill and wings which makes this subspecies a very distinct one.

Our fresh Bawean skins had small gonads; the sexes are alike in plumage, nor do they differ much in size either so far it concerns the specimens present in the Bogor Museum.

When comparing *baweanus* with *abbotti* (which according to STRESEMANN ought to be included into the "Rassenkreis" of *elgini*), this last race makes the impression to be of outstanding quality for the only skin belonging to this race present in Bogor's Museum, originating from Simalur, is much browner below and shows very distinct, but narrow, dark bars on those parts. The wings and upper surface too are darker than in *baweanus* and also than *natunensis* and the size seems somewhat intermediate between *baweanus* and *malayensis* or *bido*.

There is not much material at my disposal of the other subspecies living in Indonesia, but a small series of skins belonging to *natunensis* averages somewhat smaller than *baweanus*, whereas these birds are also lighter in plumage, especially on the under parts when compared with fresh *baweanus*, but the only old skin of this last race studied by me does not

<sup>1)</sup> According to STRESEMANN (1) this ought to be the subspecific name for the population of this bird of prey living on Sumatra.

differ much from the *natunensis* skins, also obtained already more than 20 years ago. I also failed to discover any other difference in the feathering of both these races when comparing old material, so that the rather small differences in size might form the only real subspecific character.

The differences mentioned by CHASEN (2) when comparing this subspecies with *pallidus* from North Borneo are also valid for *baweanus* and the measurements given by CHASEN when describing *natunensis* (wings: ♀ 324, 313; tail: ♀ 220, 213 mm) do not seem sufficient to maintain the subspecies when comparing it with *baweanus*. It is to be regretted that this author did not compare his *natunensis* with *baweanus* and did not even mention it.

It therefore seems important to compare more material from the Natuna Islands with birds belonging to *baweanus* and the other races of *Spilornis cheela* in order to produce a more satisfying diagnosis than CHASEN published.

#### Measurements:

♂ ♂ Wing, *bido*: 375, 380, 382, 387; *malayensis*: 365, 367, 380, 388; *baweanus*: 322, 323, 327, 340; *natunensis*: 313, 314, 315 mm.

Tail, *bido*: 250, 250, 251, 265; *malayensis*: 262, 262, 280, 287; *baweanus*: 210, 213, 215, 215; *natunensis*: 206, 208, 210 mm.

Culmen (measured without cere), *bido*: 28, 29.5, 30.5, 31.1; *malayensis*: 29, 29.6, 30.7, 32; *baweanus*: 26.5, 27, 27.8; *natunensis*: 21.5, 24.5, 25.5 mm.

#### Max., min. and average measurements:

|         | <i>bido</i>               | <i>malayensis</i>          | <i>baweanus</i>             | <i>natunensis</i>           |
|---------|---------------------------|----------------------------|-----------------------------|-----------------------------|
| Wing:   | $\frac{375 - 387}{381}$   | $\frac{365 - 388}{375}$    | $\frac{322 - 340}{328}$     | $\frac{313 - 315}{314}$     |
| Tail:   | $\frac{250 - 265}{254}$   | $\frac{262 - 287}{272.75}$ | $\frac{210 - 215}{213.25}$  | $\frac{206 - 210}{208}$     |
| Culmen: | $\frac{28 - 31.1}{29.78}$ | $\frac{29 - 32}{30.33}$    | $\frac{26.5 - 27.8}{27.10}$ | $\frac{21.5 - 25.5}{23.83}$ |

♀ ♀ Wing, *bido*: 381, 383, 390, 403; *malayensis*: 362, 363; *baweanus*: 333; *natunensis*: 308 mm.

Tail, *bido*: 255, 261, 263, 265; *malayensis*: 227, 264; *baweanus*: 215; *natunensis*: 184 mm.

Culmen, *bido*: 28.5, 30, 30.6, 31.1; *malayensis*: 30, 30.5; *baweanus*: 27; *natunensis*: 26.20 mm.

## Max., min. and average measurements:

|         | <i>bido</i>                 | <i>malayensis</i>         | <i>baweanus</i> | <i>natunensis</i> |
|---------|-----------------------------|---------------------------|-----------------|-------------------|
| Wing:   | $\frac{381 - 403}{389.25}$  | $\frac{362, 363}{362.50}$ | 333             | 308               |
| Tail:   | $\frac{255 - 265}{261}$     | $\frac{227, 264}{245.50}$ | 215             | 184               |
| Culmen: | $\frac{28.5 - 31.1}{30.05}$ | $\frac{30, 30.5}{30.25}$  | 27              | 26.20             |

## Literature:

1. STRESEMANN, ERWIN, Die typische Lokalität von *Spilornis bassus*, Journal für Ornithologie, 100, 1959, p. 355.
2. CHASEN, F. N. Nine new races of Natuna Birds, Bulletin of the Raffles Museum, Singapore, 9, 1934, p. 93.
4. **Some more notes about *Treron griseicauda vordermani* from the Kangean Archipelago and *Treron curvirostra hypothapsina* on account of freshly collected material.**

When seen in a series there is some individual variation in the plumage of birds belonging to *Treron griseicauda vordermani*. Not only the tone of the green of the under parts, but also the markings on the undertail-coverts and their colour vary, they are mixed with reddish brown in nearly all males before me but this colour fails altogether in the female birds: they have the undertail-coverts green mixed with white or creamy yellow. The same picture shows the subspecies *pulverulenta* known from Java, but also *hypothapsina* belonging to the "Rassenkreis" of *curvirostra*. These last birds also do differ only very little from Kangean's *griseicauda vordermani*, but seen in series of representatives of both these species, birds belonging to this last race show more grey on the chin and throat than is the case in *pulverulenta* or in *curvirostra hypothapsina*.

Moreover the green on the under surface of *pulverulenta* averages in being less yellow than in birds belonging to *griseicauda vordermani* or *curvirostra hypothapsina*, which holds good for the males as well as for the females. The markings and the tint on the undertail-quills seem to vary in all three subspecies to the same degree showing about the same pattern: black basal half with a broad, whitish apical band but in *curvirostra hypothapsina* the black is reduced to a band of about 15 mm in the middle of the tail.

Also in the plumage of the upper parts the variation is important especially in the tint of the maroon of the wings and the mantle: some specimens of our fresh material of *vordermani* are nearly just as light

in colour as a skin secured by VORDERMAN so far back as 1892, but other birds are much darker, not different in this respect from *Treron curvirostra hypothapsina* from Klapper-and Trouwers Islands (Indian Ocean, South of West Java) and certain skins of *pulverulenta* from Java, which makes it impossible to consider differences on this behalf as to be of racial significance. Nearly the same can be remarked about the green nuchal collar of *vordermani*, resembling, however, more *pulverulenta* than *hypothapsina*. There is also much variation in the colour on the upper head, but seen in a series the grey is decidedly lighter in *vordermani* than in *hypothapsina* and less blue, more ashy grey than used to be the case in *pulverulenta*. And in *vordermani* this grey extends further downward and covers a larger area on the sides of the head and on the foreneck, in both sexes. Moreover representatives of this last subspecies differ from birds belonging to both other races on account of the much lighter yellowish green tint of the lower back and uppertail-coverts, though one or two skins of *pulverulenta* do not differ on this point from certain representatives of *vordermani*.

In the female birds too the differences looking most stable are those in the extension and the tint of the grey on the pileum and the average colour on the lower back and uppertail-coverts, because the variation in the green on wings and mantle varies to the same degree in all three subspecies but in this respect *vordermani* resembles more *hypothapsina* than *pulverulenta*. There is a rather important difference in the wings, for all 6 female birds of *vordermani* before me have white or nearly white edges on the wing-quills and-coverts, whereas this tint is clear yellow in *pulverulenta* and *curvirostra hypothapsina*; this difference is not present in the males.

On account of the fact that the feathering on the base of the upper mandible does not extend so far in *griseicauda* than used to be the case in *curvirostra*, both these groups were considered as to belong to two different species in stead of subspecies of the same species. But in the structure of the bill *vordermani* seems much closer to *curvirostra* than to *griseicauda* when considering the material now in my hands, because the upper mandible in *vordermani* is heavier (higher) than in *pulverulenta* from Java, especially in the males.

It seems right indeed — as pointed out by STRESEMANN (1) — that in *curvirostra* the black band on the outer tail quills (seen from above) is more strikingly present than in any *pulverulenta*, but that black band is also very distinct in *vordermani* and in several specimens of *pulverulenta* itself, which makes this "character" rather doubtful.

Though I hesitate to impugn the opinion of such outstanding ornithologists as HARTERT and STRESEMANN, when considering the value they attached to the difference in the extension of the feathering on the base of the upper mandible, I like to point out that in too many respects *griseicauda vordermani* resembles much more *curvirostra hypothapsina* than *griseicauda pulverulenta* from Java, most strikingly in the structure of the bill. All differences mentioned by STRESEMANN as to exist between *curvirostra hypothapsina* from Klapper-Island (not *smicra* as was supposed by STRESEMANN) and *griseicauda pulverulenta* from Java are not valid when looking upon *vordermani*; the bill as well as the green colour on chest and belly and the markings on the tail feathers show striking resemblances in the populations from the Klapper-and Trouwers Islands (*Treron curvirostra hypothapsina*) and from Kangean (*Treron griseicauda vordermani*).

With a view on a paper more recently published by MAYR (2) in which the specific differences between birds belonging to the "Rassenkreis" *griseicauda* (with the subsp. *pulverulenta* and *vordermani*) and those of *curvirostra* (with the subspecies *hypothapsina*) are discussed anew it may be of some importance to publish here also the results of a study on my freshly collected material as compared with MAYR's statements. Afterwards HUSAIN (3) did the same as MAYR but I could not study his paper earlier than after my return to the Netherlands which made it impossible to compare the material present at Bogor among which my series of fresh skins from Kangean (*griseicauda vordermani*) and the Klapper-and Trouwers Islands (*curvirostra hypothapsina*) with HUSAIN's conclusions. But certain differences indicated by this author can be discussed below because they do agree with MAYR's information or I can do this on account of my notes made on the living birds or on the skins.

The colour of the cere in *curvirostra* is said to be yellowish (red in the living bird) and red or coral red according to HUSAIN, but our birds, collected on the Klapper-and Trouwers Islands, belonging to the subspecies *hypothapsina* have a black cere (green in the living bird) as is the case in the bill and naked skin around the eyes, but not so dark as in the cere. The undertail-coverts should be cinnamon according to MAYR and cinnamon or chestnut after HUSAIN but in our *hypothapsina* this is only the case in the males and even then only partly, for the smaller coverts are creamy and green as are all the coverts in the female birds.

The wing-bend is said to be maroon in the representatives of *curvirostra* but in all 5 males of *hypothapsina* before me this area is very dark grey, nearly black, somewhat less strikingly in an old skin of the same race coming from Enggano Island (West off Sumatra) and these *hypothap-*

*sina* skins do not show the ochre or vinaceous wash on the entire breast as mentioned by MAYR.

This last author further remarks that the grey of the crown in *griseicauda* extends to the cheeks and sides of the throat and HUSAIN remarks "grey cap reaching the eye, cheek and throat", but in reality the extension of this grey is very variable in the material before me in birds belonging to the subspecies *pulverulenta*, though this character can be accepted for *vordermani*, belonging to the same "Rassenkreis" for in this last race the grey tint covers the sides of the head, throat and foreneck. The subspecies *vordermani* has not a blackish cere (MAYR) or black or blue black according to HUSAIN, for our fresh skins from Kangean (*griseicauda vordermani*) have the cere and also the bill *green*. As remarked already above the undertail-coverts are only cinnamon in the males of *curvirostra* and certainly not only in the representatives of this last "Rassenkreis" for our *vordermani* do not differ much in this respect from *hypothapsina*. And also when looking upon the wing-bend, there is hardly any difference between both these last subspecies, but many *pulverulenta*, belonging to the same "Rassenkreis" as *vordermani*, have the wing-bend distinctly greyer. The ochre vinaceous spot on either sides of the throat is only present in some male birds of *pulverulenta* and then it is perhaps better to speak of the sides of the neck or on the scapulars not on the flanks of the throat. This colour is more distinct in most *vordermani* and not all of them show traces of this colour, but only the males. According to MAYR the black tail-bar is usually fairly broad in *griseicauda*; this character can only be accepted most distinct when comparing the undertail.

MAYR is of opinion that there are objections to combine into a single, polytypic species birds belonging to both these groups, because at various localities two forms of this group co-exist without any signs of interbreeding, which is possibly true for South Sumatra and the Islands in the Sunda Strait, where are supposed to live representatives of both groups together, according to this author. But this statement is not confirmed by any reliable material, so far I do know so that nothing can be said concerning interbreeding. The only representative of *curvirostra* in the neighbourhood of Java is known from the Klapper-and Trouwers Islands in the Indian Ocean, which is a very isolated group of islands about 10 miles from Java, separated by a very rough sea.

Above I tried to make it clear that the characters or character-combinations shown by *griseicauda* and absent in *curvirostra* as seen by the different authors mentioned above are not many, which makes it rather doubtful whether species rank is justified for each of these groups, which

induced SIEBERS and RENSCH already a long time ago to include *griseicauda* into *curvirostra*. The arguments used by STRESEMANN (1) are rather weak and MAYR and HUSAIN's conclusions too are not carried by enough convincing arguments to uphold the present situation and to reject SIEBERS' conception without a critical study of all available material of these interesting pigeons.

#### Measurements:

♂ ♂ Wing, *pulverulenta*: 139, 139, 140, 140, 142, 142, 143, 146, 149; *vordermani*: 148, 154, 156, 158, 160, 160, 162, 164; *curvirostra hypothapsina*: 147, 148, 150, 153, 154 mm.

Tail, *pulverulenta*: 84, 88, 88, 89, 90, 90, 96, 98, 99; *vordermani*: 89, 92, 98, 98, 99, 101, 109; *curvirostra hypothapsina*: 90, 91, 92, 92 mm.

Culmen, *pulverulenta*: 14.8, 15.9, 16, 16, 16.5, 16.7, 16.8, 17.2; *vordermani*: 16.5, 16.5, 17.5, 17.5, 17.5, 17.9, 18; *curvirostra hypothapsina*: 16, 16, 16.5, 17, 17 mm.

#### Max., min. and average measurements:

|         | <i>griseicauda pulverulenta</i> | <i>gr. vordermani</i>      | <i>curv. hypothapsina</i>  |
|---------|---------------------------------|----------------------------|----------------------------|
| Wing:   | $\frac{139 - 149}{142.22}$      | $\frac{148 - 164}{157.75}$ | $\frac{147 - 154}{150.40}$ |
| Tail:   | $\frac{84 - 99}{91.33}$         | $\frac{89 - 109}{98}$      | $\frac{90 - 92}{91.25}$    |
| Culmen: | $\frac{14.8 - 17.2}{16.24}$     | $\frac{16.5 - 18}{17.36}$  | $\frac{16 - 17}{16.50}$    |

♀ ♀ Wing, *pulverulenta*: 135, 139, 139, 140; *vordermani*: 152, 153, 156, 156, 158, 158; *curvirostra hypothapsina*: 139, 147, 147, 148, 150, 153 mm.

Tail, *pulverulenta*: 83, 88; *vordermani*: 90, 94, 95, 98, 100, 100; *curvirostra hypothapsina*: 83, 86, 88, 92 mm.

Culmen, *pulverulenta*: 16.5, 16.7, 16.8, 17.1; *vordermani*: 16.2, 16.2, 17, 17, 17.1, 17.5; *curvirostra hypothapsina*: 15.5, 15.8, 16, 16, 16, 16.2 mm.

#### Max., min. and average measurements:

|         | <i>griseicauda pulverulenta</i> | <i>gris. vordermani</i>     | <i>curv. hypothapsina</i>   |
|---------|---------------------------------|-----------------------------|-----------------------------|
| Wing:   | $\frac{135 - 140}{138.25}$      | $\frac{152 - 158}{155.50}$  | $\frac{139 - 153}{147.33}$  |
| Tail:   | $\frac{83, 88}{85.50}$          | $\frac{90 - 100}{96.17}$    | $\frac{83 - 92}{87.25}$     |
| Culmen: | $\frac{16.5 - 17.1}{16.78}$     | $\frac{16.2 - 17.5}{16.83}$ | $\frac{15.5 - 16.2}{15.92}$ |

## Literature:

1. STRESEMANN, ERW. *Treron curvirostra*, eine für Java neue Art, Ornithologische Monatsberichte, 42, 1934, p. 148/9.
2. MAYR, ERNST. The birds of Timor and Sumba; The species of the *Treron curvirostra* — *pompadora* group, Bulletin American Museum Natural History, New York, 83, 1944, p. 146/7.
3. HUSAIN, K. Z. Subdivisions and zoögeography of the genus *Treron* (Green fruit pigeons), Ibis, 100, 1958, p. 334/48.
5. About *Treron curvirostra*, especially the subspecies living on the Klapper-and Trouwers-Islands off Java's Southcoast.

As one of the most unaccountable publications in the field of taxonomical ornithology must be considered OBERHOLSER's paper published in 1912 (1) in which he described as new 104 species and subspecies of birds from the Barussan Islands and Sumatra. This author not only omitted the measurements of the birds he described as new to science but nor did he give satisfying colour-descriptions in his very short diagnosis either, and last but not least he did not say a word about the number of skins he studied besides his type.

This is also the case with the 4 new subspecies of *Treron curvirostra*, mentioned on p. 3—4 of that paper, originating from the islands Enggano, Batu, Nias and Simalur, all off Sumatra's Westcoast.

As the difference between *smicra* and *hypothapsina* OBERHOLSER mentioned the smaller size of birds belonging to the first race, which also should have darker and more greenish under parts. But from the measurements found by me the difference in size seems not to be of subspecific importance. Measurements taken by other authors (see below) indeed point to the somewhat smaller size of *smicra*, when compared with *hypothapsina*, so that the subspecies may be valid on account of this character. The males of *smicra* studied by me — however — are not darker as pointed out by OBERHOLSER, but much lighter, more yellowish below than is the case in *hypothapsina*.

About *pega* OBERHOLSER's diagnosis tells us that birds belonging to this race are lighter, less yellowish and more greyish on the under surface and that they are larger in size than *nasica*. But MAYR (2) as well as MEYER DE SCHAUSENSEE and RIPLEY (3) made it clear that also in this case there hardly exists any important size-difference. The subspecies *haliploa*, finally, is said to resemble *pega*, but the male bird should have much more yellow below, less greyish. But the diagnosis does not say on which points *haliploa* does differ from *nasica*, though this last subspecies should be also more yellow, less greyish than *pega*.

The material of *Treron curvirostra* discussed by JUNGE (4) originating from Enggano Island (Sumatra's Westcoast) which according to OBERHOLSER should belong to the subspecies *hypothapsina* was compared by that author with birds of the typical race and with *haliploa* from Simalur, with which Enggano birds agree in size. As a result JUNGE calls attention for some differences in the colour of the plumage, but it is to be regretted that he did not compare his material with *smicra*, known from Siberut and Sipora (also off Sumatra's Westcoast), in size similar to birds of Enggano and Simalur, which induced STRESEMANN (5) to include also Klapper-Island (India Ocean, off Java's Southcoast) into the range of *smicra*. May be the difference between *smicra* and *hypothapsina* is still smaller than between this last race and *haliploa*. Both male birds of *smicra* studied by me do vary more individually than they differ from *hypothapsina*, but these *smicra* skins were obtained as far back as 1924 and from the island of Enggano we only have a single bird at our disposal, shot in 1936.

Comparing our recently collected material from Klapper-and Trouwers-Islands with these old *smicra* skins, one of them is somewhat yellower on the under parts and the occiput in both *smicra* is lighter, also when comparing them with the only Enggano male we have. Lack of enough material makes it impossible to me to conclude whether *smicra* really differs in plumage from *hypothapsina* or not.

When studying birds from Klapper-and Trouwers-Islands with the scanty Enggano material before me, it is difficult to point to any important colour-difference between both populations, but we have only 4 male and 4 female birds from those West-Java islands and the skins are not very beautiful. Perhaps the green on the back, the uppertail-coverts, the sides of the neck and the shoulder-region averages darker in birds from Klapper-and Trouwers-Islands and the yellow on the lower under parts may average in being a trifle less clear than seems to be the case in birds originating from Enggano.

Looking upon the females there seems to be more difference in the green of the upper surface between both Enggano birds than between the darkest of these 2 skins and the 4 females of Klapper-and Trouwers-Islands. One Enggano bird is much lighter (more yellowish) green than the second one from the same locality and the 4 females from the 2 other islands.

Also on the under parts there are no differences of subspecific value and on those parts too the difference between both Enggano birds is larger than that between the darkest Enggano skin and the females of Klapper-and Trouwers-Islands.

The gonads of all these birds were about equally developed: small, not or hardly granular.

There is — however — one thing which makes birds originating from West-Java different from those of all other localities, viz. the heavier bill. The bill is not only somewhat longer but especially higher, that is to say the distance between the lowest point of the under mandible and the base of the culmen averages more than one mm larger than in the birds from Enggano and about the same difference can be established when comparing West-Java birds with those of the other subspecies, though not always to the same degree. And it is more obvious than can be expressed in figures.

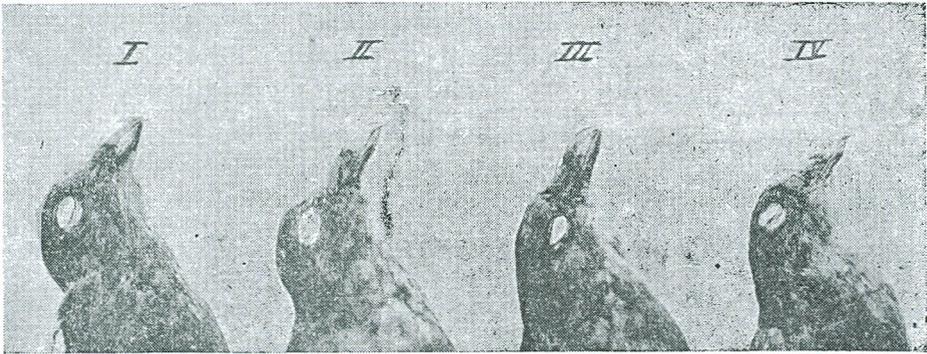


Fig. IV. *Treron curvirostra hypothapsina*.

- I. Male from Klapper Island (Indian Ocean); heavy bill
- II. " " Enggano (Sumatra's Westcoast)
- III. Female from Klapper Island; heavy bill
- IV. " " Enggano

Nevertheless I do not think this difference in bill-size — which perhaps goes together with a somewhat larger wing in the birds of the Klapper-and Trouwers-Islands — of enough importance to separate West-Java birds, not only because I could not examine enough material to decide but also because of the fact the species makes the impression to be oversplit already. I therefore include the Klapper-and Trouwers-Islands within the range of *hypothapsina*.

*Treron curvirostra* was obtained for the first time from Klapper Island not earlier than in 1932 (See STRESEMANN (5)). As wing-length of both birds, originating from this island, examined by STRESEMANN, he found 150 mm which measurements cover those mentioned below for my birds. With a view on differences found by CHASEN and BODEN KLOSS (6) between birds coming from Siberut and Sipora known as *smicra* and those belonging to the typical race living on Malaya, Sumatra and Borneo, STRESEMANN pro-

posed to include the birds from West-Java's Klapper Island into the subspecies *smicra*, however, without having seen an actual skin of this subspecies. To me it seems rather strange why this author did not pay any attention to *hypothapsina*, which was described by OBERHOLSER already as far back as 1912 from the island of Enggano, thus from a territory situated between the terra typica of *smicra* and Klapper Island.

A male bird, kindly sent me by Prof. STRESEMANN, which was obtained at Klapper Island in 1932 — the same one as mentioned in his 1934 paper — slightly differs from freshly collected males from the same locality and from nearby Trouwers-Island in being lighter on the crown and lighter green on the nuchal area. In this respect this old skin differs also from a male obtained on the island of Enggano in 1936, which in the colour of the wings and the upper parts closely resembles fresh skins from Klapper-and Trouwers-Islands.

Both *smicra* males collected in 1924 on Sipora and Siberut, differ at a glance from the 1932 male bird of Klapper Island owing to the lighter green on the nuchal area and the less bluish in the grey colour of the crown. Also the uppertail-coverts average in being somewhat lighter green in *smicra* which also has the reddish colour on the mantle and wing-coverts lighter, clearer.

On the under parts the 1932 male from Klapper Island is a trifle lighter than freshly obtained skins and also when compared with a male collected in 1936 on Enggano. But the difference in this respect is very striking when comparing the male from Klapper Island with old *smicra* males which have much more yellow in the green of the under surface, as pointed out already above.

The female bird, which Prof. STRESEMANN sent me, collected on the same date and locality as the male, is lighter above than all 4 females which were recently obtained by me at the same place, but considering the important difference in this respect between 2 females collected in 1936 on Enggano Island — which I discussed already above — it is not justified to pay too much attention to such differences.

On the under parts the female from Klapper Island differs in the same respect as does the male: it is a trifle lighter than freshly obtained birds, but nearly exactly agrees with females collected on Enggano in 1936, which — however — show more yellow on the belly and the undertail-coverts. This difference seems to have no subspecific value in this species because fresh specimens from the same locality do differ to the same degree.

I have no female bird of *smicra* at my disposal so that comparison with this subspecies was impossible, but nevertheless I do not hesitate to classify this 1932 Klapper Island female also as *hypothapsina*. These 2 birds from that island show the somewhat heavier bill too — though less distinctly than in our fresh skins —; in older skins this difference may become less striking.

Both these birds — the same as mentioned by STRESEMANN in his 1934 paper (5) — do not only agree with *hypothapsina* from Enggano in the colour of the plumage but also in size, for they have wings of 151 (♂) and 149 (♀) mm, a tail of 100 and 92 mm, which is larger than *smicra* uses to measure.

The examination of this material confirms our conclusion, made on account of our fresh material that Klapper-and Trouwers-Islands must be included into the range of the subspecies *hypothapsina*.

CHASEN (7) suggested that *Treron curvirostra* originating from Billiton Island might be separated from the typical form because of its larger size. When studied the Billiton-material present in the Bogor Museum — among which, I suppose, are the birds examined by CHASEN — I found also a somewhat larger size of such birds and moreover certain colour differences not mentioned by CHASEN, when I compared those Billiton birds collected in 1881, 1935 and 1937 with some skins from South Sumatra, obtained in 1921 and 1933. Billiton birds are lighter, clearer green below, most conspicuous on the chest, making the impression of being intermediate between the 2 males of the typical race before me and 2 males of *smicra*, which are — as is the case with (old) Enggano material and (fresh) birds from Klapper-and Trouwers-Islands — much warmer greenish yellow on the under parts. On the upper surface Billiton birds do differ too from skins coming from South Sumatra because of the nuchal collar being lighter green and the lighter gray of the occiput, though this area is much clearer bluish gray than in *smicra* of 1924 in which this colour is of quite another tone.

Not only both males, but also the 2 female birds from South Sumatra show the differences on the under parts very obviously when they are compared with the Billiton material, but the same reason which prevents me to separate *Treron curvirostra* from Klapper-and Trouwers-Islands retains me to propose a new name for Billiton's population of this pigeon.

The differences between birds of the nominate race, living in South Sumatra and on Billiton Island on one hand and those to be considered as to belong to *hypothapsina*, originating from Enggano and Klapper-and Trouwers-Islands on the other hand, are very striking: *hypothapsina* has a fresh yellowish green tone in the under parts instead of the dull greenish

colour in birds belonging to the typical race, which also have the yellow tone on the belly and undertail-coverts of *hypothapsina* replaced by white. Moreover there is an important difference in the gray on the flanks of the body, which is much duller in *hypothapsina* and much less conspicuous than is the case in *curvirostra*.

When comparing the upper parts of the males the differences are less conspicuous, though *curvirostra* may have the occiput somewhat darker. The naked area around the eye is much larger in birds of the typical race which makes them at once distinct from all other subspecies seen by me.

On the under surface the females differ in about the same way as do the males, but the plumage of the upper parts is darker in *hypothapsina* than is the case in *curvirostra* from South Sumatra, most distinct on the occiput. I fail to see any difference between a female of *nasica* and females of the typical subspecies but the occiput of *nasica* seems a trifle clearer gray, so that *nasica* may be called a very "thin" race which caused DE SCHAUENSEE and RIPLEY (3) to consider *nasica* as synonymous with the typical form, though MAYR (2) seems not to have the same opinion.

In the Auk, vol. 67, STRESEMANN (8) makes the — for me astonishing — statement that Princes Island (Pulau Panaitan, situated off Java's North-west-coast) must be considered as the terra typica of *Treron c. curvirostra*. As a consequence of this West-Java cannot be seen any longer as to be situated within the range of *smicra* but should be looked upon as the terra typica of the typical race. As a further consequence STRESEMANN proposes to give a new name to the birds hitherto known as *Treron c. curvirostra*, viz. *Treron curvirostra chaseni* with as its terra typica Selangor: Rawang, up till now known as the terra typica of the typical form.

Owing to these proposed important alterations, STRESEMANN confronts us with a rather strange situation because of the fact Enggano Island is inhabited by the subspecies *hypothapsina*, which is confirmed by JUNGE (4), CHASEN (9) and DILLON RIPLEY (10) and is also accepted by PETERS (11), with which birds from Klapper-and Trouwers-Islands may be considered as identical. But the Batu Islands, north of Enggano and Princes Island in West-Java, south of Enggano, should be included into the range of the typical form instead of *smicra*.

Though the situation should be less complicated when STRESEMANN had united his West-Java (Klapper Island) birds in 1934 with Enggano's *hypothapsina* and not with *smicra*, even than the question could not be solved satisfactorily because the presence of any *Treron curvirostra* on Princes Island may be seriously doubted. . . .

In a paper very recently published in the Bulletin of the British Ornithologists' Club <sup>1)</sup>, I asked special attention for the said publication of Prof. STRESEMANN, because I am of opinion that the 7 bird-species which — according to that author — should originate from Princes Island very probably do not come from this locality, for 3 of them — among which *Treron curvirostra* — do not occur there at all.

Therefore I may suggest to consider very critically all particulars concerning Princes Island, STRESEMANN gives us in the paper mentioned above and to omit all alterations in nomenclature so far they have to do with birdspecies not known from this island from other sources than that mentioned by Prof. STRESEMANN's paper in *The Auk*.

Apart from this a revision of the species seems very useful and must be seen as the only way to reach a more satisfactory situation than to-day's picture does allow us. To prove this was one of the reasons leading to the writing of these notes.

#### Measurements:

♂ ♂ Wing, *curvirostra*: 131, 133, 134, 142, 144, 144; *hypothapsina* (Enggano): 147; *hypothapsina* (Klapper-and Trouwers-Islands): 148, 150, 153, 154; *smicra*: 145, 150 mm.

Tail, *curvirostra*: 74, 75, 82, 84, 85 ?, 90; *hypothapsina* (Enggano): 92; *hypothapsina* (Klapper-and Trouwers-Islands): 90, 91, 92; *smicra*: 85, 90 mm.

Culmen, *curvirostra*: 15.5, 16, 16.2, 16.2, 16.5, 17; *hypothapsina* (Enggano): 16.5; *hypothapsina* (Klapper-and Trouwers-Islands): 16, 16, 17, 17; *smicra*: 16.8, 16.9 mm.

Height of culmen, *curvirostra*: 7.5, 8, 8.2, 8.2, 8.5, 9; *hypothapsina* (Enggano): 8.1; *hypothapsina* (Klapper-and Trouwers-Islands): 9.5, 9.5, 9.8, 9.8; *smicra*: 8.4, 8.9 mm.

#### Max., min. and average measurements:

|                      | <i>curvirostra</i>        | <i>hypothapsina</i><br>(Enggano) | <i>hypothapsina</i><br>(Klapper-and Tr. Isl.) | <i>smicra</i>              |
|----------------------|---------------------------|----------------------------------|---|----------------------------|
| Wing:                | $\frac{131 - 144}{138}$   | 147                              | $\frac{148 - 154}{151.25}$                    | $\frac{145; 150}{149.50}$  |
| Tail:                | $\frac{74 - 90}{81.67}$   | 92                               | $\frac{90 - 92}{91}$                          | $\frac{85; 90}{87.50}$     |
| Culmen:              | $\frac{15.5 - 17}{16.23}$ | 16.50                            | $\frac{16 - 17}{16.50}$                       | $\frac{16.8; 16.9}{16.85}$ |
| Height of<br>culmen: | $\frac{7.5 - 9}{8.23}$    | 8.10                             | $\frac{9.5 - 9.8}{9.65}$                      | $\frac{8.4; 8.9}{8.65}$    |

<sup>1)</sup> Bulletin of the British Ornithologists' Club, Vol. 82, no. 8, November 1962, pp. 142-154.

♀ ♀ Wing, *curvirostra*: 127, 131; *hypothapsina* (Enggano): 139, 150; *hypothapsina* (Klapper-and Trouwers-Islands): 147, 147, 148, 153; *nasica*: 132 mm.

Tail, *curvirostra*: 74, 77; *hypothapsina* (Enggano): 83, 88; *hypothapsina* (Klapper-and Trouwers-Islands): 86, 92; *nasica*: 74 mm.

Culmen, *curvirostra*: 15, 15.5; *hypothapsina* (Enggano): 16, 16.2; *hypothapsina* (Klapper-and Trouwers-Islands): 15.5, 15.8, 16, 16; *nasica*: 14.5 mm.

Height of culmen, *curvirostra*: 7.5, 7.8; *hypothapsina* (Enggano): 7.7, 9; *hypothapsina* (Klapper-and Trouwers-Islands): 8, 8, 8.2, 8.8; *nasica*: 8 mm.

Max., min. and average measurements:

|                      | <i>curvirostra</i>       | <i>hypothapsina</i><br>(Enggano) | <i>hypothapsina</i><br>(Klapper-and Tr. Isl.) | <i>nasica</i> |
|----------------------|--------------------------|----------------------------------|---|---------------|
| Wing:                | $\frac{127, 131}{129}$   | $\frac{139, 150}{144.50}$        | $\frac{147 - 153}{148.75}$                    | 132           |
| Tail:                | $\frac{74, 77}{75.50}$   | $\frac{83, 88}{85.50}$           | $\frac{86, 92}{89}$                           | 74            |
| Culmen:              | $\frac{15, 15.5}{15.25}$ | $\frac{16, 16.2}{16.10}$         | $\frac{15.5 - 16}{15.83}$                     | 14.50         |
| Height of<br>culmen: | $\frac{7.5, 7.8}{7.65}$  | $\frac{7.7, 9}{8.35}$            | $\frac{8 - 8.8}{8.25}$                        | 8             |

Measurements from literature:

|         | <i>curvirostra</i>                             | <i>hypothapsina</i>   | <i>smicra</i>   | <i>pega</i>   | <i>nasica</i>           | <i>haliploa</i>                            |
|---------|--|---|---|---|-------------------------|--|
| Wing:   | 127 — 138<br>(Chasen &<br>Boden Kloss<br>(6))  | $\frac{145 - 152}{149}$ (3♂)<br>$\frac{138 - 151}{145}$ (4♀)<br>(Junge (4)) |   | 136 (♂)<br>137.5 (♀)<br>(de Schauensee<br>& Ripley (3)) |                         | $\frac{146 - 151}{149}$ (4♂)<br>(Junge)    |
|         | 127 — 140<br>(Stresemann (5))                  |   |   |   | 127 — 133<br>(Mayr (2)) |  |
|         | 125 — 135 (7♂)<br>126, 135 (2♀)<br>(Junge (4)) |   | 144 — 147 (♂♂)<br>139.5 — 146 (♀♀)<br>(de Schauensee<br>& Ripley (3)) |   |                         |  |
| Tail:   | 74 — 83 (7♂)<br>72, 80 (2♀)<br>(Junge (4))     | $\frac{82 - 89}{84.67}$ (3♂)<br>$\frac{82 - 88}{84}$ (4♀)<br>(Junge (4))    |   |   |                         | $\frac{90 - 94}{92.33}$ (4♂)<br>(Junge)    |
| Culmen: | 13 — 15 (7♂)                                   | $\frac{16.5 - 17}{16.83}$ (3♂)  |   |   |                         | $\frac{16 - 17.50}{16.50}$ (4♂)<br>(Junge) |
|         | 14, 14 (2♀)<br>(Junge (4))                     | $\frac{15 - 16.5}{15.63}$ (4♀)<br>(Junge (4))                               |   |   |                         |  |

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#### 6. On a small series of *Cuculus saturatus* from the Karimundjawa Islands.

As is the case in nearly all species belonging to this genus the plumage, especially that of the under parts, varies considerably which — for the greater part — may be caused by age-differences.

The species shows some resemblance with *Cuculus poliocephalus*, but it is much larger, not only when looking upon the wing-size but also when considering the bill; *saturatus* is smaller than *canorus* and *micropterus* shows quite different markings on the tail.

Also among the 10 birds obtained by me on the Karimundjawa Islands during a collecting-trip of about 6 weeks in October and November 1955, there is much individual variation: only 2 males show the chin, throat and foreneck bluish grey for the greater part, mixed — however — with brownish white bars. A third male has less blue grey on those parts, showing many bars, whereas in both remaining male birds the slate colour fails nearly altogether or is absent, replaced by a more or less uniform umberbrown or by dark bars. A certain immature bird in our series has much blue grey on the chin, throat and foreneck and in other respects too this specimen wears the adult plumage with some traces of the juvenile feathering on the mantle and wings.

All 3 females originating from the same locality seem not yet quite adult and one of them shows the rusty-brown phase with dark bars on chin, throat and foreneck on a ferruginous brown ground-colour; the remaining under parts do not differ in colour from the adults. A second one is rather similar with the semi-adult male described above but it has less slate grey on the chin, throat and foreneck, whereas the third female is distinctly barred on all under parts though a trifle darker on the chin etc.

All these females and the immature male have also dark bars on the undertail-coverts, but the remaining, perhaps older, birds show those markings hardly or not at all.

On the upper parts too the individual variation is important, but less striking than on the under surface. Also when looking upon those parts it seems evident that there is not a single fully adult bird among the fresh Karimundjawa material, for 2 specimens have no blue grey at all on the upper parts and in 4 birds this colour is intensively washed with brown whereas there is a varying amount of narrow, light edges on the mantle and the wing-coverts. It seems rather strange that a certain juvenile — also when looking upon the measurements — has much blue grey on the upper parts, shows only a few mantle feathers with light edges, but has true juvenile wings with many buffy brown markings. It resembles a juvenile female of small size, which — however — has more white edges to the wing-coverts and smaller quills but shows the ferruginous wing markings much less distinct. Both other females differ also extremely, but they do agree with museum-material of old date as is the case in all other fresh birds from Karimundjawa, excepted these 2 juveniles. Among the old material (13 skins) there is only one specimen, obtained in March near Bogor, showing the rusty-brown phase. Such birds resemble certain specimens of the smaller *Cacomantis variolosus* because the upper parts and wings are covered with reddish brown and black bars.

On account of the large wing-size of adult male birds (197 — 207 mm) and one female (191) I do not hesitate to classify most Karimundjawa birds as *Cuculus saturatus horsfieldi* in accordance with JUNGE (1). But 3 juveniles with a wing-size of only 160-165 mm and a male in nearly adult plumage, having a wing of no larger than 174 mm, can hardly be included into *horsfieldi*; they belong perhaps to the nominate race, because MAYR (2) is of opinion that small birds (wings less than 190 mm) may perhaps be seen as winter-visitors of the subspecies *saturatus* (See also

MAYR (3)). But I think it better not to classify these 4 birds, though with a view on the range indicated by MAYR, it may not be excluded that representatives of both these subspecies (*horsfieldi* and *saturatus*) should join when on migration and may occur simultaneously in exactly the same locality.

These 4 birds have the Bogor-Museum no's 24121 (juv. ♂), 24122 (♂ adult), 24118 (juv. ♀) and 24123 (juv. ♀).

When MAYR's opinion is right and all representatives of this species with a wing-length below 190 mm should belong to the subspecies *saturatus*, there should be only one (mentioned above already) which might be seen as *horsfieldi* among all (8) female birds present in Bogor's Museum and this last specimen too surpasses MAYR's minimum for the wing-size of *horsfieldi* by one milimeter only. Because females average smaller in wing-and tail-measurements it may be suggested that this minimum lies too high so far it concerns the female birds. Otherwise one may wonder that among the 20 specimens measured by me there are no less than 10 males with a wing exceeding 190 mm and only 1 female having a wing of 191 mm. Whether the measured birds were adult or immature seems of little importance because many males of apparently the same age-class have much larger wings than the minimum indicated by MAYR. I hope to return to the subject later after having studied the material of this cuckoo present in the BARTELS-collection.

Of all birds originating from the Karimundjawa Archipelago studied by me, the third primary is longest and the difference in length between this one and the 10th primary amounts to 80, 87, 87, 91 and 93 mm in the males and in one female 72 and in the small adult male 76 mm; for the juveniles these figures are 61, 63 and 68 mm and also in these specimens the third primary is longest.

Though there is rather much variation in size, especially in the bill in which the length differs 3 mm in only 5 males of *horsfieldi* from Karimundjawa it cannot be doubted that our fresh material from these islands fits well in the measurements of this race, excepted those 4 birds discussed above, which have decidedly a too short wing.

The gonads of all these freshly collected birds were small.

DELACOUR's Malaysian Birds calls *Cuculus saturatus* a rare winter-visitor to Indonesia but there are 13 specimens in the Bogor-collection, among which 6 from the surroundings of Bogor only and there are many more in the BARTELS-collection. I myself secured 10 specimens on the Karimundjawa Islands and I could have shot 20 more if necessary.

## Measurements:

♂ ♂ Wing, *horsfieldi* (Indonesia, excepted Karimundjawa Islands): 193, 196, 198, 201, 209; *horsfieldi* (Karimundjawa Islands): 197, 198, 201, 202, 207 mm.

Tail, *horsfieldi* (Indonesia, excepted Karimundjawa Islands): 151, 155, 155, 156, 168; *horsfieldi* (Karimundjawa Islands): 153, 156, 160, 169 mm.

Culmen, *horsfieldi* (Indonesia excepted Karimundjawa Islands): 18, 18.8, 19, 19, 20.1; *horsfieldi* (Karimundjawa Islands): 16.3, 17, 17.5 18.8, 19.2 mm.

## Max., min. and average measurements:

|           | <i>Indonesia, not Karimundjawa</i> | <i>Karimundjawa</i>         |
|-----------|------------------------------------|-----------------------------|
| Wing:     | $\frac{193 - 209}{199.40}$         | $\frac{197 - 207}{201}$     |
| Tail:     | $\frac{151 - 168}{157}$            | $\frac{153 - 169}{159.50}$  |
| Culmen:   | $\frac{18 - 20.1}{18.98}$          | $\frac{16.3 - 19.2}{17.76}$ |
| 1 ♀ Wing: |                                    | 191                         |
| Tail:     |                                    | 158                         |
| Culmen:   |                                    | 18                          |

♀ ♀ Wing, *saturatus* subsp. (from Indonesia, excepted Karimundjawa Islands): 175, 179, 186, 188, 189; *saturatus* subsp. (Karimundjawa Islands): 162, 165 mm.

Tail, *saturatus* subsp. (Indonesia, excepted Karimundjawa Islands): 143, 147, 151, 152, 154; *saturatus* subsp. (Karimundjawa Islands): 137, 138 mm.

Culmen, *saturatus* subsp. (Indonesia, excepted Karimundjawa Islands): 16.7, 18, 18.5, 18.9, 21; *saturatus* subsp. (Karimundjawa): 17.2 mm.

## Max., min. and average measurements:

|         | <i>Indonesia, not Karimundjawa</i> | <i>Karimundjawa</i>        |
|---------|------------------------------------|----------------------------|
| Wing:   | $\frac{175 - 189}{183.40}$         | $\frac{162, 165}{163.50}$  |
|         |                                    | semi ad. ♂ : 174           |
|         |                                    | juv. ♂ : 160               |
| Tail:   | $\frac{143 - 154}{149.40}$         | $\frac{137 - 138}{137.50}$ |
|         |                                    | semi ad. ♂ : .....         |
|         |                                    | juv. ♂ : 140               |
| Culmen: | $\frac{16.7 - 21}{18.62}$          | 17.20                      |
|         |                                    | semi ad. ♂ : 20            |
|         |                                    | juv. ♂ : 19.50             |

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